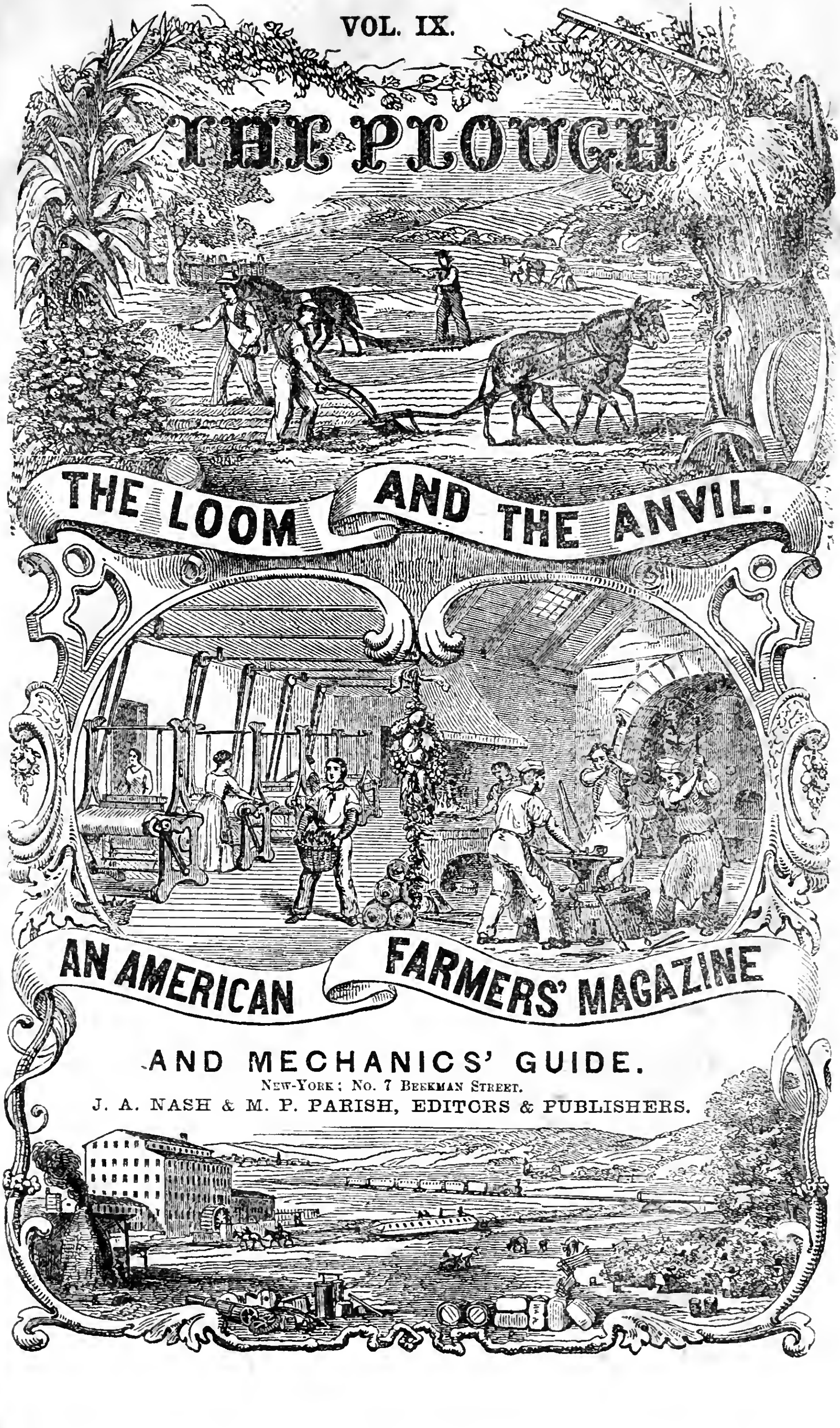
VOL. IX.
THE PLOUGH
THE LOOM AND THE ANVIL.
AN AMERICAN FARMERS' MAGAZINE
AND MECHANICS' GUIDE.
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J. A. NASH & M. P. PARISH, EDITORS & PUBLISHERS.

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JOHN A. GRAY,
Printer and Stereotyper,
Nos. 16 & 18 Jacob Street, N. Y.

The Plough, the Loom, and the Anvil.

Vol. IX. JULY, 1856. No. 1.

TO ALL WHOM IT CONCERNS.

Our readers will remember the circular attached to our June number, referring to certain proposed improvements in the appearance and management of this Journal. We are very happy to announce that these arrangements are now completed. We had hoped that they would have been made so seasonably that our readers would have the full benefit of them in this number. In this we are but partially successful. But so far as typography and other kindred matters are concerned, the evidence is complete in the improved appearance of the pages now before the reader. We are also very happy to announce that this Journal will hereafter be conducted under the joint editorship of Prof. J. A. Nash and ourself.

Mr. Nash's connection with us we hail as a very important event, that cannot fail to be perfectly satisfactory to ourself and to our readers. A gentleman of great practical experience, of extensive and careful observation, in this country and in Europe, an able expounder of true agricultural science, and of high and general cultivation, well known as a writer in our best periodicals, and as an author, we know of no man more likely to instruct and gratify our readers. We are also happy to say that he is patriotic in his principles, has ever labored to elevate and promote all forms of American industry, and that he entirely sympathises with ourself in all our notions, and principles, and theories, touching the prosperity of our agriculture, manufactures, and the useful arts. He is our senior in years and in experience, and we have no hesitation in yielding to him seniority of place in the editor's chair, and in the office of publication, which we have occupied alone, in fact, for some four years. We hope we shall personally lose nothing of the confidence and respect of our many friends and patrons by offering them another candidate, in every way worthy of the same confidence and respect which has rendered so pleasant the laborious duties required in the management of this Journal. We ask for his and our united labors the kind consideration of all the friends of American industry.

M. P. PARISH.

TRUE INDEPENDENCE.

The more we look into the details of the industry of the Northern and Eastern States, the more we are induced to admire the practical sense, the wisdom and energy which devised and executed a system so life-creating and so self-sustaining. It seems the very impersonation of the Genius of independence, and the only possible form of independence. It is not possible for one man to be independent. He may be as rich as Crœsus, and with the first twinge of a decayed tooth he will cry for help from "abroad." One may be skilled in law or commerce, etc., but he is utterly dependent on his poorer neighbors for the first dollar of his income.

A Community of Agriculture and the Arts alone can form an independent society, and that is the highest and most perfect form of social organism, which secures this independence to the smallest number of persons and over the smallest extent of territory.

A collection of mere farmers is almost and even altogether as dependent as a collection of mere artisans. They require, daily, something besides the products of their own lands. So, merely manufacturing communities cannot exist without help. But look at New-England, and note the multitude of products which she constantly furnishes to the markets of this and other countries. Their resources seem to be exhaustless in their variety and possible extent. Little villages often produce more for the markets than some whole States, and in many a county, were half the crops to fail and half the other sources of industry ruined, there would be but little suffering, and that little but temporary. Such is the familiarity of the people with various employments that no sooner is one source of income cut off, than they open another with scarcely any inconvenience. If a man does not find employment on a farm, he goes into a shoe-shop. If ship-building is dull, the mechanic employs himself in some other craft. Many a man lives on the sea, and catches fish half the year or more, and works in-doors the other half.

This, we repeat it, is true independence, and the highest kind possible in any community. Wealth cannot secure such independence. Rich men are most emphatically dependent. Literary distinctions cannot make a people independent, nor even science, though the latter is essential in making efficient systems, and in adapting them to the various exigencies of the times. High cultivation is scarcely an element of independence, and sometimes presents obstacles to it. It rather consists in a general diffusion of practical wisdom, than in any high individual attainments. This is the distinctive feature of our times, compared with antiquity. It is what renders our communities more reliable in great crises, and more trustworthy at all times than the people of the middle ages. Learned men have always existed. Literature and the fine arts have gained in nothing but diffusion during the later centuries. Even practical mechanics can scarcely boast of higher achievements now, than in the days of Archimedes. Any invention comparable to those immense machines with which he defended his native city, would add much to the renown of the greatest of our military engineers.

Now it is obvious that this facility in opening new and various channels of industry is possible only where the people are already familiar with them. Though not particularly skilled in the practices in question, each one understands something of their general mode of management; they all have been familiar with many of the practical details, and have had perhaps some little personal experience in these pursuits. At least they are very far from being entire strangers to them. But place a "green hand" from some purely agricultural district into a machine-shop, or into a ship-yard, or a factory or even a shoe-shop, and how awkward he will be. He would scarcely know whether to begin at the carding machine or at the loom, at the forge or at the lathe.

This diversity in trades exerts a greater influence than anything else to produce practical talent in any department of labor.

This we have lately illustrated by the number of mechanical inventions originated in such communities. Our lists of patents show where inventive skill can be found, and proclaim with trumpet tongue the immense practical importance of the truth we are trying to impress upon the minds of our readers.

Yet there are those who would shut up our machine shops, and close our factories, and convert all our population into laborers on the farm or into gentlemen of leisure. They would continue to do as this great nation is now doing, buy the very flags which float on our "liberty poles" and over the ships of our "gallant navy." Such men should see to it that an article is inserted in our treaty with Great Britain, to the effect that if, in a war, they should shoot down these flags, they will sell us others to fill their places.

A community skilled only in one pursuit cannot, in the nature of things, be efficient in anything. If they have wealth, they will by-and-by become poor. They will not even retain, very long, the more superficial and external accomplishments which are so often their highest boast. Their sensibility will become sensuality; and their tastes, though ever so refined, will become gross. We appeal to facts, in all countries and in all times.

PROTECTION TO FARMS.

FROM A LETTER OF CHARLES DOWNING, OF NEWBURG, NEW-YORK, TO THE EDITOR OF THE TRANSACTIONS OF THE ILLINOIS AGRICULTURAL SOCIETY.

When I saw the prairie land for the first time, it struck me very forcibly, and I have often thought of it since, how much more comfortable the inhabitants might be if they would plant hedges or wide belts of trees to screen them from cold winter winds, and also be a protection to their crops, especially fruit. If each owner of one or two hundred acres of land would plant their boundaries or division lines with belts of trees, say from twenty to one hundred feet wide, they would find it to their advantage and comfort.

Besides the protection, the trees would in a few years, when large enough to thin out, be valuable for firewood or timber. An objector might say, "It would be very expensive to procure and plant such wide belts of trees." To such I would reply, that many kinds, one year old (which is large enough), could be imported very cheap from the English and French nurseries by the 1000, such as elms, ash, maples, beech, birch, linden, larch, alder, &c. Agents in New-York city would order them on application.

The ground should be ploughed a year previous to planting, and well worked through the summer, with or without a crop, as most convenient. The following spring put in plants from three to six feet apart; those which make largest growth, such as elms, &c., plant on the back line, and so on with the different sizes, so as to have the lowest growing kind inside or front; the last or inside row it would be well to plant with evergreens, say Norway spruce, because it is a faster grower than evergreens generally, and small plants can be obtained cheap.

Osage orange, locust, and chestnut, being fast growers, would be desirable to mix with the above-named kinds.

Another plan would be to procure seeds of any of the fast growing kinds of trees, grow them in beds in the garden one year, and then transplant them in the belts or screens. But there would be failures and disappointments, and it might not prove as cheap and satisfactory as to import them.

But the quickest mode of obtaining a screen for protection would be to procure cuttings of some of the free and strong growing varieties of the willow, such as Salix triandra, S. Beveridgii, S. Purpurea, etc., which grows from forty to sixty and seventy feet high, and very rapidly, too, in a deep moist soil, and very suitable, no doubt, to much of the prairie land. This, however, would not be so valuable for general purposes, when grown, as elm, maple, etc.; but would make its growth in about half the time.

For profit and quick growth combined, there is nothing probably equal to the common yellow locust (Robinia Pseudacacia); it will not only make a fine belt for protection in a short time, but for fencing posts and durable timber (especially ship-building,) nothing equals it; and it has always commanded a high price; and I think a portion of the western prairies might be planted with it, as a profitable investment. It is said there are two kinds, one durable and the other not; but I know of only one kind. It is possible, if grown on deep, rich, mucky soils, the timber would be coarse grained, spongy, and not as durable.

TO THE WOOL-GROWERS OF THE UNITED STATES.

The following circular has been issued by the leading wool-brokers of New-York, Philadelphia and Baltimore:—

The undersigned, dealers in and commission merchants for the sale of wool, standing as we do between the wool-grower and manufacturer, have been in a position to watch the effect of the duty upon the interests of both parties, and desire to add our testimony in favor of repeal, as measures which must result to the advantage of each.

This might be argued from the fact, that apart from an export demand, the only source of prosperity to the producer of any raw material, is in the success of the manufacturer. The principal obstacle to profitable wool-growing in this country has been the fluctuation in prices. If the wool-grower obtained at all times the current rate, the average might be a fair remuneration; but it is a notorious fact, that while the producer (with rare exceptions) experiences the full disadvantages of the decline, as the price falls, it is only the speculator who reaps the advantage of the advance, when the market improves. In other words, frequent and rapid changes in price benefit the speculator and injure the producer. We believe that the main cause of this fluctuation is the 30 per cent. duty on foreign wool. At present we manufacture but a small portion of the woolens used in this country, the great bulk of them being made in Europe. If we produced wool enough in this country to make the goods, the duty would be of no account. But after using all the wool made here, we must go abroad and buy either the wool or the goods ready made. As the foreigner obtains his wool, for the most part, free of duty, and our government charges 30 per cent. on both the wool and the goods, we shall be likely to get most of the latter, and we therefore find that, during the last three years, our imports of foreign wool amount to only $7,564,042, while our imports of foreign woolen goods amount to $84,408,654. These goods come pouring in upon us until our manufacturers, who have been using chiefly our own wool, are broken down or crippled, and wool falls here to an unremunerating price to the wool-grower. Then our looms are set at work again, and wool advances. If we could then go to Europe to buy as freely as we buy in our market, with no duty to interpose, we should not so much keep down the price of wool here, as we should put it up there—the foreigner having to pay more for his stock, as we competed for its purchase at his own door. This increased price of his wool would prevent him from underselling our manufacturers here, when our wool market advanced, and thus the price would be sustained one year with another. There is no more wool produced in this world than is wanted for consumption, but the price fluctuates, and is kept down in this country, because our manufacturers, under the present system, must work at a loss, unless they buy the wool cheap enough to compensate for the difference in duty. Repeal the duty, and the manufacturer here can compel the manufacturer abroad to pay the same price as himself for the wool he consumes, and the interests of the wool-grower and the manufacturer in this country will be no longer antagonistic. England, with her dear lands, paying enormous rents and taxes, after trying at first a heavy duty, finally admitted wool free, and the result was a large advance in price of both her own and foreign wool, and her people are at this moment the largest wool-growers in the world. France recently reduced the duty on imported wool to a nominal rate, with the same result. Wool went up ten cents per pound in England, as soon as French buyers visited her markets.

If the duty on wool should be at once repealed, it would not bring foreign wools into our country at less than the farmers obtained for their clips last summer, owing to the advance in the price of wools abroad, mainly caused by the repeal of duties on the article in France; and the orders which would be sent from this country to London for wool (if the duty should be repealed) would cause a further advance.

The facts we have presented, and the experience of every country which has made the experiment, prove that the repeal of the duty would not only encourage manufacturing, but would give our wool-growers a steady market for their production, at a price considerably above the average realized in the past.

THE FARMERS AND WOOL-MANUFACTURERS.

The connection between woolen manufactures and the income of our own agricultural population is very distinctly seen by a mere glance at certain facts.

We have recently stated that the number of woolen mills in this country, most if not all of which are now closed, is more than fifteen hundred. Among these, and not in operation, is the Thompsonville Woolen Company, which has heretofore consumed more than a million pounds of wool. Of some 1500 persons, forming the village, 1000 were employed by the company. All were dependent upon it. Now carry out this sketch, and learn, not merely the number of men, women and children thrown out of employment, and butchers, bakers, tailors, &c., deprived of customers, but tell us also the number of sheep whose fleeces were required by this company and others now ruined, and calculate the profit and loss to the farmer from this source alone. The sum will be immense.

Nor was this a very large company. We might have referred to others consuming a far greater amount of this "product of the farm." One, in that same State of Connecticut, used to consume, annually, 12,000,000 pounds of wool. How many sheep would this require? What amount of profits have the farmers lost by the ruin of this market for their wool?

Let it not be insisted as a satisfactory reply, that our wools are not of the right sort for some of these products. Our wools were all used, and the quantity might have been very essentially increased, while other kinds, not produced in sufficient quantities, would necessarily be obtained by importation.

A KENTUCKY MAN'S OPINION OF NEW-YORK MIDDLE-MEN.

We have just noticed a letter from a correspondent of the *Louisville Courier*, which says so many true things in so piquant a style in reference to the *mulish* agents (neither producers nor consumers, but a sort of unproductive generation between the two), that we give it entire, as an appendix to what we have repeatedly written of them.

A KENTUCKIAN IN NEW-YORK.

The Swindling of the Cattle Agents and Merchants—Impudent Rascality—How Speculators Manage Things in Gotham, &c., &c.

New-York, May 15th, 1856.

Messrs. Editors:—A day among the cattle-merchants at Allerton's, Forty-Fourth street is, to a stranger from the Bluegrass country, somewhat a novelty, not because of the great amount of business transacted, for Fayette and Bourbon can do as much any sale day, but in consequence of the unequaled and unprecedented rascality of those to whom the western drovers entrust the management of their business and the selling of their stock. I mean the salesmen or commission merchants, one and all—the entire fraternity. Yesterday was a great day for the drovers' agents; 3,350 head of cattle were offered for sale, at least 1,300 more than was necessary to supply the demands of the city butchers, an excess of beef, which afforded a first rate excuse for the salesmen to dodge behind and with such a shield to defend their rascality. They made the drovers bleed profusely at every pore.

No drover can dispose of his stock here, unless he wholesales to a speculator, *alias* salesman, commission agent, &c., and if he does not sell to them he must pay $3 per head, and they will retail his stock to the buyers and give him their check on one of the city banks for the amount of the sales. So all a drover has to do, is to pay the salesman from 4 to 5 per cent. for swindling him, take his check to the bank and get it cashed, leave for home, and, whilst on his way calculating his losses, the honorable agent collects from the buyers. But such extortion does not even stop here, for, when more cattle are in market than the consumptive demand of the city requires, the drover's agents, or commission merchants, have *their* agents, and the drover stands by whilst his salesman sells his own stock indirectly to himself at a price below what had to be paid in the West, to be taken to the country to be kept until another market-day, or sold during the week between the established sale days.

It is the custom here for a drover to put his stock in the hands of agents for sale; and until those who drive stock to this market will meet together in convention and resolve to do their own trading, and sell their stock without the aid of swindling salesmen, they had as well or better stay at home and work for a shilling a day. There are but two reasons that western drovers give for engaging the services of cattle brokers. One is that a great many of the butchers buy on a credit of one week; the other that those who pay cash at the sale-yards handle the notes of so many different banks that they (the drovers) do not know what is bankable and what is not. In the latter case, every drover who has not got sense enough to know current funds from shinplasters, had better stay at home and study a counterfeit detector, and when he has learned something about the currency of New-York, he can then come here and do his own trading and financiering without the aid of a set of swindlers.

In the former case drovers had better agree to sell every day in the week than pay salesmen $3 per head to credit the butchers six days. Butchers could then buy their cattle every day fresh from the sale-yards, and not be compelled to lay in a supply for a whole week at one time, subjecting themselves thereby to the expense of feeding and keeping their stock for several days, or what is worse, penning them at the slaughter-house for a whole week until the poor brutes are so near dead with hunger that they will eat each others' tails off.

The prices paid yesterday were certainly not more than 9½ cents for best Kentucky beef. A considerable number was left over and sold to-day at figures far below the rates of yesterday.

Drovers retired to-day with long faces, and your correspondent took a stroll over the city in search of something for the readers of the *Courier*, which they will have in due time from

BALLOON.

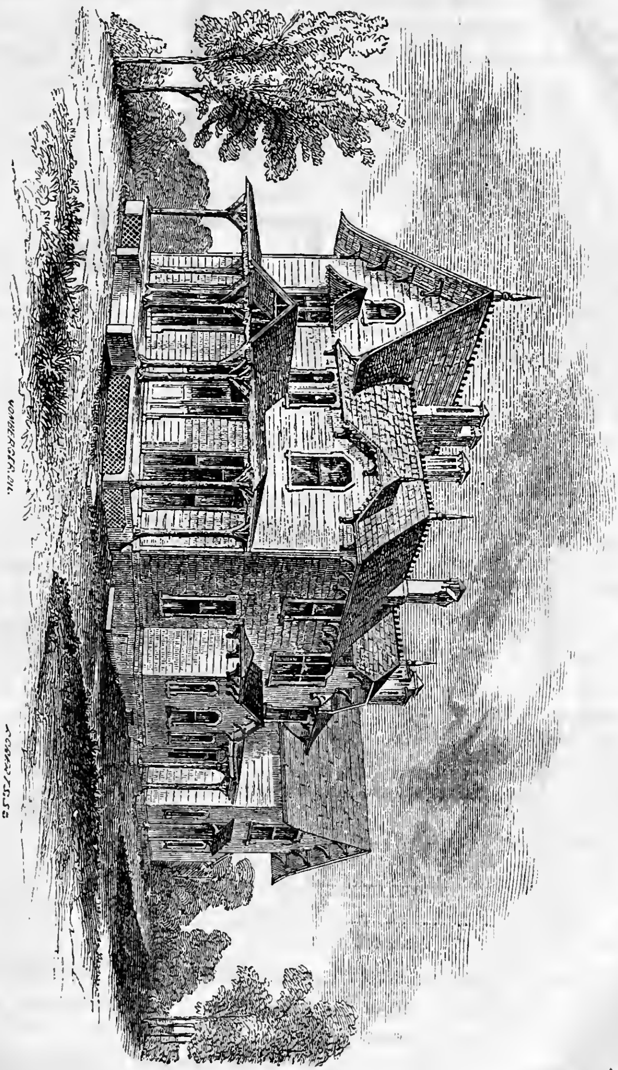
RUSTIC VILLA.

THE rustic villa is a house with the compact arrangement of the villa, but less architectural formality in its details. The character of its construction is perfectly simple and unconcealed. It may be built of brick or stone, and be adorned with pedestal and vase, but moulded pilasters, and cap and base to pedestal, must be avoided. If built of wood, there is little difficulty to contend with. Give thickness to the walls, give the roof and eaves and caps of windows and doors a bold projection, and select the form most convenient for the room required; go to the woods for pillars and columns, and forget entirely the pretentious style of city architecture.

We give our readers a plan for a structure of this description, selected from "Homes for the People," referred to also in our last issue.

Diagrams are given of the two plans, in addition to the general external view.

Fig. 1 is the plan of the principal floor. In front is a long and wide verandah, in the centre of which the roof shoots out to shelter a carriage before the entrance door. The hall, 1, within is 9 feet wide and 14 feet long, opening at one end into a large closet, and leading under an arch to a staircase hall, 2, at right angles to it. This hall is 8 feet wide, and leads to the kitchen and offices. The drawing-room, 3, has a wide window opening on the verandah, and a bay window at



A RURAL VILLA—COST $4,700.

the side. This room is 23 by 15 feet. A small library, 4, communicates with the parlor, and is 13 feet square. It contains a fire-place and recess for a book-case. No. 5 is the dining-room, 20 by 15 feet, with a large China pantry, 6, attached to it, an inner closet and a sash opening into the staircase hall, for passing dishes, etc., from the kitchen. In the projection containing this pantry is a store closet, 7, communicating with the kitchen, 8, the last being 15 feet square. By the side of the kitchen, and under the same roof, is an entry, with ample space for a sink, and opening into the garden. In rear of the kitchen, and equal in size to it, is the laundry, furnished with oven,

FIGURE 1, RUSTIC VILLA—PRINCIPAL FLOOR.

wash-trays, and a staircase to the second floor. No. 10 is the larder, near which is a wood-house, a rear entry, and two necessaries, their entrances being hidden by a screen.

The chamber-floor will liberally accommodate an ordinary-sized family. The staircase is lighted by a large triplet window upon the landing, out of which opens a chamber, 2, over the library, and a bath-room, etc., at 3 and 4. From this hall, a staircase leads to the attic overhead, and a corridor, opening from which is a large chamber, No. 5, over the drawing-room, a dressing-room being attached, with a window towards the balcony, formed by the roof over the verandah to the library below. This room has also a large closet under the stairway to the attic.

No. 6 is a bed-room over the hall, enlarged by a recess large enough for a bed, taken from the next chamber, 7, and having a closet. No. 7 is 13 by 20 feet.

A passage, 3½ feet wide, leads from the landing of the staircase to the chambers over the kitchen part of the building, which are on a lower level than the chambers in front. This passage is lighted by a window opening above the roof of the projection below.

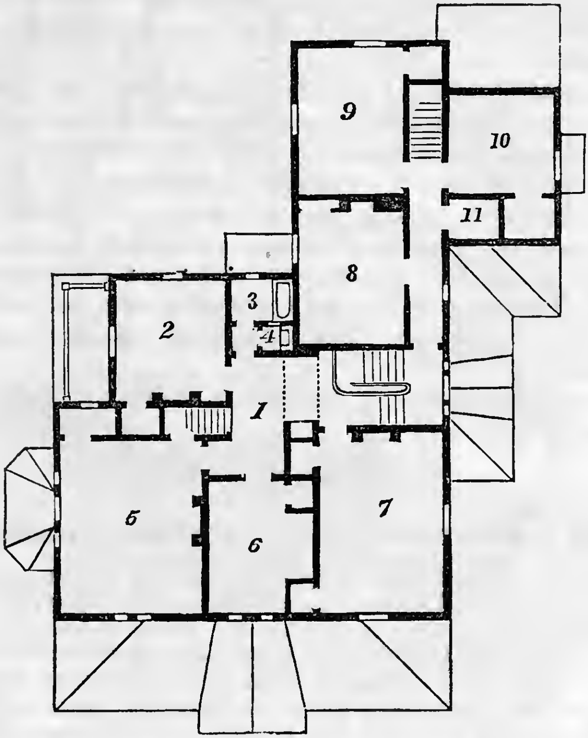


FIGURE 2, RUSTIC VILLA—CHAMBER FLOOR.

No. 8 is a bed-room of the size of the kitchen. Over the landing is another chamber of equal size, and another, also, No. 10, over the wood-house. These chambers have large closets.

Additional accommodations of these chambers may be made for servants in the front attic, if required.

The principal front consists of a roof containing a large gable over the drawing-room, and one of smaller size at the other end. A wide verandah runs across the whole front, the roof of which is steep, and from the centre of it a gable is broken out, which serves as a protection to the steps. The other side embraced in the view, shows the long line of roof broken in its centre by a hipped gable above the staircase window, and below this, the roof of the projection containing the pantry, etc., which has also a small gable at its centre. The ridges are ornamented by cresting, and the points of the gables by pinnacles. The roof is covered either by tin or shingles. The chimney shafts are of brick, pannelled with the caps and brackets of terra cotta or stone. The windows vary in form and situation as convenience or size suggest. Above the chamber window, in front gable, is a canopy, shading the upper portion of the glass, and the over hanging gable at the opposite end has a fringe-like drop fascia, which assists in screening its window.

The verandahs and hanging-roofs are supported by rustic posts of cedar or other evergreen, the bark, permanently attached by copper nails, being oiled and varnished.

The frame is covered externally with rough boarding, then with smooth sheathing, the walls lined with back plastering upon the rough boarding, thus promoting comfort in winter and in summer. The walls are plastered and finished for papering, the floors deafened, the ends of the joists, beams, etc., filled in with brick and cement, as a preventive of rats, etc. The coloring is dependent upon place, scenery, etc.

The cost of this building, by contract, at Orange, N. J., is $4,700.

THE RAILWAY SYSTEMS OF THE WORLD COMPARED.

A German paper compares the British system of railroads with the French, German, and American, and shows the following result:

English railroad stock yields about 2 per cent. on the invested capital. Only two very short lines bring over 7 per cent. In France, the Northern and Eastern Railroad yielded, in the year 1855, 15 per cent.; the Lyons, and the Lyons and Mediterranean railroads, 16 per cent.; the Orleans lines 15½ per cent.; the Western railroad 15 per cent. The entire length of the French railroads is 2880 English miles. They cost £58,000,000, and their gross income last year amounted to about £9,848,000, and about 14 per cent. of which was clear gain.

If we compare the six principal railroad lines of England—namely, the London, the North-west, the Great Western, the Great Northern, the Midland, the Lancashire and Yorkshire, and the North-eastern—we see that their length is 2660 miles, built at a cost of £122,000,000, consequently more than double the cost of the French lines, though they are only two hundred miles longer. The gross receipts are nearly the same, namely, £9,785,000. Hence it is clear that the capital invested in English railroad stocks brings only $3\frac{3}{4}$ per cent. The capital invested in English railways is estimated to be £300,000,000, in France £100,000,000, in the United States 150,000,000.

Even in the United States, where, at the close of the year 1855, there were about 23,384 miles of railroad, the receipts have diminished. The gross receipts, during the past year, of the 3216 miles in the State of New-York, which costs $\$125\frac{1}{4}$ millions, were only $20,843,385. Though they yielded nearly 7 per cent., they are considered a bad investment in a State where capitalists can get far higher interest for their money.

In Germany and Austria are numerous railroads which yield over 10 per cent. Among them are the Cologne and Minden, the Leipzig, the Magdeburg, the Ferdinands, Northern Line, and several others. Still more numerous are the railroads which yield 6, 7, 8 and 10 per cent.

These results show that the English railroads yield the smallest and the French the largest per centage on the capital invested. We may, as a general rule, say that English lines of railway are too expensively constructed; still, it is not always so. The Belfast line cost £13,839 a mile; and the London and Blackwall £283,818. The principal railroad lines in England cost between £30,000 and £31,000 a mile. In France they constructed 54 miles of road for the same money that in England was expended on 40 miles; and in England 45 miles yield only as much as 42 miles in France.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FAMILY NAMES.

"Posterity delights in details."—*John Q. Adams.*

About the year 1070, the nobility of England first began to use surnames. Afterwards the common people gradually adopted the same practice; but it is not yet fully established in Wales. At the present time there are but few families which have not some traditions respecting the origin and meaning of their names. It is a duty we owe to future generations to gather up and transmit to them all the details respecting our history we can possibly rescue from oblivion. And besides, the hereditary names of families preserves the remembrance of ancestors better than all other monuments. The name, as unmistakably as the physical and moral features, not unfrequently gives much of the history of the family.

The undersigned is collecting materials for a history of surnames, and will be obliged to any one who will furnish him with answers to the following queries with regard to his own name, his mother's maiden name, and such other as he may feel more particularly interested in. Also, for whatever can throw light on the origin of names and families, for catalogues of names, especially of immigrant parties, and early settlers, family genealogies, histories of towns, directories of cities, etc., etc., and for any other information in answer to the following queries:

1. The family name; the different ways of spelling and pronouncing it, at different periods and in different localities, with a description and drawing of the family coat of arms and motto?

2. The changes that have been made in the name, by legislation or otherwise?

3. Of what nation; the origin, etymology, signification and history of the name?

4. When did the name first come to this country?

5. Where did the family settle?

6. From what country did they come; and from what part of the country?

7. Have there been any remarkable characters of this name? If so, for what remarkable?

8. Have many of the name attained a great age?

9. With what, if any, distinguished families allied? and how?

10. Are those bearing the name numerous? In what part of the United States are they now principally found, and in what other parts of the world is the name known?

11. How far back can the name be traced in history or otherwise?

12. He will also be obliged for any information with regard to unusual Christian names, pet-names, nick-names, names of contempt, aliases, which are new, etc., old words used in a new sense, or of new words, with the circumstances which gave rise to their coinage; names of political parties, religious sects, sectional names, as Buckeye, Hoosier, etc., with their origin and meaning; words and phrases of college students, artisans, boatmen, sailors, hospitals, markets, slang words, which, like loafers' children, often rise to respectability; and particular attention is requested to words and names of families, towns, mountains, rivers, creeks, hills, etc., from the Indian languages on our great Western frontier, with their origin, etymology, signification and history, when first used; and reference to persons who have made them a study, and of works which treat of them, together with the origin and meaning of our geographical names, and when first used.

Formerly names were never given to any person or thing which did not have reference to the most striking characteristic in the object named. The Hebrews, Arabs, Greeks, the Old French, the Teutonic Nations, the Anglo-Saxons, the Hindoos, the American Indians, and many other nations, never gave a name with the meaning of which they were not acquainted.

It is believed that, if the information on the above topics which is scattered throughout our country, much of which will be lost with the passing generation, were collected, it would constitute a work of general interest. If each one who can give an answer to any of the above questions with regard to his own name will be so good as to communicate it, he may be able to learn from the collected mass much that will abundantly compensate him for his trouble.

Address, LEMUEL G. OLMSTEAD,
New-York.

P.S.—It is desirable that all Americans who may visit Europe learn what they can, as to where their ancestors came from, their origin and history, the signification of their names, and how far back they can be traced. Also obtain accurate copies of Family, Church, Town and Tombstone records.

The Indian names of our country are unique, generally euphoneous, and many persons think preferable to all others ; and it appears to be a matter of general regret that we have discarded them so much as we have, useing foreign ones in their place. It is also a serious matter of inconvenience to use the same name so frequently as we do. Cannot something be done to remedy this inconvenience ?

ENTOMOLOGY AS APPLIED TO AGRICULTURE,

IN our last number we gave an extract from a paper read by Mr. Glover before the United States Agricultural Society. We now add the following very valuable suggestions on the same subject, from the same learned treatise:

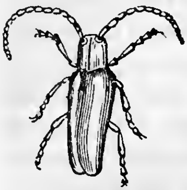
The subject of Entomology, as applied to the use of Agriculture, or Agricultural Entomology, if it may be thus termed, is of the most vital importance to every planter or farmer, especially if the destruction effected by the myriads of insects annually to the staple crops of the United States is considered. The caterpillar, ball-worm, and red bug too often destroy the Southern planter's hope of a cotton crop. The minute joint worm commits such ravages amongst the once fine and flourishing wheat-fields of Virginia, that the culture of wheat in several places has been abandoned. The almost microscopic wheat midge has lately proved so destructive in the fertile fields of Ohio, that a friend from that State assured me, a few days ago, that during the last year he has seen fields so utterly destroyed as not to be worth harvesting, and cattle had to be turned in "to prey upon the poor remains" the midge "had left behind." In New-York, Massachusetts, etc., the curculio causes ofttimes a total failure of the plum crop. From North, South, East, and West we hear of nothing but complaints of the ravages committed by our insect foes, and it would be impossible to enumerate on this occasion, as their name is "legion."

It will, therefore, be plainly perceived that a close study of the habits and transformations of any one of these pernicious insects by the practical and intelligent farmer would prove not only a source of great pleasure, as leading him to a keener sense of the beauteous and wonderful works of Nature, as exemplified in the singular transformations insects undergo before they assume the perfect or fly state, but also a source of great profit, as by experimenting upon them in all the stages of their existence he might perchance discover some practical method by which their extermination could be effected. Indeed, it is absolutely necessary that a farmer should be able to recognise the insects that destroy his crops, in all their various and wonderful transformations, before any effectual remedy can be applied; as in one stage of their life they may be suffered to live and enjoy themselves, nay, even sometimes be protected, whilst in another stage we persecute and destroy them by every means in our power. Take for example, the beautiful and elegant butterfly of the *Papilio asterias*. Any humane and kind-hearted farmer, unversed in entomology, who should see his children chasing and killing the pretty black and yellow-spotted butterfly that was flitting joyously over his vegetable garden, in the spring or early summer, apparently leading a life of mere harmless pleasure, would no doubt reprove them for wantonly destroying such a pretty harmless insect; and yet, if truth was known, this pretty and much to be pitied insect is the parent of all those nauseous-smelling green and black spotted worms that later in the season destroy his parsley, celery, parsnips, and carrots. Yet, by merely crushing the parent fly with one blow early in the season, before it has deposited its eggs, he would be spared the vexation of either seeing his plants devoured and seed destroyed, or having the disagreeable task of picking off one by one some hundreds of caterpillars later in the season. This fact will be more apparent when I state how incredibly fast some insects multiply, especially in the warmer climate of the South, where there is little frost to destroy insect life and there are several generations in one season. Dr. John Gamble, of Tallahassee, Florida, assisted by myself, dissected one female ball-worm moth or miller, (an insect which in the caterpillar state is most destructive to cotton,) and we discovered a mass of eggs which when counted amounted at the least calculation to five hundred eggs, duly hatched for the first generation, say one-half males, the rest females, the second generation, if undisturbed, would amount to 125,000, and the third be almost incalculable. Now, these mother flies are not very numerous early in the season, owing to the birds devouring them, the rigor of winter, and various other accidental causes; and were practical means found to destroy them as early in the spring as possible, the immense ravages of the second and third generation might be prevented. In one female (œceticus) case or hang-worm, so destructive to shade, trees, I counted nearly eight hundred eggs, although the specimen was but small. Now, were all these cases taken from every infected tree in the winter, when they can most easily be seen, owing to the fall of the leaf, and then immediately burned, the trees would be comparatively free the next season; and by following this plan for one or two years more, the work growing gradually less and less, the insect might finally be exterminated; inasmuch as the female never leaves her case, but forms her nest of eggs inside; and yet these noxious pests are suffered year by year to increase when so little trouble would destroy them. Other insects again have other habits which if fully known would likewise lead to their destruction.

INSECTS INJURIOUS TO VEGETATION.

We here interrupt our exhibition of this most important department of agriculture, for the purpose of presenting engravings of some of the most common and most destructive of these pests of the farm, already described.

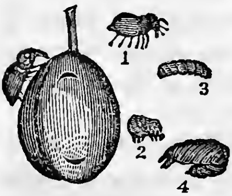
APPLE-TREE BORER.



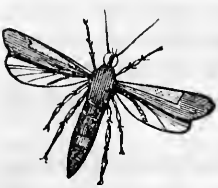
PERFECT INSECT.

Our first engraving represents the *Saperda Bivittata*, the parent of the Apple-tree Borer, which alike attacks the apple, quince, locust, ash, &c. It was described in our issue of September last, page 140, to which we refer the reader. The first engraving represents the perfect insect.

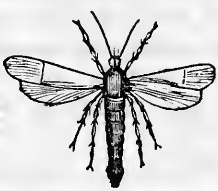
The second is that of the full-grown borer.



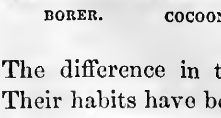
The Curculio, or Plum Weevil, the technical name of which is *Rhynchœnus Nenuphar*, was described on page 139 of the last volume, in the September number. We refer to that for a full account of the insect in different stages. 1 is the curculio, in the beetle state, life size, 2 is its assumed form when disturbed, 3 the larva or worm as found in the fallen state, 4 the pupa or chrysalis form in which it lives in the ground, and the last stage before the perfect state.



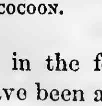
MALE.



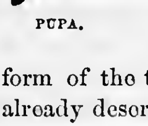
FEMALE.



BORER.



COCOON.



PUPA.

Another most destructive insect, so fatal to the success of the peach, is the *Aegeria Exitiosa.* Our readers will remember a minute account of this insect, and the best modes of checking its ravages, on page 602, in the number for April last.

It is exhibited in all its different stages in the engravings here given, representing the male and female insect, resembling the wasp, and also the borer, its cocoon, and the pupa. The difference in the form of the two sexes is obvious at a glance. Their habits have been already described, and we again invite a careful attention to this enemy of our finest fruits.

LEPIDOPTERA CONTINUED.

In our last number we described the family or tribe of Geometers They have already made their appearance among us, devouring the leaves in the various parks. Their color is nearly that of a small birch twig, and its general appearance very much like that of a small branch. The head and tail are a yellow white.

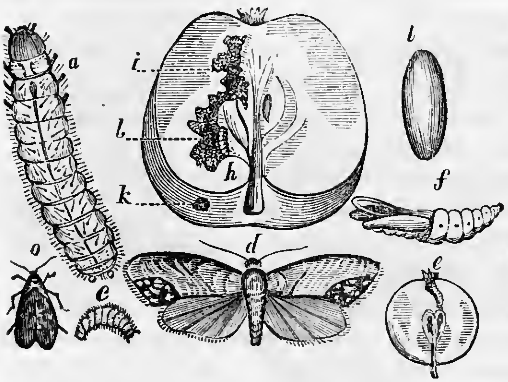
Pyralides, or *Delta Moths*. These insects are allied to the Geometers. They are called *Delta Moths*, or *Deltoides*, because, when their wings are closed, their form is triangular, or like the Greek Delta (Δ). Their body is long and slender, the fore wings long and narrow, and cover the hind wings nearly horizontally when at rest. Their feelers are very long, flattened sidewise, and turned up at the end. Antennæ long and slender, in some males feathered, and in a few knotted or crooked in the middle. Their legs are long and slender, the first pair often fringed with tufts of long hairs. Generally they fly by night, and are seldom on the wing during the day. They prefer shady places, as among thick grass or foliage. Some frequent houses, like the

Pyralis Farinalis, or *Meal Moth*, the caterpillar of which is found in old flour barrels. It may be seen on the ceilings of rooms with its tail curved over its back. The fore wings of the moth are light brown, crossed by two curved white lines.

Hypena Humuli. The hop vine is infested with a species of caterpillars thus named, belonging to the Pyralides. These are "false-loopers," bending up the back a little when they creep. They have but fourteen legs, the first pair of prop-legs being wanting. When disturbed, they bend their bodies with a sudden jerk, on one side and on the other, leaping each time a considerable distance. They make no webs, do not suspend themselves by a thread, are active, creep fast, and soon regain their position, if removed from it. When fully grown, they are about eight-tenths of an inch in length. Two broods appear in a season, the first in May or June, the second in July or August.

Tortrices, or *Leaf-rollers*. The names, both common and technical, of these insects are suggested by their habits. They roll up the edges of leaves, and fasten them with silken threads. But some few species which are classed here do not possess this habit. Roses, pines, and firs, are much injured by these caterpillars. Among the destructive insects of this group is the

Carpocapsa Pomonella, or the *Codling Moth*, or the *Fruit Moth* of the apple. This is sometimes mistaken for the plum-weevil, but this moth is never found in plums, although the plum-weevil is sometimes seen in apples. The apple-worm is not a grub, but a true caterpillar, of the Tortrix tribe, and "the most beautiful moth of the beautiful tribe to which it belongs." But it is seldom seen in the moth state. They may be observed from the middle of June unto July. They are sometimes brought into houses with fruit, in a caterpillar state, and may be found on the windows endeavoring to escape to the open air. Their fore wings appear like brown watered silk, and when examined are found to be crossed by numerous gray and brown lines, scalloped like the plumage of a bird. The head and thorax are brown, mingled with gray, the hind wings and abdomen light yellowish brown, with the lustre of satin. A very distinguishing mark of this insect is a large oval dark spot, edged with copper color, on the hinder margin of each fore wing. Its wings expand three-fourths of an inch. In June and July they fly about apple trees, every evening, and lay their eggs on the young fruit. They do not pierce the apple, but deposit the egg at the blossom end of the fruit. The young worm is soon hatched, and burrows into the fruit. The various stages of this insect are represented in the engraving. *a* is the worm greatly magnified, *b* is the cocoon, *c* is the full grown worm, *d* is the perfect insect greatly magnified, *e* is the young larva or worm in a small apple, *f* is the pupa or chrysalis state, *i*, *h* is the passage of the worm in the fruit, *l* is worm in the apple, *k* is the place of egress, *o* is the perfect insect.



When the apple falls, the worm leaves it, and creeps into some chink or sheltered place, where it spins a cocoon as white as paper, and becomes a chrysalid, and in a few days more becomes a moth, comes out, and lays eggs for a second brood. But most of them remain unchanged through the winter, and do not become moths till the following summer.

To prevent the ravages of this moth, all wind-fall apples should be gathered as soon as they fall, and such disposition made of them as will secure the destruction of the worms. Hogs let into an orchard will devour many of them. A cloth wound round the tree at the crotches, will be found to contain numbers of these insects concealed within it. Scraping the loose bark will destroy those that are sheltered there. The smoke of burning weeds is also said to be fatal to them.

We are indebted for these cuts to Messrs. J. P. Jewett & Co., of Boston.

INDUSTRIAL STATISTICS—BANGOR, MAINE.

BANGOR is distinguished for its lumber trade. It lies near the mouth of the Penobscot, and this river, with its tributaries, drains a very large tract of country, covered with a heavy growth of pine or other valuable trees. Hence its various water-falls are the sites of immense numbers of saw-mills, and lumbering is the chief employment of its few inhabitants.

The mercantile association of Bangor, by a committee, have recently obtained the industrial statistics of the city.

In 1853, 182,942,284 feet of lumber were surveyed at that port.

In 1855, were surveyed, in feet, of pine, 123,026,117; of spruce, 78,337,283; of hemlock, 10,305,753. Total, 211,679,193. This lumber was shipped in various forms as follows:—

Shingles, 116,449,000,	$402,235 89
Clapboards, 6,789,675,	149,265 39
Laths, 75,151,700,	101,353 25
Pickets, 2,693,000,	23,911 45
Tons of juniper timber, 5,192,	36,522 00
Ship knees, 37,258,	70,658 78
Tons of pine timber, 1,713,	10,999 00
Masts and spars, ——,	20,300 00
Railroad sleepers, 46,500,	11,625 00
Cedar posts, 30,359,	3,617 82
Cords of hemlock bark, 6,734,	40,424 00
Fish barrels, 62,000,	39,088 24

They also exported other products as follows:—

Bricks, 11,470,000,	$58,250 00
Sides of sole leather, 95,204,	261,709 00
Tons of roofing slate, 1,740,	34,800 00
Tons of pig-iron, 1,298,	38,340 00

This gives a total value of 3,095,245 00. Other small matters, such as oars, casks, hoops, beef, hides, furs, steam engines, &c., &c., swell the amount to three and a-half millions.

The population in 1850 was 14,432. It is now reckoned at 21,500. It contains 11 banks, a theological seminary, 4 or 5 newspapers, reading-room of 4,200 volumes, with a library, from which more than 14,000 volumes were given out in 1855.

UNITED STATES AGRICULTURAL SOCIETY.

THE Fourth Annual Exhibition of the United States Agricultural Society will be held at Powelton, (Philadelphia,) on Tuesday, Wednesday, Thursday, Friday, and Saturday, October 7th, 8th, 9th, 10th, and 11th.

The First Exhibition of this Society, held at Springfield, Mass., in October, 1853, was devoted exclusively to an examination of Horses;

at Springfield, Ohio, 1854, Cattle alone were exhibited; at Boston, 1855, all departments of Farm Stock—Cattle, Horses, Sheep, and Swine—were shown.

The Society, encouraged by past success, and by the approbation of the Agricultural community, now propose to offer premiums, not only for Domestic Animals, but also for Poultry, and the products of the Fruit Garden, the Grain Field, and the Vineyard, and for Agricultural Implements and Machinery.

Premiums from Twenty-Five to Two Hundred Dollars, amounting in the aggregate to over Twelve Thousand Dollars, will be offered for the various classes of Domestic Animals, Fruits, American Wines, Vegetables, Grains, and Agricultural Implements and Machinery.

A local Committee of Forty Citizens of Philadelphia, representing the various branches of industry, has already been appointed to coöperate with the officers of the Society, in perfecting arrangements for the Exhibition; and Fifteen Thousand Dollars have been guaranteed to meet expenses. This material aid, coupled with the excellence of the selected location, and the large amount of Premiums offered, induces the expectation that the Exhibition of 1856 will be superior to any of its predecessors.

Favorable arrangements for the transportation of Stock and other articles will be made with the various Railroads.

The List of Entries, the Awards of Premiums, and the Proceedings, will be published in the Journal of the Society for 1856.

The Premium List, with the Regulations and Programme of the Exhibition, will be furnished on application to Mr. John McGowan, Assistant Secretary of the United States Agricultural Society, 160 Chestnut-street, (Rooms of the Philadelphia Agricultural Society,) or by addressing the Secretary, at Boston.

MARSHALL P. WILDER, President.

WILLIAM S. KING, Secretary.
June 1, 1856.

We commend to the attention of the friends of agriculture in this country the meeting of this Society.

EDS. P. L. AND A.

PROFITS OF AGRICULTURE.

WE continue sundry estimates of crops, raised in various sections of the country. It should be understood that we give these, generally, not as possible under high cultivation for a single season, but as actual crops, and without any special effort. As such, the results attained should shame thousands of farmers who continue "poor"—raising but a fraction of these values from the same quantity of land. The first below is a statement of the farm products of a farm in Men don, N.Y. The sum total gives a profit of 21 per cent. on the capital invested.

The field is nine and a half acres in extent. It contains thirteen apple trees.

The expenses were:

Manuring,	$50 00
Six days' plowing,	12 00
Harrowing,	3 00
Marking,	2 00
Ten days' planting,	10 00
Twelve days' cultivating,	18 00
Ten days' hoeing,	10 00
Seed corn,	2 00
Seed potatoes,	2 00
Digging potatoes,	3 00
Picking apples,	3 00
Cutting up corn,	8 00
Husking corn,	32 00
Repairs on fence,	8 00
Plaster,	3 00
Interest on land,	66 50
Total,	$232 50

The products were:

1,050 bushels corn, at 28 cts. per bush.,	$294 00
105 bushels potatoes,	32 00
130 bushels apples,	20 00
4 bushels turnips,	1 00
23 loads stalks,	69 00
10 load pumpkins,	10 00
$2\frac{1}{2}$ bushels beans,	4 00
8 bushels black walnuts,	2 00
1 bushel walnuts,	1 00
Total,	433 00
	232 50
	$200 50

The prizes awarded by the Agricultural Societies in the State of Connecticut were, for crops raised per acre, as follows:

A. Hart, Cornwall,	936	bush.	carrots	per acre.
A. Wadhams, Goshen,	1344	"	"	"
A. Beecher, Bethlehem,	1416	"	"	"
T. S. Gold, Cornwall,	1184	"	ruta baga	"
J. T. Andrew, West Cornwall,	1660	"	"	"
J. T. Andrew, do.	2102	"	long turnips	"
C. Post, Hebron,	106	"	shelled corn	"
J. L. Phelps, West Cornwall,	105	"	"	"

RYE.

The following are some of the results of the most successful culture of this crop that we have noticed.

In Pamelia, Jefferson Co., N.Y., upon a clay loam, 2 12-100 acres of land produced 94 bushels of rye. It had been well manured with stable manure, and a hundred bushels of lime per acre. It was ploughed in the fall of 1853, sowed in the spring with spring wheat, ploughed in August, and sowed with rye in September, two bushels to the acre, without manure. It was harvested 15th July, 1854.

The income was:

94 bushels, at $1 00, - - - -	$94 00
Straw sold for, - - - - -	22 00
Total, - - - - - -	$116 00

The expense was as follows:

Seed, - - - - - -	$4 00
Ploughing, sowing, cultivating and harrowing,	5 50
Cutting, binding, drawing, thrashing and cleaning, - - - - - -	18 50
	28 00
Profits, - - - - - -	88 00
	$116 00

This gives a profit of $88 00.

In Hillsdale, Columbia Co., N.Y., rye was sown upon 3 acres 3 roods and 20 rods, in a soil which was a dark loam with some gravel. In the spring of 1851 it had been planted with corn, twenty-five loads of manure being applied before ploughing. In the spring of 1852 it was sown with oats, and in September, 1852, it was sown with one and a half bushels of rye to the acre, and no manure after the corn crop. The rye was harvested the second week in July, 1853. The yield was 163 2-50 bushels of rye, which was sold at $1 10 per bushel.

The income was:

Sale of rye, - - - - -	$179 33
700 bundles of straw, - - - -	21 00
Total, - - - - - -	$200 33

The expenses were:

Ploughing, harrowing, and seed, - -	$11 80
Harvesting, threshing, and carting, -	27 00
Interest on land at $80 per acre, - -	21 70
Total, - - - - - -	60 50
Profits, - - - - - -	139 83
	$200 33

In Rockland, N.Y., four and three-hundredth acres of land, which had been cultivated with corn and oats, without manure except an application of lime to the hills of corn, the oat stubble being ploughed under, and twenty loads of manure being spread over about $3\frac{1}{4}$ acres, were sown with $4\frac{3}{4}$ bushels of rye, the first week in September.

The income was:

91 bushels of rye, at $1 00, - -	$91 00
Estimate of straw, - - - -	20 00
Total, - - - - -	$111 00

The expense of the crop was:

Two ploughings, harrowing, rolling, drawing manure, and sowing, - - -	$12 75
Seed, at $1 00 - - - - -	4 75
Total, - - - - - -	17 50
Interest and profit, - - - -	93 50
	$111 00

In Hadley, Hampshire Co., Mass., in the valley of the Connecticut, a crop of corn of fifty bushels per acre was gathered in 1853, after twelve loads of manure per acre had been applied. The land was then ploughed from eight to nine inches deep, and sown with white rye, one and a half bushel to the acre. Middle of July, sixty-five and a half bushels of rye were harvested, and the straw weighed three and a quarter tons. The expenses of cultivation were $16 25; interest and taxes, $15 00;—giving cost of crop, $31 25.

Also in Hadley, Hampshire Co., Mass., three acres and twenty-seven rods of land, which had for two years been planted with Indian corn, was sown with rye. Three bushels of seed were used. About twelve loads of manure to the acre were applied with the cultivation of the corn. The account of the rye crop was set down as follows:

88 bush. and 20 qts. of rye, at $1 25 per bush.,	$110 75
4 tons of straw, - - - - -	24 00
Total, - - - - -	$134 75

The expenses were:

Ploughing, cultivating, harvesting, etc., -	$24 50
Interest, at $190 per acre, - - -	36 00
Taxes, - - - - - - -	3 50
Total, - - - - - -	$64 00
Profits, - - - - - -	70 75
	$134 75

In S. Danvers, Essex Co., Mass., on the farm occupied by the town's poor, consisting of a shallow, gravelly soil, seven and three quarter acres were sown with rye. The practice was to plough sward land in the fall, ploughing in the manure. Four loads of manure were used per acre. In the spring the land was cross ploughed, eight inches deep, well harrowed, planted with corn, potatoes, beans, etc., with about a teaspoonful of plaster in a hill. The next spring, three cords of manure per acre were ploughed in deep, and planted with vegetables, plaster being used as before. In October, 1854, the rye was sown, eight bushels of seed being used. The grain was cut late in July, and 229½ of rye, weighing 56 lbs. each, were sold at $1 50 per bushel. Of the eleven tons of straw, eight were sold at an average of $16.

The income was:

229½ bushels rye, at $1 50, - -	$344 25
11 tons of straw, at $16 00, - - -	176 00
Total, - - - - -	$520 25

This crop was charged with one-third the manure of the two preceding crops, and the account stated was:

One-third manure of previous crops, -	$112 00
Ploughing, etc., - - - -	30 00
8 bushels of seed, - - - -	10 00
Harvesting, - - - - -	25 00
Threshing, - - - - -	48 00
Total, - - - - -	225 50
Profits, - - - - -	294 75
	$520 25

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

WHEAT IN TENNESSEE—GRAIN REAPERS.

The good old county of Hawkins, which bears the cognomen of one of the Commissioners that aided in giving birth to our noble State, never was promised a heavier crop of wheat than now in rich bloom covers an unusual number of acres. It can be said "*the fly*" in some neighborhoods has injured the prospect, but generally the promise of yield is quite flattering, and this, too, follows one of the very coldest winters in the memory of our oldest surviving citizens. The crop of last year has all been marketed and shipped off, our farmers meantime having had the best end of the bargain. Wheat was sold at an average in this county (last crop) for $1 25c. the bushel. The principal part marketed was of the "*White Blue Stem*" variety, with which your readers are, no doubt, well acquainted. It is a round but rather small plump berry, with nearly a white bran; and grown in the South, under a vertical sun, no doubt would, if its flour were analysed, be found to contain from 12 to 15 per cent. less water than the "Quaker" variety grown in the same latitude, the various reason of which I must decline here to record. But it is apparent that if the flour of the first named should be dryer, it must in that ratio make the greater quantity to the pound of bread, for it must receive the water before it can be changed to dough and baked, and the dryer the flour the more it is worth to the consumer. This is a good argument, and founded too on well-known facts, in favor of Southern wheat in the United States, and for United States grown wheat over English, for flour. But I sit down to say to my numerous brother farmers that, in anticipation of a bountiful approaching harvest of wheat in our mountain-bound country, a speedy and economical harvesting is desirable. To effect this allow me to say that I have found a grain-reaper a great desideratum in harvesting. I bought one last harvest that cost me only $100 ; four horse, six feet sweep, I think Hussey patent, which will harvest with a driver and raker 16 acres the day, and will do the work better than could be done with the best set of old matrons in bonnets and reaphooks that ever strode on Pennsylvania soil; and who, in the name of all that is good, will deny that a set of Dutch women are not the nicest and neatest reapers ever known in days of yore? Now, I don't talk this way invidiously, for if I did I would bite myself; my ancestors hail from the "*locus in quo*"—and there is not a drop of blood in me that I know of but is of German origin. I therefore speak sincerely as to lady reapers in olden times. But now I would remark that inspired historians have said that the tongue of man *will lie*—if the tongue, by analogy, the pen would do so too. But it is an old saying, and to the contrary of which the memory of man runneth not back, that Arabic figures will *not lie.* Then permit me to make a table of the cost of harvesting a crop of wheat by hands and by machinery ; and I shall in this pursue a true Southern estimate, such as will not be offensive to any one of your numerous Southern patrons: and indeed if my stray notes should chance to be read by any sensitive and conscientious person upon the subject it embodies, I hope he will overlook my imperfection, and place my errors to the charge of locality. But to the calculation of cutting say sixteen acres of wheat by hand even with cradles, say—

4 field hands at $1000 each, - - - - - - - -	$4000
4 grain cradles at $5 each, - - - - - - - -	200
Total,	$4,200

This capital must be used in one day to *cut down* 16 acres of wheat. But with the reaper, say—

1 Reaper cost	$160
4 Horses and Harness cost $150 each,	600
1 Driver, a Boy,	500
1 Raker, a Man,	1000
Total,	$2260

Giving an advantage in the capital employed of $1760, or nearly 50 per cent. less in favor of the machine; and take into consideration that the "*bones and nerves*" of the machine can be renewed at will with a trifling cost—that it saves the grain entirely clean, neat and without waste, whilst none of these desirable ends can be attained or applied to the hand harvesting. This will certainly, on reflection, give such weight to the great and advantageous economy and utility of all good wheat growers as to at once induce them to provide themselves with grain-cutting machines; and I use mine for cutting oats, Timothy, and clover, with satisfactory success. It is, I believe, universally admitted that we are imitative beings, and desire at the same time to stride with the progress of the age. As a farmer, I am proud to bear testimony that this laudable ambition is well developed everywhere, and usually farmers delight to favor the interest and encourage the business of those who assiduously toil for their benefit. One class of these laborers for the good of farmers are the handy mechanics of New-York, who build grain-reapers, and, having experience and facility for obtaining materials superior to most others, perhaps are able to build better machines, and furnish them for less money than inexperienced mechanics located far from a business city. It is one thing to make the article, and another to market them. It will not be considered improper by the publishers of this valuable agricultural pamphlet for me to say, even on its pages, that every good farmer in East Tennessee should buy a reaper, and by letter should consult the publisher of this work for the purchase, who, like his predecessor, has labored long and faithfully to lessen the labors, increase the quality and quantity of products, and, of course, the prices, and fill the pockets of the farmers generally. Being myself once a merchant, and now a farmer and a professional man, I seek no notoriety, but am vain enough to suppose that some good, clever brother in agriculture will be induced to buy a reaper for his grain the coming harvest, after my telling him, even anonymously, that in a field of ripe grain there can be nothing so desirable. If so, and by it my much respected journalists are in some way remunerated for their partialities to our eclipsing department of human industry, I shall be content; and, forsooth, the reaping machine goes on the same principle, and we that use them only imitate the man that divided his grain in each end of the sack in carrying to mill, rather than stick to the old way of putting the grain in one end and a rock to balance in the other. Or the man who sharpened a bar of iron and bolted it to his old wood plough to work up the ground. Or, still later, the man who bought a thresher rather than beat out the grain with a flail.

Finally, I am not certain that the knives to the one I bought are of the best kind, as I am told there are several. It is said that a knife with a sickle edge is best, or at least better than one with scythe edge. How this is on trial I am not able to say; but the knives I have, cut over two hundred acres of grain and grass before they went upon a stone, and I think would have cut much more. The knives are the material part of the machine, and should be made by the best of workmen. The other parts of the machine will last for many years; and, upon the whole, it is a very great labor-saving article, and well worthy the notice of farmers everywhere.

June, 1856. A. L. B., Mill Bend, Tenn.

THEORY OF LIQUID MANURING AND IRRIGATION.

BY ROBERT RUSSELL, OF KILWHISS.

The principles of manuring are made very simple, when we regard the food of all cultivated plants as made up of carbonic acid, water, and ammonia (or nitric acid), with the mineral matters found in their ashes. These plants are nearly composed of the same substances, but their habits of growth require very different modes of supplying them with food. The philosophy of liquid manuring and irrigation can only be written by keeping the mineral theory and the physiological peculiarities of plants closely in view.

A considerable difference of opinion exists among practical and scientific men as to whether reservoirs are necessary for storing the liquid manure, to bring out the full benefits which may be derived from its application. This is a highly-important question, and well deserving the consideration of those who have given this system of manuring a trial, or who intend to do so. We are far from thinking the opinions of the Commissioners of the General Board of Health on the point are borne out by experience.

"The experiments made by the Rev. A. Huxtable and Mr. Way, and the scientific results already referred to as thence deduced, are in complete accordance with the results of practice, and leave no doubt that liquid manure may be applied to the land when it is fallow, with the certainty of the best incorporation, and that the deposit there will be safe and available for the subsequent crop. These experiments, corroborated by the results of practice of repeated applications during the growth of vegetation, prove that the application of liquid manure to land may, under proper management, with interruptions of hard frost only, be as continuous as its production. They dissipate the exaggerated estimates as to the extent of storage, and the great expense and inconvenience of the reservoirs required for such manure." —P. 25.

We have not seen a detailed account of Mr. Huxtable's experiments; but so far as the Commissioners have supplied us, the evidence that liquid manure is entirely safe when applied in autumn, and available for the crops in summer, is exceedingly meagre indeed. It is almost needless to point out that, so far as we are left to gather from the following paragraph, both applications might or might not have been entirely washed out of the soil.

"The Rev. Mr. Huxtable has recently reported an experiment tried to test the durability of manure in the liquid form. He found that wheat manure, at the time of sowing with 10 hogsheads per acre ($2\frac{1}{2}$ tons) of cow's urine, produced as good a crop as that manured at the time of sowing with guano in the proportion of 2 cwt. per acre. The result of this experiment shows that liquid manure lasts not only during winter, but even until the harvest time of wheat, the latest of our cereals, and is exactly correspondent with Mr. Huxtable's former experiments, which proved the power possessed by soil of absorbing, and retaining for the sustenance of vegetation, manure contained in any liquid which filters through it, for it is evident that the liquid itself could not be retained for months in the soil."—P. 24.

We consider Professor Way's researches on the absorptive powers of soils as most important contributions to agricultural science. They give us especially some insight as to the curious relations of silica to the growth of vegetables; but we must confess that grave doubts arise when the absorptive properties of soils are so rigidly applied in practice as many have done, in recommending liquid manure to be applied at all seasons of the year,—and that tanks are not necessary for preparing it, and retaining it until vegetables can make use of it.

Another interesting fact is brought out in Professor Way's valuable experiments; viz., that clay soils seem to retard the fermentation of certain animal matters.

"Clay appears to have a remarkable action in reference to the fermentation of organic matters. It seems, indeed, to oppose fermentation, as will be seen in the following experiment:

"Three quantities of fresh urine, of 2000 grains each, were measured out into similar glasses. With one portion its own weight of white *sand* was mixed; with another, its own weight of white *clay;* the third being left without admixture of any kind.

"When smelled immediately after mixture, the sand appeared to have had no effect, whilst the clay mixture had entirely lost the smell of urine; they were all decidedly acid to test-paper. The three glasses were covered lightly with paper, and placed in a warm place, being examined from time to time. In a few hours it was found that the urine containing sand had become slightly putrid; then followed the natural urine; but the quantity by which clay had been mixed *did not become putrid at all*, and at the end of seven or eight weeks it had only the peculiar smell of fresh urine, without the smallest putridity. The surface of the clay, however, became afterwards covered with a luxuriant growth of confervæ, which did not happen in either of the other glasses.

"This is a remarkable experiment, and one from which much instruction may be derived. The reason that the sand accelerates the fermentation of the urine is no doubt this: All bodies possess a surface attraction for gases, and of course, therefore, for common air. This attraction, which enables them to condense a certain quantity of air on their surfaces, is in direct relation to the extent of those surfaces. In mixing sand with the urine, we are in effect exposing the latter to a greatly-increased surface of air, the oxygen of which is necessary to commence the putrefaction, and thus hastening the changes which soon or late would occur in urine naturally. But what shall we say of the action of the clay? That it retards or changes the nature of the putrefaction is evident; but the question is, does it prevent the conversion of the animal matters into the ordinary products of decay; or does it allow of that conversion, and absorb those products as they are formed? This is a most vital question to practical agriculture, clearly affecting our views of the state in which animal manures should be employed, and affecting also in the highest degree the theoretical notions of vegetable nutrition."—*Journal of the Royal Agricultural Society*, vol. xxv. p. 366.

This experiment, we conceive, affords an explanation of the practice so universally followed in all countries, of fermenting urine before applying it to the fields or growing crops. The experience of agriculturists in Italy, Switzerland, France, Belgium, and at home, all seems to attest the necessity of fermentation. We have met with many who have practised liquid manuring on a small scale, averring that the application of fresh urine to grass is attended with little or no effect. It is highly probable that plants either do not have the power of assimilating urea, or that the roots have comparatively little power in taking it up. We suspect the former must be assented to, if we subscribe to the doctrine that plants take up promiscuously those substances which are in solution, and support the inorganic theory of vegetable nutrition; or the latter supposition, which will be adverted to in the sequel.

To ferment urine before it is applied, may be considered as essential to the successful carrying out of any system of liquid-manuring. In fact, the fermentation of liquid manure on a large scale, such as at Myer Mill, is one of the prime difficulties which besets those who, trusting to their former experience, look upon this process as a *sine quâ non*. Large reservoirs, sunk into the ground where the temperature is low, are not favorable for the promotion of fermentation, especially when the liquid manure is diluted with water. So far as our memory serves us, we were informed, some years ago, while on a visit to the Ayrshire establishments, that rape-cake was thrown into the tanks in small quantities, to promote fermentation, and not, as many have imagined, for the purpose of supplying phosphates. Tank-water is no doubt a little deficient in phosphates, but there can be but few farms where there is much surplus liquid that will not grow maximum crops of all kinds with fermented urine alone.

No amount of nitrate of soda or guano applied to Italian ryegrass, in the dry form of ordinary top-dressing, has been able to approach the amount of produce which Italian ryegrass has produced under liquid manuring. It is needless to repeat the enormous quantities of grass which have been got by this system. But the statement of Mr. Caird, that Italian ryegrass, under this system, is capable of producing 20 tons of hay per acre, is sufficient to demonstrate how far all the results with mere top-dressings are outstripped by adding a certain quantity of liquid.

Since, then, however liberally we may apply guano or nitrate of soda to our grass crops, the amount of produce falls far short of that which can be had under liquid-manuring, it is evident that a given quantity of ammonia, largely diluted with water, acquires a greater fertilizing power. Similar principles are brought out in other well-known facts.

A ton of nitrate of soda, though it only contains the same amount of nitrogen as a ton of guano, is about double the price; yet, from the nitrogen being in a more available form for wheat and grass, its fertilizing power for these crops is about equal to two tons of guano. If by any process we could make the fertilizing power of a ton of guano equal to one of nitrate of soda for grass or wheat, great economy would be effected. The system of storing liquid manure in tanks, for the purpose of fermenting, and keeping it until the crops are ready to take it up when the season of active growth has arrived, not only gives ammoniacal manure as great an effective power as nitrates when applied in the dry state, but a much greater—simply because by no other means can so much grass be grown on an acre as has been done under irrigation with liquid manure. The full producing powers of Italian ryegrass cannot be obtained by any other treatment.

The same quantity of nitrogen applied in well-fermented liquid manure, and only when the crops are in a growing state, as at Myer Mill, has a fertilizing power imparted to it greater than nitrate of soda, and vastly greater than guano when sown over the land in dry cultivation; we suspect that the liquid-manuring system which Mr. Mechi has followed at Tiptree, of throwing the unfermented contents of his tanks over the land at all seasons, though it may be in accordance with the views of the Commissioners of the Board of Health, is not the proper one. So long as this mode is followed, Essex cannot be said to have a fair trial of liquid-manuring. But it must be borne in mind that the growth of turnips is very different from that of Italian ryegrass. Maximum crops of the one, on good deep loams, can be raised with solid manure, but not the other; indeed, one dressing of liquid manure would have to serve for the turnip crop, and it would require to be applied before the crop was put into the ground, because repeated applications would batter the surface.

The application of rich unfermented manure in the solid form is perhaps the best for the turnip. The growth of this plant extends over a very considerable period, and the process of decomposition is probably quite as rapid as the rate of development. Not so with Italian ryegrass, which grows so rapidly in summer that large supplies of food, ready for assimilation, must be given at intervals to obtain its full development.

Liquid manure is just as capable of raising one kind of crop as another, because all our cultivated crops, being in a great measure composed of the same substances, are manured by the same substances. The habits of the growth of cultivated plants are very different, and therefore the modes of treatment in regard to manure must be adapted to suit their habits in our highly artificial systems.

Carbonaceous manures, or inferior guano, from the quality they possess of only slowly yielding up the nitrogen they contain to the wheat plants, are more economical, so far as nitrogen is concerned, when applied as autumn dressings, than better and more soluble guanos. Liquid manure cannot be applied so economically to wheat in autumn, because waste from washing must to a certain extent take place. Top-dressing wheat with liquid manure is out of the question.

That nitrate of soda does not possess any other merit than that of being in the most available form for spring-dressing autumn-sown wheat or grass, is pretty evident from the fact that guano is the manure almost universally used for manuring spring wheat, as well as barley, oats, or turnips. Only one dressing of liquid manure could be advantageously applied to any of these crops, which would not differ materially from solid manuring. In regard to mere effect in raising any of these crops, liquid manure cannot be said to have much or any superiority, for it must be recollected that as large crops of either have been grown with solid as with liquid manure. On these grounds we consider the Commissioners of the Board of Health have put forward very exaggerated views of the merit of liquid manure, in not making many important qualifications of their statements:—*

"The more minute division of manures in the liquid form facilitates their rapid decomposition and complete absorption; and there are various examples to show that one load of solid manure, properly liquified with sufficient water, will have four times the fertilizing power that it would have if applied in solid form."

Can this system of liquid-manuring be recommended for general adoption? Most certainly not. In all districts where the system of feeding cattle in open courts is practised, and is necessary for converting straw into manure, liquid-manuring is not to be thought of, seeing that the rains must have displaced what escapes. The liquid is obtained by deteriorating the quality of the solid. It is only in those cases that more liquid is produced on a farm in feeding cattle than can be absorbed by the straw that the question arises, What is to be done with it? Which is the most economical way it is to be used in producing crops? There are very few districts in Scotland where the system is at all applicable, and indeed there is but a small proportion of farms where more liquid at the present time is produced than can be absorbed by the straw; still, there are many farms that are in this condition, and they are daily on the increase. Potato culture, no doubt, in some particular districts, has turned the tide in an opposite direction.

The experiments which have been made in Ayrshire and other places, upon a very large scale, in liquid-manuring, we have always regarded as being exceedingly interesting, both on practical and theoretical grounds; for, no doubt, a day will come when the quantity of stock kept on our farms will render tanks and distributing apparatus necessary. It will be strange, indeed, if the steam-engine will stand idle while the distribution of liquid manure goes on by the old method, with all its uncertainties.

* The strictures Professor Johnston made when this subject was discussed at the East Berwickshire Farmers' Club, on 4th of January, 1853, have much truth in them. Alluding to the Report of the Board of Health, he says: "I must say that upon the face of that Report there appears an attempt to show only one side of the question—I do not say from design, but the reporters have not, I think, stated the case in the fair manner which would justify a practical man to take it up. It is because of the statement contained in this Report that a more favorable impression has been made on the minds of many proprietors as to the merits of the system than I think it deserves, and that they have been thereby induced to incur expenses with which I scarcely think the profit will be commensurate." The system has been recommended where it is not at all applicable; and we think the Berwickshire Farmers' Club were not without blame, when the subject was so well brought before them, not to have met many of the positions taken up by the Board of Health, in a eries of resolutions, stating the practical aspect of the question.

It is commonly said that the eastern parts of our island is not so well adapted for liquid-manuring as the western. Indeed, various parties have argued with us that the experiments in our own county, at Burnturk, favor this view, and that it is useless to contend against this natural defect. That a dry climate is not so well suited in many respects for liquid-manuring cannot be doubted. But how far does this objection really extend? Not further, certainly, than the mere amount of dilution required, or, rather, the greater quantity of water which must be supplied to compensate for a smaller fall of rain, or a dryer atmosphere. These natural defects are completely overcome in Italy, and we know from the habits of Italian ryegrass, that something short of complete submersion suffices for maintaining this plant in all its exuberant growth. After a full supply of water is obtained at Burnturk, we shall then expect to have the question answered: What is the extra amount of artificial watering required in Fifeshire to produce as great a crop of Italian ryegrass as can be done in Ayrshire? So long as we hear so much about the deficiency of climate, so much the greater is the propensity to overlook the real elements of success.

It would be out of place here to enter into lengthened calculations as to the economy of the new method of distribution. Difficulties are encountered by those who make trials, which calculations cannot reach. The liability of the apparatus, such as the hose, to get out of order, renders the whole process far from being an easy-working one. But the results of the system, viewed in the mere production of crops, have been seen and appreciated, and similar methods will no doubt take the place of those which are more imperfect.

Indeed, we have got something more than mere glimpses of the economy in the distribution of liquid manure by the hose and the jet. Moderate calculations, founded on results, represent the expense of distributing a ton of liquid manure by this process at 2d.,* while by horse and cart it is 6d. per ton. Now, it seems to have been demonstrated that liquid manure in summer must be largely diluted with water to render it certain in its results—say three times its bulk of water is required: thus it would take 2s. to apply this to the land by horse-power, and 8d. by hose and jet.

When one has examined the condition of the farm of Cumming Park in Ayrshire, and taken a survey of the whole arrangements for giving the manure its greatest fertilizing value, it would be very hard to suggest another method by which the barren sands on that farm could have been brought more rapidly or more economically under the dominion of fertility than by the system which Mr. Telfer has followed.

The experiments which have been made on so many farms in Ayrshire, in distributing manure by the hose and jet, are of the most interesting character, viewed in reference to the saving of the sewerage of towns. The difficulties which arise in carrying out the system for farm-drainings or for the town-sewerage are all of a mechanical nature. Professors Way and Anderson give us no hope that any methods which have for their end the precipitation of the valuable materials in town-sewerage, and conversion into solid manure, is

* Mr. Milne Home's Report, read before the Berwickshire Farmers' Club.

likely to be successful. The agency of water, as a means of distributing the sewerage of towns over the fields, appears therefore the only one calculated to effect so desirable an end.

After looking carefully over the Report of the Board of Health, we cannot say they have been successful in showing that the application of the hose and jet by steam-power is preferable to the meadow system, where the latter can be carried out. The meadow system possesses one great advantage, that it economizes space, as under no other crop can so large an amount of manure be yearly applied to a given space, and yield so large a net return. On these grounds Mr. Smith of Deanston recommended that, where a natural fall did not exist, the sewerage of towns should be raised by scoop-wheels, such as drain the fens of Lincolnshire, and applied to the raising of grass. This seems to be the most practicable plan that has yet been proposed in dealing with this difficult but important subject.

FARM WORK FOR JULY.

No month in the year leaves the farmer so little to choose, with regard to his employment of time and labor, as this. Business that *can* be done in other months, must now be let alone. What *must* be done *now* will sufficiently occupy the farmer and his whole force. Such is the nature of our climate, that the cultivation of the fall crops and the harvesting of the summer crops press upon each other. Neither can be delayed for the other without great loss.

What we are about to say may sound oddly to our readers. Their first thought may be that we might better withhold it till some other season, when there is less to be done. But we want to say it now—*don't work too hard.* Not that we believe that labor is a curse. On the other hand, it is a blessing. The man who labors in the open air three hundred days in a year, breathes twice as much of heaven's pure air as the shoemaker on his bench, or we poor editors in our sanctums—lives faster and lives longer, as all statistics show, and enjoys life better, we have not a doubt. But then it is *reasonable* labor, *steadily* pursued, rather than violent effort for a few of the hottest days in the season, that promotes the uniform, vigorous health for which farmers have so much reason to be grateful.

If you ask how you can avoid severe exertion when the wheat, rye, oats and barley imperiously demand to be stored, and the fall crops are fast going by the time when it will be of any use to cultivate them, we must own that we are not wise enough to answer the question, nor should we dare trust ourselves to act wisely in your place. Still, it is not best for men to kill themselves, even in haying and harvest time. It is with great pleasure that we hail the introduction of improved implements for accomplishing the farm labor of any portion of the year; but those, facilitating the labors of this season, are doubly valuable. The horse-hoe, the patent mowers and reapers, the improved construction of barns, with reference to receiving the crops easily, are twice as valuable as they otherwise would be, from the fact that they relieve human labor at a time when it is taxed to the utmost. But, after all improvements that have been made, or probably ever will be, July is, and ever must be, a trying month to the farmer—one in which the question of self-preservation and that of securing important crops at the best time, will have to be carefully weighed.

The cereals are of the greatest value, if cut two or three days before being fully ripe. If, owing to unfavorable weather, or a pressure of other work, there is much delay, the loss is great. It is measurably so with the hay crop. This, to possess its greatest value, must be cut in the blossom, or, what with most grasses is perhaps better, a very little after the height of blossoming. But its value does not diminish as rapidly if left to stand to a later period. Clearly, then, the farmer must harvest his grain when it is in the best condition to harvest. Everything else, save a reasonable regard to his health and that of his men, must yield. With the grass it is little different. Supposing this to be going out of blossom, and the corn and other hoed crops, especially the potatoes, not to have received their final dressing, and that he cannot employ men enough to do all at once, what then? Shall the corn wait for the haymaking or the haymaking for the corn? The latter, we think; and, as we are aware that the opinions of many differ from ours, we will give our reasons. In the first place, we admit that it is bad for the grass to stand a week, a fortnight or three weeks after the blossom has fallen. Its sweet juices are being converted into woody fibre; and it is losing considerable of its nutritive matter; and, unless it can be shown that the injury to the corn crop is great by delaying to give it its final dressing, we must yield the point. But we think it can.

On clayey lands, hard to be penetrated and pervaded by the roots of corn, it may be good policy to delay the hoeing in favor of haymaking. But on lands of no very heavy texture, such as are used for a large proportion of the corn grown in these United States, the tenth of July is as late as the corn crop ought to be meddled with, unless it is an uncommonly backward season; and that for the reason that the roots have by that time ramified themselves and filled the whole surface soil. Using the plough, or even the cultivator, or the hoe, mutilates them. It cuts off, for the time, a part of the nutriment derived from the soil. We may be told that, for every root cut off, two new ones put out; and this may be true, but it will be some time before the new roots will permeate the ground as fully as the old ones. In the mean time the strength of the plant is partially exhausted in this very effort to put forth new roots. A part of its summer's work, so to speak, it is compelled to do over a second time. The process of growing, preparatory to the elaboration of fruit, is disturbed, hindered, rendered less perfect, as we believe, in its final results. Our conviction, after much experience and much careful observation, is, that if corn cannot be hoed, or, if the hoe be not used, cultivated for the last time, when it has become as large and as widely rooted, as generally happens by the 10th or 15th of July, it may, in most cases, better be left. The stalks will not grow as large, the ears will not be as numerous, nor as well filled, if the roots are mutilated late in the season. Speaking of the three important items of farm work for July, we therefore say, harvest your cereals when you *must;* for in this there is no safety in delay; if possible, have the corn fields all right by the tenth or fifteenth of July, slightly hilled, (for there is no benefit, but positive injury, in piling earth mountain high around it), and perfectly free from weeds; and then get the hay in, well cured, as soon as you can, without making those almost superhuman efforts which some are disposed to make at this particular season, and which, though the object be an important one, it is not sufficiently important to justify, inasmuch as health is worth more than wealth; and the farmer, of all others, should exercise a sound discretion.

RYE

Is cultivated in almost all the climates on the globe, its northern limit being about 26°. It is used for distilling as much perhaps as for bread.

Of the common rye so long and so widely cultivated we need not speak, but it may not be known to all our readers that a new kind of rye, called the multicole, was introduced to our agriculturists by the Commissioner of Patents, in 1845. It has proved itself a good variety, bearing a heavy crop in our most northern latitudes.

The Siberian is also remarkable for the quantity both of its stalk and grain, and coming from a cold country will do well in any part of the United States. With all kinds of plants, it is always better to remove them towards the South, than towards the North.

The proper soil for rye is a light sandy loam, but it will grow in any soil that is properly loosened, and is not too wet.

Rye makes a pretty good fodder for cattle, and for soiling has one great advantage, viz: that it comes into use earlier in the season than any other green crop. It may also be used as a green manure.

Rye should have but a very shallow covering, not exceeding an inch, and less than this is better.

SOUTHERN AGRICULTURE—COTTON SEED.

Our Southern friends, like those of the North, are beginning to find out that they have not done the best for themselves in the matter of economic agriculture. The skinning process, once so prevalent, has given place to a regular system of seeding and harvesting, regarding mother earth like any other matron who is expected to perform, in the best manner, the most exhausting of functions for successive years. The poor laborer has sometimes fairly used up all the living energy she had in the attempt—too often utterly unsuccessful—to give to her lord a bountiful and rich product. Her very vitals have been consumed in the effort, and she has fainted—all signs of animation have disappeared—while he, kind enough, but thoughtless and ignorant, plied the hoe and the spade in the vain attempt to arouse her decayed energies. All this while the true panacea for all her woes was close at hand, but was never used. The strength which she needed was secreted in certain of her former products, which were recklessly thrown away, and thrown utterly beyond recovery, and thus a round of labor, wearisome and ceaseless, was constantly put forth and as constantly returned unrewarded.

But like the eyes of Balaam, which were opened to see what had before been as real as then, the eyes of planters and farmers are opened to see the true condition of things. They find—as they rub open their clammy eyelashes—that they have in their own hands remedies that they have utterly neglected.

In the South, for the last year or two, inquiry has been excited as to the value of cotton seed, as a manure, and the moment an intelligent view of the matter is taken, it appears that millions of dollars have been foolishly wasted. Mr. Edgar Conkling, of Cincinnati, has undertaken a series of careful and scientific and practical experiments on the subject, and has found immense value in those seeds for the manufacture of oil, while the fibre of the bark may be usefully applied to the manufacture of rope and yarn, and also for paper.

We have before us a statement from Mr. C., in which he estimates the value of such oil as high as that of sperm oil, and of the fibre equal to that of rags costing six cents a-pound. Agriculturists have also made experiments on this subject. The quantity of seed thus thrown away annually is estimated as not less than two-and-a-quarter millions of pounds, producing thirty per cent. of valuable oil, while the remaining seventy per cent. produces a good oil cake. At low estimates the value of this annual waste, for such purposes, reaches the enormous sum of $135,000,000. We learn, also, that a railroad office in Cincinnati is lighted by gas made from this oil cake.

But such uses contemplate large outlays for machinery, and hence it is not possible to realize all these benefits at once. The cotton planter must, therefore, do the next best thing, while he delays not that train of measures which will result in the actual fruition of this immense value. That next best thing probably is, to use these products as manure. The oil which gives to it so great value makes it a capital application to the land, and a return to the soil of so important a portion of its annual product cannot fail to add essentially to its value and productive power. We purpose to discuss these matters very fully in future numbers.

CUTTING CLOVER FOR SEED.

Where clover is well seeded, it is necessary that it should be first cut from the 25th to the close of the present month, in order to secure a good crop of seed. The clover should be coated with plaster —about 100 pounds to the acre—after the hay is taken off, provided the ground did not receive such application in the spring. From three to five bushels per acre is the general yield, according to the attention the crop receives. After mowing, the cattle should not be put on the field, as pasturing it will not allow the clover to fill. Many farmers seem to have imbibed the idea that a wet season is the best for the growth of the seed, but we believe the reverse to be true, as clover will fill better during dry than in wet weather. In case pasturing until the 25th June should be followed, plaster should be applied as before recommended, as it will cause the clover to grow rapidly if the weather should prove to be dry.

As this crop is one that pays as well as any product, it is of the utmost importance that farmers should raise it both for sale and for their own use—in the latter case they avoid the risk of getting poor seed, or that filled with the germs of foul, noxious weeds. What a farmer can grow himself, it is poor policy to purchase from others.

As the wheat crop is rather uncertain in Western New-York, it would answer for farmers to raise seed for the Eastern markets, and it will pay better than wheat according to the time that the land is occupied by the crop, ninety days being sufficient for maturing this product, and no expense is incurred from the time of mowing, with the exception of the plaster, as before stated, and also keeping fences, &c., in order. Any land congenial to this crop, if well seeded, will pay the interest upon $100 in addition to the hay, which is better for being cut at the period of full blossom.

J. C. B.,
Rush, N. Y., June, 1856. in *Rural New-Yorker.*

Practical and scientific farming should go hand-in-hand: science without practice, is unavailable; practice without science, is the quality of the brute. While science without practice will not produce a blade of grass, every acre will produce more under the culture of a practical hand guided by a scientific head.

PREPARED FISH FOR MANURE.

Our readers are aware that experiments have been made in using prepared fish for manure. This has become an established business. The Narraganset Fish Guano Company, incorporated by the State of Massachusetts, extract the oil from menhaden, and convert the residue into what they call artificial guano. This has been long practised in France, where the merlan was employed, from which only one and a half or two per cent. of oil was obtained. The menhaden furnishes a much larger amount of oil. In France, after the oil is extracted, the residue of the fish is dried at a steam heat, then ground fine, packed in air-tight casks and sold as manure. The Narraganset Company first steam the fish, then press out the oil, dry and grind the remainder, mixing gypsum, limestone, or other mineral matter with it, in order to perfect the grinding process. Sometimes they add sulphuric acid, which converts the bones into the sulphate of ammonia. When this acid is used, the addition of limestone is important to take up the excess of acid and forming gypsum. It is proposed to add peat to the mixture.

The value of this preparation must depend very much upon the process employed. But when this is judiciously managed, it will, no doubt, prove a more economical application than Peruvian guano.

SUGGESTIONS ON THE CULTIVATION OF THE GLOXINIA.

BY DANIEL BARKER, UTICA, NEW-YORK.

Amongst the numerous plants which are highly deserving of more universal cultivation, and a greater degree of attention, than is usually bestowed upon them, the Gloxinia stands conspicuous in an eminent degree. Although plants are to be met with in many collections, it has but rarely been in that state of perfection of which it is susceptible, being, for the most part, subjected to only the ordinary treatment of a miscellaneous collection of greenhouse plants.

The plants, comprehended in the natural order to which the Gloxinia belongs, are, many of them, inhabitants of deep-shaded dells, or of their immediate vicinity, in the tropical parts of the world. Many of them have their habitation on old decayed logs, and other rich decaying vegetable matter, while others grow upon more elevated and exposed situations; the genus under consideration belongs to that section which thrive, in all their native luxuriance, in the deep shaded valleys of Pernambuco.

To cultivate it with success, the following conditions demand especial attention; that the roots be allowed abundant means of spreading in a horizontal direction; in order to effect this, I have used large garden pans, or feeders, in lieu of pots for the last shift, with the best success. If large specimens for exhibition, or otherwise, were desired, I use them of the size of twelve inches over, and five deep, allowing one inch for effectual drainage, which must be strictly attended to throughout their entire growth, from the seed, or cutting, as the case may be, to the final shift into the flowering pans.

The first process of raising the plants is by cuttings (leaves, with the entire petiole attached); this can be done at any time after the leaves have attained their full development, which, under ordinary circumstances, will be from June to August—the earlier in the season the better, in order that the young bulbs may become sufficiently strong to put forth their lovely blossoms in abundance during the ensuing season.

Fill the cutting pots, to within three inches of the top, with broken crocks; upon these a layer of sphagnum (bog moss); then fill to the rim with clean sand, and saturate with water; afterwards, insert the cuttings (leaves), removing them to a gentle hotbed, being careful to shade during the warmest part of the day; in this situation they may remain until they have attained a sufficient size to transplant, which should be done in two-inch pots, using a compost of decayed vegetable mould, with about one-third sandy loam, which should have the additional care of being well and effectually drained. When potted, they are again placed in a gentle hotbed, until sufficiently established to be placed in the greenhouse, where they remain until the leaves lie down; after which they may be placed under the stage of the greenhouse, being careful to place the pots upon their sides, in order to prevent any moisture coming near the bulbs, and not too near the flue, as this would cause the buds to shrivel up; in this situation they may remain until the following March or April, when they may be repotted, being careful to shake all the mould from their roots; to the above-named soil add one-third of partially decayed wood, with a few uneven pieces of charcoal, which, while they have the effect of retaining moisture about the roots, will also be the means of facilitating the escape of any which might be superfluous.

When repotted, place them in a shady part of the stove, or propagating-house, in a close and moderately warm atmosphere, paying attention to repotting as often as the plants require it, until finally removed into the flowering pans.

During their growth throughout the spring, and, indeed, until the flowering is over, keep them in a position where they can enjoy a partial shade, with a temperature of from 60° to 80°. As the season advances, the shady part of a greenhouse will be all the protection they will require; indeed, protected, in a cold frame, during the warmest part of the day, from the sun's rays—in such a situation, they will perfect their lovely blossoms, and last a much longer period in bloom than if left in the stove or greenhouse. The period at which they will be in bloom, if such a course be adopted, will be about from the end of June until September, varying as their maturity may be encouraged or retarded.—*Horticulturist.*

☞ No man ever regretted that he was honest and kept aloof from idleness in youth.

INDUSTRIAL STATISTICS.

Greenville, R. I. — *The Steer Factory.*—G. C. Nightingale, agent; George W. Remington, superintendent; Royal King, Thomas Clemence, and others, foremen. Mill has 32 cards of 24; 4160 spindles; 90 looms; cloth, 39 71 x 71; yarn, 32.

Greenville Manufacturing Company. — S. B. Winsor, agent. Have two mills, cotton. Mill in Greenville has John A. Smith, superintendent; Gideon Carter, foreman—18 cards of 30; 2500 spindles; 60 looms. Cloth, 40 inches; 80 x 100; yarn, 33. Mill in West Gloucester has Albert Winsor superintendent; 16 cards of 24 inches, and 4 of 18 inches; 3090 spindles; 80 looms. Cloth is 36 inches, 52 x 52; yarn, 23.

Cassimere Mill, woolen, by Poke and Steere. J. H. Armington, superintendent; Sykes, Bartley, E. McCabe, Dempsey, Frederick Kershaw, John C. Abby, foremen. Mill has four sets machinery; do the finishing for three other sets; eight additional sets to be added in the spring. Make cassimeres.

Pokeville Mill, woolen. Run by Smith and Sloan. Juni Smith, agent; George Sloan, superintendent; Edward Sloan and Eddy, foremen. Mill has three sets cards of 48 strands each; 14 looms. Make all wool fancy cassimeres.

Granite Mill, cotton. C. Vaughan, agent; George N. Corbin, and others, foremen. Mill has 16 cards; 30; 2700 spindles; cloth, 36 inches, 48 x 52; yarn, 25.

Chepacket, R. I. —*Hunt's Mill*, cotton. Run by A. and O. Steere. Mill has 12 cards of 30 inches; 1684 spindles; 46 looms; cloth is 30 inches, 50 x 60; yarn, 27.

Lyman Mills, cotton. Otis Sayles, Esq., agent; H. B. Lyman & Co., owners; Emor Young and Congdon, foremen. Mills have 24 cards, 18 and 14 cards of 24 inches; 3376 spindles; 96 looms. Cloth is 30 inches, 60 x 64; yarn, 30. Machine shop attached. William Hicks, foreman; has five lathes and other tools in proportion.

Satinet Mill. By S. Hunt. Has one set machinery. Make satinets; warps purchased.

Mapleville, R. I.—*Columbia Mill*, woolen. Charles H. Whipple, agent; Nelson Keech, Francis G. Smith, James L. Whipple, foremen. Mill has two sets machinery; cards 40 strands each; 18 looms. Make satinets; warps purchased.

Woolen Mill. Run by Steere and Tinkham. Rufus Davis and Reynolds, foremen. Mill has three sets cards, and other machinery in proportion. Make satinets; warps purchased.

Mapleville Mill, woolen. D. S. Whipple, owner; Joseph Whiteby, and others, foremen. Mill has three sets; 24 looms. Make satinets; warps purchased. Machine shop attached, Thomas H. Babbitt, foreman; 5 lathes and other tools.

Lawton Mill, woolen. Run by Oliver Tracy. Joseph Dunn, W. Tracy, foremen. Mill has one set machinery. Make satinets; warps purchased.

Oakland Mill, cotton. John L. Ross, agent; Alfred Jerauld, and Potter, foremen. Mill has 20 cards, 30; 2800 spindles. Make yarns and satinet warps.

PASCOAG, R. I.—*Glendale Company Mill*, woolen. L. Copeland, agent; Albert B. Copeland, superintendent; S. Booth, William Freeman, William Brown, E. Bailey, E. L. Tucker, Edward Salisbury, foremen. Mill has 8 sets machinery, 48 looms, all new. Make superior fancy cassimeres.

Emerson Mill, woolen. Stephen Emerson, owner; Albert Green, Luther C. Angel, foremen. Mill has 2 sets machinery; 16 looms. Make satinets; warps purchased.

Cassimere Mill. By Sayles, Cook & Co. Thomas D. Sayles, superintendent; John Bell, Andrew K. Ballou, Daniel E. Bailey, and others, foremen. Mill has 3 sets cards and machinery; 16 looms, Greenhalghs. Make first quality cassimeres.

Union Mill, woolen. Hardin Sayles and Son, owners and agents; Thomas Kelly, John B. Lister, and others, foremen. Make fine fancy cassimeres.

Pascoag Stone Mill, wool. By Logee and Pickup. Thomas Pickup, superintendent; Okall and Brooks, foremen. Mill has 2 sets cards; 16 looms. Make fancy cassimeres, cotton warps.

Laurel Hill Mill, woolen, has 6 sets machinery. Run by Marsh.

Hopkins Mill, woolen. Israel M. Hopkins, agent. Mill has 2 sets machinery; 16 looms. Make satinets. Timothy Earle Hopkins and Lewis T. Bailey, foremen.

Fisk Mill, woolen. Run by Hawks and Towles. Arnold H. Smith, Warren A. Tallman, John Sykes, foremen. Mill has 3 sets cards; 16 looms. Make cassimeres, of yarn, cotton and woolen, double and twisted, warp and filling.

BURRILVILLE, R. I.—*Harris Mill*, cotton. Jason Emerson, owner and agent. Mill has 20 cards, 18; 1408 spindles; 39 looms; cloth, 27 inches, 48 x 56; yarn, 22.

Plain Mill, cotton. By L. Jordan. Mill has 7 cards of 36; 2300 spindles; 52 looms. Cloth 28, 60 x 64; yarn, 29.

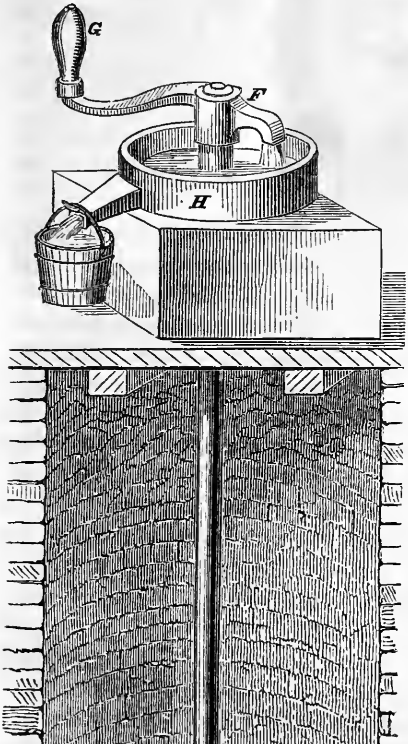
INVENTORY OF DOVER, N. H.—The following is from a statement of the valuation of Dover, made by the Assessors, for the purpose of assessing the annual tax:—

Number and value of polls 1848,	456,083
Real Estate,	1,583,449
Shares in Banks, &c.,	328,397
Money on hand and at interest,	247,159
Stock in Trade,	471,944
Factories and Machinery,	414,124
Carriages,	5,035
Horses,	27,535
Neat Stock,	28,609
Sheep,	643
Total valuation,	3,562,978
" " in 1855,	3,501,004
Increase,	61,974

The rate of taxation is 88 cents on $100.

About 3000 shares of railroad stock are owned in that thriving city.

LINDSEY'S DOUBLE ACTING ROTARY PISTON FORCE PUMP.



DESCRIPTION.

THE pump barrel, A, is placed horizontally at the bottom of the well, and is made to revolve by means of hollow shaft, B. Each end of the pump barrel is furnished with a piston, the outward extremity of its rods being provided with friction wheels, C. As the pump barrel revolves, these wheels, C, come in contact with the cam-shaped half circle, D, and the pistons are thus alternately moved in and out; the pistons are connected together by rods, E, so that when one is pushed inward, the other goes outward.

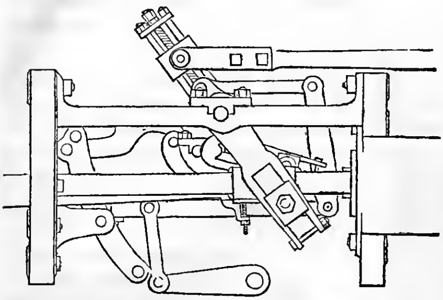
The action of the pistons forces the water up the hollow shaft, B, and it escapes through the crank, F, one end of which is hollow for that purpose. Motion is given by turning the handle, G. The circular basin, H, is large enough in diameter to receive the water from F, as it turns around.

The parties in interest state that an iron pipe, standing perpendicular in the well, upon a pivot in the eccentric at the bottom, is all that is required to raise water to any height, even to hundreds of feet. The turning the crank at the top turns the pipe and pump, making rapid revolutions, at every one of which the receiver or barrel of the pump is filled twice, thus securing a good supply of water from any depth, with the least possible amount of labor.

For an extra outlay of about four dollars, it can be attached to steam, worked by water or turned by wind, at any point where these are used for other purposes. Three sizes are manufactured, of one inch, one and a quarter inch, and one and a half inch pipe. No. 1 is abundantly large for all ordinary purposes. The larger sizes are peculiarly adapted to railroad stations, salt works, mining and manufacturing purposes.

Letters patent were taken out for the United States by Mr. Hosea Lindsey, of Asheville, N. C., on the 4th of December, 1855. Prices are from $30 to $54 for pump and 50 feet of pipe. A royal patent has been secured for England and Ireland.

VALVE MOTION INVENTED BY J. K. FISHER.



THE chief peculiarity of this motion consists in *concentrating* the motion at the time of opening the exhaust, and admitting steam. This concentration is effected by a sliding joint in the arm of the rock-shaft. To the valve-stem is jointed a lever, whose upper end is connected by a rod to an arm on a rock-shaft, whose throw is such as to move the valve a distance equal to the lap and lead; this rock-shaft is worked by the cross-head, and therefore the motion it gives to the valve terminates exactly at the end of the stroke.

The lower end of the lever receives its motion from a rock-shaft worked by the cross-head of the opposite engine; which motion is half performed when the crank is at the dead point; hence, whatever extent of travel is given by the lower end of the valve-stem lever, the lead will be the same for all admissions, in forward or backward gear.

The rock-shaft which moves the lower end has a slotted arm, in which a block slides. This block is carried by a pin which projects from the cross-head. The pin at mid-throw, is directly under the centre of the rock-shaft, as close to it as can be, consistently with the proper size of pin and shaft. In this position, the leverage being short, the pin gives a rapid angular motion to the shaft. But as the pin departs from this central position, the block is carried from the centre of the shaft; increasing the leverage, and decreasing the angular velocity of the shaft. When the pin has gone two inches from the centre of a 20-inch stroke, the motion it gives to the shaft, and through it to the valve, is so nearly complete that what remains is practically of no importance; and the further slide of the block in the slotted arm is waste motion. The effect is to give, at the end of the stroke, a sudden throw to the lower end of the lever; and then to allow it to stand still until the end of the reverse stroke; but as the motion commences with extreme slowness, and does not acquire sensible velocity until near its centre, and then loses velocity rapidly, and ends with an extremely slow motion, there is no jolting or noisy closing up of joints, even when they are loose:—it has the quick motion of a cam, without the concussion usual with cams after they are overworn.

This rock-shaft gives motion to a link, which works in fixed bearings. A sliding block works, in the usual way, in this link, and the motion is taken from it to the lower end of the valve-stem lever, in the same way as it is taken from the common suspended link to the valve stem. And by varying the position of the slide-block in the link, the travel of the lower end of the valve-stem lever is varied, so that, while the travel given to the valve by the upper end is constant, the total travel is varied. The port is therefore opened more or less; when opened wide, the suppression is late; when opened slightly, the suppression is early; and it is practicable to work at full stroke, or to admit no steam at all, but merely open the exhaust ports. It is also practicable to take steam against the forward motion, to any extent, for the purpose of retarding or of stopping suddenly.

This apparatus has been so constructed as to give a quick movement to the expansion end of the valve-stem lever; but the means of effecting it are not sufficiently simple for common use. The rock-shaft which works this end, as represented in the cut, also works the pump; it being desirable, for the particular purpose for which this motion was designed, to have a variable throw, and such a position of the pump as would keep it out of danger of freezing.

What is claimed in favor of this movement is that for moderate speed it is better than the link-motion, because it avoids compression and premature exhaust, and that the exhaust port has a wide and sudden opening, and remains wide open until the end of the stroke.

This plan is published with a view to find parties who will build it, on condition of having a share of the patent, if it shall prove to be patentable and valuable. Should any builder be so inclined, he is invited to address a letter to Mr. Fisher, 234 East Broadway, N.Y.

Sifting Apparatus. By Samuel Harris, of Springfield, Mass.—Consists in providing the cover of the sifting box with a series of pins, which, when shut down, project into the sieve and come in contact with the substance to be sifted. When the sieve is moved back and forth the pins serve to stir up the substance and separate articles that adhere, and thus insure thorough sifting. For spices and many other articles this plan is admirable. The sieve is moved by a crank and rod.

PORTABLE MAGIC SUMMER STOVE.

We must admit that the Yankees are beaten at last. Mr. W. J. Demorest, of this city, has contrived a stove, with this title, for all sorts of work—boiling, baking, broiling, toasting, heating flat irons, &c., in the most compact form imaginable—a real *multum in parvo.* It scarcely occupies the place of an ordinary chair, while it is competent to all the ordinary cooking of a small family. It may be heated by alcohol or gas, and consumes only about four cents worth of gas per hour, producing no smoke or dirt, or smell. Boiling and baking can be carried on at the same time. We have seen it in operation, and have been astonished at its capacities. A gill of alcohol, with a full blast, is consumed in twenty minutes, or with a *very free* burner perhaps in fifteen minutes. For baking only half the full blast is required. In the operations which we witnessed, about a gallon of water was boiled in eleven minutes, and an Indian johnny cake was well baked in thirty minutes. A beefsteak is well cooked in five to ten minutes. Our own observation satisfies us of the value of the stove for the uses described, while we can only give a general estimate of the amount of alcohol it consumes. Should this be double what is stated, it would be of great value to a small family preparing their own food. It is of different sizes and prices, ranging from $6 to $10 each. Printed directions accompany each stove sold.

Artificial Pearls.—These articles are made of thin glass, perforated in such a manner that they may be strung together, and mounted into necklaces, so as to resemble real pearl ornaments. The substance which is used to give the pearly lustre, is called the "*essence of the East*," (*essence d'Orient,*) and is prepared from the scales of a small fish, which is abundant in the Seine, in France, and is also found in the Thames and Rhine. These scales are prepared for use by introducing them into the water of ammonia, by which they are dissolved.

These ornaments were invented by a workman named Jaquin, in the time of Catharine de Medicis, about the middle of the sixteenth century. The principal place of manufacture is in the department of the Seine, in France. Artificial pearls are also made in Italy and Germany, but the manufacture is not carried to great extent. The Italians borrowed their method of manufacture from the Chinese. The latter make pearls from a kind of gum, and then cover them with a coating of the nacreous liquid. These articles are known by the name of Roman pearls.

In 1834, a French workman discovered a very heavy and fusible opaline glass, of a pearly color, which gave the beads the different weights and varied forms found among real pearls. Instead of using wax, as formerly, gum is now used, by which great transparency is given.—*Pen and Lever.*

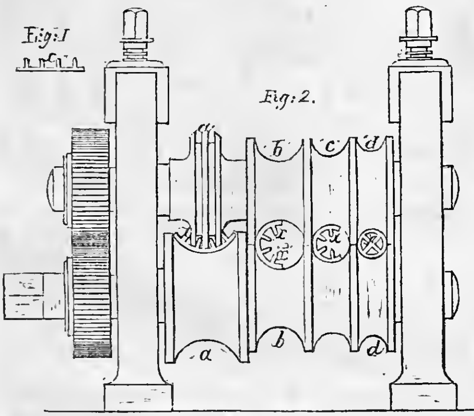
English Patents.

Improvements in the Manufacture of Gun Barrels. By William Beasley, of Smethwick, Staffordshire.—This invention consist, first, in an improved form of skelp or section of iron to be employed in making what are usually termed skelp barrels, whereby a uniform thickness of metal all around the barrel is obtained. Second, in rolling iron of a peculiar section to be employed in the formation of what are termed the "lumps," to be forged on to the breech of the barrel. And, third, in straightening this description of barrel, by employing a series of rolls mounted horizontally, their axles being the angles of an equilateral triangle, similar to those employed by the present patentee for welding twisted gun-barrels.

Improvements in the Manufacture of Axles. By James Newman, of Birmingham, and William Whittle, of Smethwick, Staffordshire.—This invention relates, firstly, to manufacturing hollow axles, having solid journals, with one or more diametrical bars or radial arms or supports running longitudinally through the interior, by which their tubular form is materially strengthened, whilst, from the distribution of the metal, the extreme of lightness consistent with the requisite strength is obtained. And, secondly, in constructing solid axles upon the same principle, which axles, having the longitudinal, cross-shaped bar before-named running through their entire length, from the extra rolling they will receive, and the manner in which the iron is put together, will derive considerable additional strength.

Fig: 1

Fig: 2.



The engraving figure 1 is a section of the iron rolled or otherwise worked into the form required for the iron axle; and fig. 2 is an elevation of the rolls employed for bending and closing the axle.

Having first rolled in grooved rolls, or otherwise prepared the iron of the section shown in fig. 1, it is to be heated, and then, by means of the rolls seen at *a*, fig. 2, the strip is bent or turned up until it is sufficiently formed to go through the grooves *b*. After having been passed through these, it is drawn through the grooves *c*, and, subsequently, through those marked *d*, by which last it is closed. The flanges *x*, *x*, are thus brought together in the form of a cross in the transverse section, and being welded in the centre, form a strong support through the whole length of the inside of the tube. Four solid segmental pieces, rolled or otherwise prepared, are then inserted in the segments at both ends of the axle, and welded at the same time as the axle; this is effected by passing the whole between a pair of rolls having grooves of a somewhat smaller section than those marked *d*, in the closing rolls. If necessary, the axle is now to be re-heated; after which the ends are to be subjected to the process of cross rolling, by which those parts of the axle are reduced in diameter to form the journals—the shoulders and butts being also formed by the same operation.

One mode of constructing this axle is by employing ⊥ iron, and then rolling or otherwise bending up the two ends into a semicircular form. A cross-piece is then rolled, or otherwise prepared, and placed between two of the semicircular skelps, and welded into the form of a hollow axle by rolling or other suitable means; or the axle may be made by employing, for the outer tube of the axle, iron of a segmental form, four of which segments are to be placed between the arms of a cross-piece previously prepared to the required form; the whole being securely welded together by rolling. A sound weld is insured by means of slight fins or flanges left for that purpose on the ends of each arm of the cross-piece, which fins are intended to grip and weld down upon the edges of the segmental skelps.

The foregoing description applies mainly to the manufacture of axles for railway rolling stock, or others of a circular section; but an axle may be made upon the same principle for vehicles traveling on common roads, which description of axle is usually square in section. The cross-pieces are in this case placed in the diagonal of the square.

The patentees also propose to manufacture solid axles on the same principle; in which case, having proceeded so far as to make a tube with the cross-bar running from end to end, they insert throughout its entire length pieces of iron of a shape suited to fill up the interstices between the cross-bars; thus the tube will be completely filled up, and the whole of the parts may be welded throughout, or only welded at the journal, by the process of cross-rolling. In the formation of those parts, should it be preferable in either case, great additional strength is gained by the disposition of the several parts of which the axle is formed. One bar placed diametrically across, and running the entire length of the interior of the tube, may also be used, or any suitable number of bars placed radially, which will give the desired internal support; but when the form of this internal strengthening is varied in making solid axles, the section of the bars employed for filling up must also be varied in a corresponding manner.

Improvements in producing Copper and other Plates for Printing. By Paul Pretsch, of Sydenham, Surrey.—This invention consist in adapting the photographic process to the purpose of obtaining either a raised or a sunk design on glass or other suitable material or materials, covered with glutinous substances mixed with photographic materials, which design can then be copied by the electrotype process, or by other means, for producing plates suitable for printing purposes, or can be applied for producing moulds applicable for obtaining plates.

The following is the mode of carrying on the operation:—First prepare a solution of about two parts of clear glue in about ten parts of distilled water—using more or less of either, as may be required; and to one part of a strong solution of nitrate of silver, and one part of a weak solution of iodide of potassium, each in a separate glass, pour a small quantity of the glue solution. The remainder of the glue solution must be kept warm, and a very strong solution of bichromate of potash well stirred up in it. Then add the prepared glutinous solutions of nitrate of silver and of iodide of potassium, and strain the mixture for use. Next take the clean plate of glass, or silvered copper plate, or other suitable plate, and, placing it quite level, pour the above mixture over its surface, which will form a coating thereon when completely dry. The print or other subject to be copied being laid on the prepared coated surface, they are to be placed together in a photographic copying frame, and exposed to the influence of the light. After a sufficient exposure, the frame must be opened, the plate removed, and washed either with cold water, or a solution of borax or of carbonate of soda, as may be necessary. The photographic picture or design will be found to appear in relief, and when sufficiently developed must be washed with spirits of wine. The surplus moisture is to be removed, and the plate covered with a mixture of copal varnish, diluted with oil of turpentine. After some time, and before becoming quite dry, the superfluous varnish must be removed with oil of turpentine, and the plate immersed in a very weak solution of tannin, or other suitable astringent. During this part of the process the plate must be carefully watched, and removed as soon as the picture or design is considered sufficiently raised; it is then washed in water and dried. In this state the plate is ready to be copied. This may be effected by the customary methods of rendering the coating conducting, and placing it in the electrotype apparatus, or by making a mould from the coated plate, which, being subjected to the electrotype process, will also afford the required printing plates; or sometimes the copying may be done by the stereotype or other like process.

Or, secondly, a solution of gelatine, prepared with chemicals, as already described, may be used to coat the plate, and operate for copying the same, as first detailed; but after washing with spirits of wine, the plate must be dried, and in due time the picture or design will appear sunk like an engraved plate. The production of printing plates therefrom is to be proceeded with, as before described.

Or a third process may be adopted by applying printing ink to the coating of the plate, prepared as above described—taking the impression upon paper laid thereon, which impression or print can be transferred to zinc or stone, and printed by the usual methods.

The patentee remarks, that the coated glass, metal, or other plates employed, when taken from the photographic apparatus or copying frame, have flat surfaces, and therefore must be treated with water, alcohol, or solutions of borax and other like suitable chemical ingredients, by which means certain parts of the photographic copy will appear raised, and others sunk, and is then ready to be made firm, if necessary, by applying astringents and drying varnish. The surfaces thus prepared, or the moulds prepared from them, are next made conducting, and must be placed in the galvano-plastic apparatus for obtaining a plate; or the same can be stereotyped or otherwise copied. Instead of the iodide of potassium, the ammonium bromide, or ammonium iodide may be employed, as they shorten the time of exposure, and likewise the copy can then be obtained by the photographic camera instead of the copying frame.

An improvement has been made in the foregoing, which is also secured by patent, in the use of copper or other suitable plates engraved by his new process, for the formation of cylinders, to be used in calico and similar printing, embossing, and other purposes; or cylinders may be formed directly by the electrotype process, by means of suitable tubular or other arrangements of his engraved plates, to serve as moulds, and the cylinders produced therefrom may be strengthened by the insertion of metal rollers, cast metal, and similar methods.

When it is desired to ornament manufactured articles with engraving according to the improved process, the same can be variously applied to flat, curved, and other surfaces, and, when required, the engraved surfaces may be covered with gold, silver, or other metals or materials, or may be inlaid with metals or other materials.

Improvements in Dressing and Finishing Woven Fabrics composed wholly or partly of Wool. By Henry William Ripley, of Bradford, England.—This invention relates, first, to a mode of treating woven fabrics composed wholly or partly of wool, so as to free their face from loose knots, and at the same time raise the nap or fibre. For this purpose, the goods are passed through a machine, similar to those commonly used in cloth dressing, for the purpose of keeping the cloth at tension while under operation; and while at tension they are subject to the action of fine steel combs, which are caused to act upon the fabric in a line nearly parallel to its surface. This operation may be performed by hand or other motive power. When performed by hand, the instrument used will be a narrow rectangular frame, furnished with a handle at its opposite ends, and made of a sufficient width to receive at its under side two steel combs, the teeth of which stand opposite each other. By imparting a reciprocating motion to this frame, when in contact with the fabric, the fine combs will alternately act upon the surface of the fabric, and remove the loose knots therefrom, and by imparting regularity or evenness to the nap, will greatly improve the appearance of the fabric.

A further improvement proposed to be effected in the finishing of the woven fabrics above referred to, is to expedite the cooling of the fabrics after they have been exposed to or undergone any process by or in which heat is communicated or imparted to them. This is accomplished by forcing cold air through or against the cloth by means of blowing or exhausting apparatus. The mechanical appliances used for this purpose may vary; but it is preferred to employ perforated cylinders on which to roll or wind the cloth, and, by means of any suitable well-known apparatus to exhaust the air from the interior of the perforated cylinders, to cause cold air to pass through the cloth, which is thereby rapidly cooled. By this mode of treatment an improved finish is produced on the woven fabrics, of a character which is not attainable by the processes in ordinary use.

An improved Manufacture of Metallic Alloy, applicable to the Casting of Type and other Articles.—By Robert Besley, of Fann-st., Aldersgate-street.—The object of this invention is to produce an alloy of a harder and tougher quality than that commonly used in the casting of metal types, and having the property (when in a molten state) of retaining its fluidity a sufficient time to insure a good casting when run into moulds or dies, and of setting quickly when it has entered the moulds or dies.

It is well known that the alloy commonly used in the manufacture of printing types is composed of lead, tin, and antimony, combined in various proportions, according to the judgment and requirements of the type-founder. The best metal that can be made by the admixture of these bodies is, however, an imperfect compound, wanting strength and continually deteriorating, while in a molten state, by the evaporation of that most important element, antimony, which action is taking place during the whole time that the manufacture is proceeding. Now, in order to prevent this change in the quality of the same pot of metal, and to insure the production of a series of castings that shall be perfectly homogeneous, the patentee proposes to add to the compound known as type metal certain substances which possess the property of fixing the antimony and giving the alloy the other qualities which it seems to require. The substances employed for this purpose are nickel, which will impart hardness to the alloy, and copper, which, besides giving additional toughness, appears to act as a flux to the antimony and insures its complete amalgamation with the other metals. These metals, it is stated, may be in part displaced by others, which play a somewhat similar part in the formation of the improved alloy. Thus by a diminution of of the quantity of nickel, and the substitution, in lieu of the subtracted portion of nickel, of an equivalent portion of metallic cobalt, the required hardness will be obtained; and further by the addition of bismuth in place of a small quantity of copper (which, like the copper, also acts as a flux), a homogeneous compound is produced, and the quick setting of the alloy is insured. It will thus be understood that the substance introduced, by preference into the compound of lead, antimony, and tin, in order to obtain the objects above enumerated, are nickel, copper, metallic cobalt, and bismuth; the nickel and cobalt being the materials used to give hardness, and the copper being the medium by which these substances are caused to unite with the antimony of the common type metal; while by the introduction of the bismuth (which has the well-known property of passing instantly from fusing to fixity), the setting of the alloy is somewhat expedited.

The proportions found best for the purpose contemplated are as follows:

100 parts of good virgin lead.
30 " " regulus of antimony
20 " " tin.
8 " " nickel.
5 " " metallic cobalt.
8 " " copper.
2 " " bismuth.

As nickel and cobalt will readily unite with copper, but will not form a perfect union with antimony, the nickel and cobalt are first melted with the copper and a small quantity of bismuth, and the mixture is then added to the alloy containing the antimony (with continued stirring,) and the result will be a perfectly homogeneous compound.

The Manufacture of Files.—For the last twenty years skilled mechanics have exercised all their ingenuity in trying to discover a process of manufacturing files, so as to lessen the cost of production. A machine which has proved successful, has recently been invented by Mr. Ross, of Glasgow. It is stated that, by its agency, files can be struck in a very superior manner, with an advantage in labor alone of at least 200 per cent. over the whole process of striking. A skilled file-cutter will strike by the hands somewhere about twenty common 40 inch flat bastard files in a day, while with one of these machines sixty files may be struck in the same time. A one horse-steam power is capable of driving six of these machines.

Railway Wheels.—S. Sudbrook, of London, has obtained a patent for an invention which consists in forming the periphery or outside edge of railway wheels with wood forced and pressed into and between suitable plates and chambers in such a manner as to form a very hard and compact surface, with the end of the wood so placed as to run on the rail; it is the same application of wood to the tread of railway wheels that has been applied to the bearing of boxes of shafts.

Improved Locomotives.—Some interesting experiments have recently been made in England with an improved locomotive. The report says:

"On Wednesday, some experiments ordered by Lord Panmure, were made by Messrs. Boydell and Glazier, of the Camden Works, Camden Town, on Boydell's traction engine, which were perfectly successful, and the engines, recently constructed are far superior to the first experimental one, introduced about a year ago. They have two cylinders each, 6½ in. diameter, with a 10 in. stroke. On the carriage wheels are a 96-tooth wheel, and a 20-tooth wheel, enabling the speed to be changed at pleasure; the quick motion 3½ to 4½, and the slow 1½ to 2½ miles per hour. In the first experiment, the engine, weighing 9 tons, propelled itself up an incline of 1 in 3, and in the second it transported 7 tons of brick over soft ground with perfect success. Other experments were made in ploughing land, &c., which were highly satisfactory. The endless railway has been employed in the Crimea in the transport of heavy goods.

Senior Editor's Table.

We are not aware who invented this heading, now so common; nor do we fully comprehend its object. But we suppose it must have been designed as a sort of safety-valve to the talking propensities of editors, who, not often seeing their readers, and yet feeling a deep interest in them, crave an opportunity of being a little familiar. Viewing the "Editor's Table" as an expedient of this kind, a sort of license, under cover of which we may come in by our readers' firesides, and converse with them pretty much as we please, within the bounds of a becoming propriety, we shall avail ourselves of it as soon and as often as we may have evidence that they approve; and if, in this first meeting, we go in advance of their approval, the circumstances of the case must be our apology.

Our worthy co-editor has introduced us to his readers, in terms perhaps more kind than wise. We can only say that for many years we *have endeavored* to secure the qualifications he has ascribed to us; and that so far as we have succeeded, or may, we will use them earnestly in behalf of this journal and its readers. It would be easier to pander to the mawkish sentimentalism of idlers than to satisfy the demands of the industrial classes, embracing, as they do, the sober judgment, the sound common sense, and the substantial worth of our country. To make a young lady of sixteen or twenty, who has nothing else to do, cry over a fictitious tale; or to shake the sides of a beardless youth, out of employment, would be no difficult task. But to gratify the taste of the intelligent producers of our country, to satisfy their desire for real improvement, to visit their families monthly with matters at once interesting and practically useful, with something for the man on the farm, in the shop, or the counting-room, something for the woman at the head of his domestic affairs, and something interesting and instructive to the children around them, served up in a manner to meet the convenience of those more accustomed to action than to long continued study, is not so easy. We come to the task with many fears, but we will *try*.

We have not forgotten who was the founder of the *Plough, Loom, and Anvil.* The lamented Col. Skinner entertained high purposes with regard to the influence sought to be exerted by it, directly on the material interests of our country, and indirectly on its still higher interests. In stepping in to aid in carrying out the objects which he had so well conceived, we enter upon a responsibility of no small magnitude. Will our readers consider the case? Will they furnish us facts, fresh from the fields of their industry? Long articles are not so much wanted; we are too apt to manufacture such ourselves. What we want is facts, briefly stated, pertaining to agriculture, manufactures, and commerce, such as will enable us to make a living journal of the present, and in some cases, at least, to anticipate the future, for the benefit of our readers. We regard agriculture as lying at the very foundation of all material prosperity. Still it can find no market for its products—the farmer cannot be rewarded—but in the presence of manufactures and the mechanic arts. Commerce is essential to the prosperity of both; and the three constitute the great sisterhood of human industry, either of which must necessarily languish without the living, active presence of the other. There is, therefore, good reason why all should be treated of in a work designed to be a family visitor to the industrial classes, and especially in a country like ours, where men's business is not stereotyped in advance, where there is room for a choice, and where the young and the enterprising feel that the world is open before them, to choose their place and their employment as their tastes and their qualifications may decide.

It has long been our opinion that, after religious and educational institutions, improvements in the modes and the results of agriculture are of the highest importance, the most worthy of the earnest inquiry of an intelligent people, and of the patronage of a beneficent government. But we can never lose sight of what we believe to be a fact, that agriculture can thrive only in proportion as the other great branches of industry thrive by its side, inasmuch as these create its markets, consume its products, and reward the husbandman. If the men who make our coats make them in this country, the American farmer has the privilege of feeding them the while; and if the men who dig the ore and make the iron used in these United States, come to this country and dig the ore from our own soil, and manufacture it with our own coal, the market for American produce is enlarged vastly more than if the work were done in Europe. While, therefore, we long for improvements in the cultivation of the soil, and would invoke the power of the Government to its advancement, we desire improvement in the other branches of industry, not as against, but for the sake of agriculture, believing, as we do, that whatever advances these great interests advances still more the greater interests of agriculture.

It will be our aim, in conjunction with our worthy co-laborer, with whom we have already formed a hearty friendship, to furnish a succession of articles, plain, practical, adapted to the every-day business of the farmer. The information we shall disseminate with regard to manufactures, the mechanic arts, and commerce, we believe will be useful to those engaged in them; but we believe it will be hardly less useful to the farmer, who, if we are not mistaken, needs not only to understand his own profession, but, in order to secure its highest prosperity, to comprehend its relations to the other industrial callings.

We would remind the readers of the *Plough, Loom, and Anvil*, and our friends generally, that our office is at No. 7 Beekman street, near the Park, where we will be happy to see them whenever they visit New-York. We have heretofore devoted considerable time to lecturing on agriculture and to visiting farms, for the double purpose of enlarging our own observations and of giving advice. This we are willing to continue, as time may permit, both for the purpose of bringing the freshly-gathered results of our observations into this journal, and for such compensation as may appear reasonable to the employer. As we are comparatively a stranger in this part of the country, we shall be pardoned for appending the following, as the closing part of a testimonial from the Massachusetts Board of Agriculture, given us last winter, on leaving that Board, after having been a member of it five years:

* * * "Mr. Nash has spent much of his life in practical farming, and has studied thoroughly the subjects of reclaiming waste lands, draining, fencing, location and structure of farm buildings, as regards economy of labor and durability of results; and we believe that if consulted by letter, or invited to visit farms, or to lecture in agricultural communities, he will seek earnestly and effectually to promote the best interests of the farmer.

HENRY J. GARDNER, *Chairman.*

Charles H. Flint, *Sec. Bd. of Ag.*

Marshall P. Wilder,
B. V. French,
Francis Brewer,
Ivers Phillips,
Moses Newell,
John Brooks,
Samuel Chandler,
Geo. W. Hubbard,
O. C. Felton,
Geo. Marston."

Good Manure for Corn.—A mixture as follows is good for corn, and may be applied as soon as the corn is planted, a handful being scattered on every hill. Salt, half bushel; plaster, one bushel; ashes, two bushels. Mix carefully and apply as above.

Junior Editor's Table.

A WORD FOR EACH OF OUR SUBSCRIBERS.

It is one of the pleasantest duties devolving upon an editor to chat familiarly with his distant but friendly readers. There is a sympathetic cord connecting the two, as real, if not as tangible, as the telegraphic wire. If no illumination is seen, inspiration is felt, a spark is transmitted. Such, at least, is our experience, and we hope it is that of our readers. We often think we should like a photograph of every one of them. We would give a month's work for such a gallery.

We often imagine their personal appearance, and guess at their characters, etc., when, in various ways, we are reminded of them. We take different views of them ; sometimes as farmers, or as manufacturers, or as artisans. Sometimes we see them at some particular kind of work, or indulging in this or that kind of recreation. Sometimes we see, in fancy, the family group, with those bright eyes, and happy faces, and rosy cheeks, that "mother" thinks so much of, and conclude that they are busy about this or that; and if we are "all wrong," no matter, we have had a pleasant recreation of our own. But sometimes we take a different view, the parts of which are suggested perhaps by the condition of our business matters. We shall give a sort of tableau of this description directly, but for the sake of having it stand quite conspiciously by itself, we shall affix to it a separate title.

Four Different Kinds of Subscribers.—One portion, and a large one, of our subscribers, the friends with whom we correspond so regularly month by month, are very prompt in sending us their annual subscriptions in advance. We scarcely learn that their year is up, before we receive the renewal of their annual contribution to the cause of American industry. For such remembrances of us we are especially grateful, and request each reader of this class to regard this as an expression of gratitude addressed personally to him. Friend, we thank you. We wish we could do you some personal service.

Nearly akin to these, their blood relations, are not a few, not so prompt as those, but requiring us to give them a little, gentle hint that something is wanted of them. Then they wake up and "enclose." Hence large dues are not permitted to accumulate. We thank all these too. Their patronage is valuable, and their kind offices are received gratefully. We would give to each, personally, our hearty thanks.

Another class are, in general, as kindly disposed as those just described. But though perfectly well-intentioned, they fail to act. They purpose, really and fully, to send us our dues, "very soon; " but like St. Patrick's to-morrow, this "very soon" is never present. The sum accumulates, and if by and by we address them with some urgency, they are vexed at themselves for their remissness, and are tempted to vent their ill-feeling upon us, by ordering a discontinuance of their subscription. These are comparatively few, but their numbers are such, that, when multiplied by the years and yearly subscriptions, they make a great show in the adding up of the two sides of our ledger. If they all should forward to us, in this day of DOUBLED EXPENSES, the amount due from them, it would make us dream, by night and by day, not of Elysian fields, nor beautiful angels, but of good and true men, of real friends and valuable patrons. How can each one of these fail to endeavor to excite in us such substantial pleasure?

We can suggest to them one additional thought as an incentive to prompt action. During the last two or three years, many skilful mechanics and workmen in our manufactories have been out of employment, and still are so; and they absolutely require all they can get for their daily expenses. We would not press such for payment, even by the weight of a feather, but would labor earnestly to secure that policy that would furnish them constant employment on good wages, and meanwhile we will give them all the instruction and gratification we are able to impart. Will our numerous readers, more fortunately situated, though not more kindly disposed, so promptly respond to this call, as to enable us to wait on those friends of ours till better times are come, while we continue to send to them, on the promise of the future, the monthly issue of hearts warm towards them, and of heads and hands laboring for them and for all?

There is a very small class, very small in more senses than one, who continue to receive our journal as regularly as it is issued, till we are obliged not merely to ask, but to insist on something in return, when they wake up, as from a long dream; breaking a silence of years' duration, they aver that they "never subscribed for the thing, and wont pay for it." These are too small in both senses, for us respectfully to notice. But the picture would be incomplete without them. As painters of living scenes, we could not entirely omit them.

Reader, what think you of this rough drawing? For ourself we omit the coloring, quite content with the outlines. The reader can *fill up* the picture and our purse at the same sitting.

OUR FLOWER GARDEN.—If we lived in the country with the facilities enjoyed by many of our readers, we would not abstract a small corner of one end of the vegetable garden for flowers, as many do, but would take a very different course. If we could have a beautiful green lawn, and if shaded, more or less, with beautiful trees, so much the better; we would select a few spots here and there, more or less numerous, according to circumstances, and raising a mound here and there, and leaving other chosen spots at their natural level, would sow our seeds and place our perennials and biennials in each, giving careful attention to the size of plants, the times of flowering, the colors of their flowers, &c., and secure a variety and a succession unattainable in a continuous plat. These floral spots should be connected by circuitous or curved walks, which, besides furnishing access to a flower garden, would also furnish a beautiful promenade. Curved walks have been commended because they open a succession of new views or a constant change of scene, incompatible with a straight and level path. On a small scale this feature might be illustrated in our fancied garden, and the friend to whom you would exhibit them is again and again surprised with an unseen and unsuspected miniature garden, almost as pleasing as a much larger one presented to his view at a single glance.

We should have made this suggestion in an earlier issue, but this is not the only matter which has been neglected in the few months past, while we have been trying to bring about the changes described in other pages, and which, in our mind, are so fruitful of promise for the time to come. We trust the bouquets we shall present our readers from time to time will compensate, many fold, for the lack of timely offerings in the season now almost closed.

A Gigantic Enterprise.—Among the projects for uniting France with England by a Railroad, that of Mr. Austin proposes to construct from Calais to Dover three submarine galleries, one for passenger trains, another for freight cars, and a third for carriages. The galleries are to be constructed of limestone, taken from the excavation. Mr. Austin computes the cost at 450,000,000 francs, about $90,000,000. His proposition is to excavate the channel for the purpose lowest in the middle, descending from each end, the ends to be forty-four feet below the rocky bed of the sea and the middle to be eighty feet below. He thinks the stone taken from the tunnel and hardened in the air will serve for the construction of the galleries. For the purpose of hardening the stone, he proposes to erect the necessary buildings, and then associating himself with a Mr. Hutchinson, who understands the process of hardening these materials, he promises to finish the work in seven years. To avoid the inconvenience from water pressing through, he contemplates erecting three shafts, one from each gallery, to receive the water, and through towers elevated above the surface of the sea, to throw the intruding water out by means of pumps. Although the tunnel will be ventilated, these towers will serve to give it more air and to light it.

The gentleman who furnishes us these facts in French, calls it "*une enterprise la plus gigantique au monde.*" We think so.

Products of Coal.—From the Practical Mechanics' Journal we learn that Great Britain occupies the first rank both in the quality and quantity of her coal production. The amount which she yearly produces is 32,000,000 tons, nearly eight times the quantity produced by the United States. Belgium comes next to Great Britain, with 5,000,000 tons, and the United States furnishes between four and five. France furnishes 4,200,000, Prussia 3,500,000, and Austria 700,000 tons. The United States yields bituminous and anthracite coal in abundance, and doubtless in a few years more her coal productions will be exceeded only by England. By a table published in the above paper it is shown that in twelve States, having an aggregate area of 565,283 square miles, there is an area of coal beds equal to 133,132 square miles, or nearly one-fourth. Canada contains no workable beds of coal, but Nova Scotia, New Brunswick, and Newfoundland are said to be rich in the article. Russia has on the northern shores of the Black Sea a bituminous, brown coal, which is abundant. The richest Russian coal-field is on the shores of the Sea of Azoff, between the Dneiper and Donetz rivers; it is said to be equal in quality to the best English. Coal beds are found in Egypt and various parts of Africa and Asia. In China, it is said, there are also extensive coal fields.

Soil for Fruit Trees.—Fine fruit can only be grown upon a soil naturally or artificially dry and firm. A wet soil, or a very loose peaty one, never produces fine fruit. Sandy soils, gravelly soils, or clayey soils, as well as what are called loamy soils, can all be made to grow fine fruit, if properly cultivated, provided the sub-soil is porous enough to permit the water to escape rapidly downwards a sufficient depth to allow the roots of trees at least three feet of soil, which is never filled with stagnant moisture; and the greater the depth of perfectly drained soil, the greater the certainty of success.

Miscellany.

To Advertisers.—This Journal, circulating largely as it does in all the States and Territories, affords an excellent medium for advertising, especially whatever pertains to agriculture and the mechanic arts. Our advertisements will hereafter appear on paper similar to this sheet, instead of the thin paper heretofore used. *Terms for advertising:*—$1 a half square, $1 50 a square, $5 a quarter page, $8 a half page, and $15 a page, for the first insertion, and twenty-five per cent. off for each subsequent insertion. A square consists of 12 lines (minion) of single width columns. If advertisers will give their orders *definitely*, they shall be executed to the letter; and bills shall be satisfactory.

Fairs, Premiums, Statistics.—We publish, on another page, a list of State fairs for the coming autumn, correct, so far as we know, as regards the times and places for meeting, but not full, for the reason that we have not received information from all the States in which societies exist. If any of our announcements should appear to be incorrect, we would thank our friends, who may be interested, to send us a correction; and if any State societies are to hold fairs, which we have not announced, we should be glad to be informed, as we intend to continue the list, corrected and enlarged, in our August and September numbers.

As it has often been recommended that Agricultural Publications, in way of premiums and gratuities, should be made a means of diffusing intelligence, we take the liberty of offering ours for this purpose. Our readers, we think, will recognize important improvements in this number. We are prepared to make still greater. *The Plough, Loom and Anvil* shall be what its name imports—*a Journal of American Industry.* We purpose that it shall be second to no other in its mechanical execution and the intrinsic value of its matter; and, though we regard mechanics and commerce as the *hands* and the *feet* of agriculture, without which it can neither work well nor run well, yet to *agriculture* itself, as the *body* and the *soul* of the whole family of Industries, we mean to give that place which its transcendant importance demands—to make *The Plough, Loom and Anvil* such a publication as we think the officers of an enterprising agricultural society would like to see in the hands of their brother farmers.

Will gentlemen interested examine this and subsequent numbers with reference to our proposal? Should any conclude to offer *The Plough, Loom and Anvil*, as premiums, or if not as premiums, as gratuities, in those meritorious cases often occurring for which no premiums have been provided, we will furnish it for this purpose, as to clubs of four or upwards (see page 2, cover); that is, at two dollars per year, and return one quarter of the value received, in agricultural books, which books might be added to the society's library, or be distributed as premiums to its members.

Be Systematic.—It will add more to your comfort and convenience through life than you can imagine. It saves time, saves temper, saves patience, and saves money. For a while it may be a little troublesome, but you will soon find it easier to do right than to do wrong; that it is easier to act by rule than without one.

Be systematic in everything; let it extend to the most minute trifles; it is not beneath you. Whitefield could not go to sleep at night, if after retiring he remembered that his gloves and riding-whip were not in their usual place, where he could lay his hands on them in the dark on any emergency; and such are the men who leave their mark for good on the world's history. It was by his systematic habits from youth to age that Noah Webster was enabled to leave to the world his great dictionary. "Method was the presiding principle of his life," writes his biographer.

Systematic men are the only reliable men; they are the men who comply with their engagements. They are minute men. The man who has nothing to do is the man who does nothing. The man of system is soon known to do all he engages to do; to do it well, and to do it at the time he promised; consequently, he has his hands full. When I want any mechanical job done, I go to the man whom I always find busy, and I do not fail to find him the man to do the job promptly, and to the hour.

And more, teach your children to be systematic. Begin with your daughters at five years of age; give them a drawer or two for their clothes; make it a point to go to that drawer any hour of the day and night; and if each article is not properly arranged, give quiet and gentle admonition; if arranged well, give affectionate praise and encouragement. Remember that children as well as grown folks will do more to retain a name than to make one.

As soon as practicable, let your child have a room which shall be its own, and treat that room as you did the drawer; and thus you will plant and cultivate a habit of systematic action, which will bless that child while young, increase the blessing when the child becomes a parent, and extend its pleasurable influences to the close of life. A single unsystematic person in a house is a curse to any family. A wife who has her whole establishment so arranged from cellar to attic, that she knows, on any emergency, where to go for the required article, is a treasure to any man, (my experience, reader;) while one who never knows where anything is, and, when it is by accident found, is almost sure to find it crumpled, soiled, and out of order—such a wife as this latter is unworthy the name, and is a living reproach to the mother who bore her.—*Tenn. Far. and Mechanic.*

Only Thirty Dollars for an Orchard.—Who that has a farm of one hundred and sixty acres, or even eighty acres, would not pay the above for three hundred well-selected grafted apple trees? And this is what they cost in many of the nurseries of this State. The ground on which they are planted will yield as much corn or potatoes, or nearly so—so that there is no loss in this respect. When once in bearing, the fruit is worth more than corn or potatoes.—*Indiana Farmer.*

State Shows, 1856.

American Pomological Society, at Rochester,	Sept. 24
Canada East, at Three Rivers,	Sept. 16, 17, 18
Canada West, at Kingston,	Sept. 23, 24, 25, 26
Illinois,	Sept. 30, & Oct. 1, 2, 3
Indiana, at Indianapolis,	Oct. 20, 21, 22, 23, 24, 25
Maine,	Oct. 28, 29, 30, 31
Michigan, at Detroit,	Sept. 30, & Oct. 1, 2, 3
New-Hampshire,	Oct. 8, 9, 10
New-York, at Watertown,	Sept. 30, & Oct. 1, 2, 3
North Carolina, at Raleigh,	Oct. 14, 15, 16, 17
Ohio, at Cleveland,	Sept. 23, 24, 25, 26
United States Agricultural Society, at Philadelphia,	Oct. 7, 8, 9, 10

Varieties.

Prospects of the Crops.—The *Montreal Witness* says: "From all sections of the country the intelligence is that there are the most hopeful indications of an abundant harvest. Fruit trees of all kinds promise an abundant yield the present season. In the apple and peach, old trees and young vie with each other in putting forth blossoms." The *Hamilton* (C. W.) *Advertiser* says: "All things considered, the prospects for both grass and grain are represented as highly favorable." A letter from Laching, C. E., says: "We are looking remarkably well here; the grass crop particularly.

There is also a great appearance of fruit, and everything looks favorable." At Towsontown, Md., corn, potatoes and beans are completely killed and gardens ruined. The tender shoots of grape-vines are killed, and the leaves of chestnut and other trees turned black. At Boonsboro' the frosts were heavy upon two mornings, killing all tender vegetables. The air had been previously dry and hot. Crops in Botecourt county, Va., have suffered with drouth, and have only partially revived by the late rains. The chinch bug is at work ravaging the wheat fields in some parts of that State. In North Carolina farmers expect a large crop of wheat now nearly ripe. In Newbury, S. C., corn is in tassel in some of the gardens.

The Galveston *Confederate* of the 23rd says: "A gentleman who has just returned from Eastern Texas, informs us that in that portion of the State he has never seen such prospects for a good crop. Everything, thus far, is favorable to a most abundant harvest. In the West, however, we learn the planters are very much annoyed by the worm, which in some sections is very numerous and destructive." In Ohio the effects of the cold winter are seen in the grape-vines, and in the cherry, peach and other fruit-bearing trees. From Chicago accounts, almost without exception, represent the prospect for an abundant harvest as glorious. At Lansing, Mich., everything above ground susceptible to the influence of frost recently suffered severely, or was killed outright. The wheat-fly has begun its depredations on the Eastern Shore of Maryland, and has made its appearance also in some parts of Tennessee.

American Institute Farmers' Club, Tuesday, June 17, Dr. Waterbury in the Chair.—The regular subject of the day was "Soiling and Modes of Summer Feeding of Cattle Preferable to Pasturing." But little was said upon the subject, the time being mostly taken up in reading and conversation upon miscellaneous subjects.

Mr. Judd inquired how late it would answer to sow corn or millet to make a crop of fall or winter forage?

Solon Robinson—I cannot tell how late it may be sown, but I will tell the Club what I have done in this latitude, though at the West. Before I had ever read anything about sowing corn for fodder, or before it had been talked of, so far as I know—for it was twenty-six years ago—a June flood carried off the fence around a small field upon a new place of mine in Indiana, so that I could not plant it, but yet I determined to raise something of a crop. I sowed it on the 6th of July with three bushels of Indian corn to the acre, and grew the most profitable crop I ever made. It furnished the cheapest fodder, cheaper than cutting hay. I had no difficulty in curing it, setting the first cutting against the fence, and the next against poles laid upon rough crotches cut from the near-by woods. It cured perfectly and without any difficulty. Post and wire or strips of boards might be used for supports where woodland is not so convenient as it was to me in Indiana.

Mr. Judd—I should like to know if anybody has practised soiling successfully?

Dr. Waterbury—Yes; there are large dairies in Herkimer county where the cows are never turned out to pasture, simply because soiling is the most profitable.

Mr. Judd—Can any gentleman tell us anything about Douro corn?

Judge Meigs—Mr Peabody, of Columbus, Ga., speaks of it in the highest terms. He says it will yield 100 or more bushels of seed and several tons of fodder per acre.

The London *Farmers' Magazine* says that potatoes have not been so plenty and cheap for twenty years as they are now. Country potatoes (York) are quoted at prices equal to an average of 37½c. a bushel. The following are the prices of some other vegetables in London:

Pineapple, per lb,	$2 to $3	Potatoes, per bush.,	62c. to $1
Grapes, "	3 to 5	Lettuce, per doz. hds.,	12 to 25c.
Strawberries, per oz.,	18 to 37c.	Cabbage, per doz. hds,	12 to 37c.
Oranges, per doz.,	25c.		

Reaping Machines.—The *Magazine* says the machines tried at La Trappe last year showed that all of the American machines were superior to those of France or England, as well as that of McCormick, the prize machine.

France butchers 4,000,000 of animals, averaging about 250. lbs. England butchers 2,000,000, averaging 750 lbs. The proportion of sheep and swine is not stated.

The potato disease first showed itself in Belgium, and then in Holland, France, England, &c., through all the countries where the potato grows, affecting every variety.

Guano.—A paper, prepared by Mr. Nash upon the guano trade, was read. There are at times five hundred ships waiting for loads of guano at the Chincha Islands. The writer thinks the supply will be exhausted in a few years. Twenty thousand tons are sometimes loaded in a single day. There is not a drop of rain and but little dew at the guano islands. The guano is now taken to every civilized country in the world. It is estimated that the guano is two hundred and fifty feet deep on a part of one of the islands, and is so hard that it has to be broken up with picks. It is dug by Chinese coolies and State prisoners. The rock is of the new red sandstone variety. The opinion of the writer is that the guano is not all composed of bird dung, but of a composition that was lifted up with the rock from the bottom of the ocean. The bird-dung guano is only the small part on the surface. The right to remove guano is held by Gibbs & Bright of London.

A FEW *subscribers who contemplate a discontinuance, when they see our improvements, actual and prospective, would perhaps choose to remain subscribers for the coming year. Hence we send this number to them, hoping for another year's remittance, without intending to charge them beyond the time specified by themselves for the continuance of their subscription.*

This number will be sent, postage prepaid, to a few non-subscribers, known as distinguished agriculturists, or as those who take a deep interest in agriculture, most of them, but not all, of our personal acquaintance and friends. Will gentlemen who receive it thus, after perusing it sufficiently, pass it along to others, who may wish to examine it with reference to becoming subscribers. We would not ask this if we could be everywhere at once. Possibly we may be able at some future time to return the favor. If we can we will.

New Books.

MEMOIR OF REGINALD HEBER, D.D., Bishop of Calcutta. By his Widow. Abridged by a Clergyman. Boston: J. P. Jewett & Co. 1856. 348 pages.

The name and memory of Bishop Heber is held in reverence by all denominations of Christians in all countries. This volume, designed to secure a more extensive circulation of the record of his life, and thereby extend the influence of his principles and his example, ought to be hailed with pleasure from every quarter. It is a faithful record from that prepared by his widow, and is very handsomely printed. It should be in all our Sabbath-school libraries.

SANDERS' HIGH SCHOOL READER. By CHARLES N. SANDERS, A.M. New-York: Ivison & Phinney. 1856. 528 pages.

This excellent manual contains a concise but "comprehensive course of instruction in the principles of rhetorical reading,"with well-chosen selections in prose and poetry, for the exercise of classes in reading of every grade. The "course" is excellent, the "selection" is excellent, and together form a book which it would be difficult to improve.

THE MARBLE-WORKER'S MANUAL, designed for the use of Marble-Workers, Builders, or Owners of Houses. Translated from the French by L. M. BOOTH; with an Appendix concerning American Marbles. New-York: Sheldon, Blakeman & Co. 1856. Small 12mo. 256 pages.

This little manual is divided into five parts. It treats 1, of marbles in general; 2, the use, cutting and polishing of marbles; 3, progress for facilitating and perfecting the labor; 4, plated marbles, stuccos, mosaics, and terraces; and 5, new processes, secrets, recipes, an essay on the manufacture of toy-marbles, &c.

NEW MUSIC.—HORACE WATERS, New-York, has recently published "We'll all meet again in the Morning," ballad—words by Henry Clay Preuss; music by Thomas

Baker. "Land of Dreams," ballad by Samuel Lover, music by F. W. Smith. "Happy Haidee; or, Dream on to Night," arranged by Thomas Coates, music and words by Marshall S. Pike, Esq. "Spare the Old Home of my Childhood," song and chorus by S. M. Grannis. "Somebody's Waiting for Somebody," song by C. Atherton, Esq.

Messrs. Hall and Son have recently issued some beautiful gems. Among these are Six Studies for the Piano, by H. A. Wollenhaupt; a series of fifteen favorite pieces, called "The Vase of Flowers," from the best composers, by James Bellak; and two beautiful ballads and a cavatina, by W. Vincent Wallace.

De Bow's Review.—The 20th volume of this work is completed with the June No., now issued, which contains a very laborious General Index. The first series of the Review closed with 1851, and has been condensed into Industrial Resources. The second series embraces the volumes since published. A new series begins with July, 1856.

Price of the first series condensed, $5, (3 vols.); second series, 10 volumes, if ordered immediately, $20, handsomely bound; or $15 if the numbers for February, 1851, July, 1852, August, 1855, and January, 1856, are returned.

Subscription to the Review, $5 per annum: Washington—New Orleans. In the advertisement the editor says:

"As we have a great many odd numbers of the work from the beginning, parties desiring to complete sets or years had better correspond at once with the Washington Office, and terms will be offered, it is believed, to suit them in every case.

"*The nature of a work like the Review, is such that it should be preserved in series or volumes; and the editor is determined to remove every impediment in the way of its being done.* The work will thus always be worth as much or even more than it costs."

We recommend this journal of our friend De Bow as a very able advocate of the Southern school of national policy, and of what its editor and his correspondents believe to be essential to the best interests of the South and of the country. Those who do not agree with the sentiments advanced will find there the ablest discussions of topics of the greatest importance. As a statician, Mr. De Bow is without a rival. His Review is an efficient friend of Industry and of General Education.

List of Patents.

FROM TERMINATION OF PREVIOUS LIST TO JUNE 3.

Ossian G. Auld and Jasper H. Whiting, of Cal., for improved riffle for gold washing.

Wm. H. Akins, of Berkshire, N. J., for improvement in locks.

Jesse S. Butterfield and Simeon Marshall, of Philadelphia, Pa., for improved cartridge opener.

Chas. N. Cole, of Pleasant Valley, N. Y., for improved farm gate.

Nelson B. Carpenter, of New-York, N. Y., for improved horse shoe.

John Clough and Daniel M. Cummings, of Enfield, N. H., for improvement in surgical splint.

John B. Cornel, of New-York, N. Y., for improvement in continuous sheet metal lathing surface.

Wm. B. Coats, of Philadelphia, Pa., for machine for cutting green corn from the cobs.

Benjamin J. Day, of Gibson Co., Ind., for improvement in bridle bits.

Elisha Dexter, of Holmes' Hole, Mass., for self-counting measure.

Lucius Dimock, of Hebron, Conn., and Ira Dimock, of Mansfield, Conn., for improvement in machinery for trebling single thread.

Simon W. Draper, of South Dedham, Mass., and Rowlen M. Draper, of Roxborough, Mass., for improvement in machines for dressing mill stones.

Samuel F. French, of Franklin, Va., for improved bow for violins.

Hugh Forsman, of Enon, O., for improvement in self-raking attachments to harvesters.

A. C. Fuller, of Danbury, Conn., for improvement in hat felting machines.

Jackson Gorham, of Bairdstown, Ga., for improved hand saw.

J. P. Gould, of Smith, O., for improved husking thimble.

Horace N. Goodrich, of Aurora, Ill., for improvement in winnowing mills.

Edward Heath, of Fowlersville, N. Y., for improved punching machine.

James Hewson, of Newark, N. J., for fastening for port-monnaies and pocket-books.

James R. Hilliard, of Paterson, N. J., for improvement in lock joint for railroad cars.

J. B. Holes, of Cincinnati, O., for improved machinery for manufacturing wash boards.

Wm. J. Holman, of Indianapolis, Ind., for improvement in compound rail for railroads.

Wm. D. Hooker, of Dedham, Mass., for improved method of securing knives to cutter heads.

Daniel S. James, of New Market, Va., for improvement in invalid chairs.

Edmund Kingsland of New-York, N. Y., for improvement in brick machines.

C. M. Lufkin, of Ackworth, N. H., for improvement in mowing machines.

Oliver L. Lawson, of Crestline, O., for improvement in blow-pipes.

Horace Lettington, of Norwich, N. Y., for improvement in fastening bits.

Zebulon Lyford, of Lowell, Mass., for improvement in portable chairs.

Sylvester B. Miller, and Ezra W. Whitehead, of Newark, N. J., for improvement in working sheet metal.

Wm. J. McCraken, of Rochester, N. Y., for improvement in wardrobe trunks.

Cyrus B. Morse, of Rhinebeck, N. Y., for improved planing machine.

James L. Norton, of Alum Bank, Pa., for improved file cutting machine.

Geo. W. Pittock, Jno. B. Stott, and Galen Richmond, of Troy, N. Y., for improved re-acting water-wheels.

Thos. H. Powers, of Wyocena, Wis., for improvement in brooms and brushes.

Thos. H. Powers of Wyocena, Wis., for improved cattle pump.

A. S. Pelton, of Clinton, Conn., for improvement in apparatus for heating buildings by steam.

Samuel Richards, of Philadelphia, Pa., for improvement in snow plough for railroads.

Frederick J. Seymour, of Waterbury, Conn., for improvement in making brass kettles.

John Sterrett and Newton J. Wier, of Lowell, Mass., for improvement in gas stoves.

Francis C. Treadwell, Jr., of New-York, N. Y., for improvement in preparing dough for moulding crackers.

Wm. Thomas, of Hingham, Mass., for improvement in chairs for ships cabins.

John Van Amringe, of Cincinnati, O., for fire and escape ladder.

James Wilson, of Brandywine, Del., for improved furnaces for heating soldering irons.

Henry Waterman, of Hudson, N. Y., for improvement in gas regulators.

Hosea Willard, of Vergennes, Vt., for improvement in seeding machines.

Jacob S. Williams, of St. Louis, Mo., for improvement in ovens for cooking ranges.

James N. Aspinwall, of Newark, N. J., assignor to Henry E. Staff and James N. Aspinwall, aforesaid, for improvement in rolling fire blanks.

Jonathan F. Barrett, of North Granville, N. Y., assignor to Abram B. and Jonathan R. Barrett, of Lincoln, N. C., for improvement in mowing machine.

Joseph M. Lippincott, of Pittsburg, Pa., for improvement in locks.

Milton Roberts, of Belfast, Me., assignor to himself and Isaac N. Felch, of same place, for improved cutter heads for lathes.

Samuel D. Quimby, of Winchester, Mass., assignor to Edward A. Locke, of Boston, Mass., for improvement in frames for travelling bags and mail pouches.

Gustavus V. Brecht, of St. Louis, Mo., for improvement in machines for cutting meat.

E. Rookhout and C. H. Hewlett, of New-York N Y., for improvement in water closets.

James Beetle, of New-Bedford, for improved boat frames.

Henry E. Chapman, of Albany, N. Y., for improved pill machines.

Samuel Colt, of Hartford, Conn., for improvement in fire arms. Patented in England, March 3, 1855.

Richard Colburn, and L. W. Hanson, of Norwich, Conn., for improved arrangement of supplemental valves for high pressure steam engines.

John W. Cooper, of Philadelphia, Pa., for printing machine.

J. J. Eagleton, of New-York, N.Y., for improvement in annealing furnace.

Bela Gardner, of Florence, Mass., for improved method of operating saw mill blocks.

Wm. O. George, of Richmond, Va., for oracular wheel or centre table.

Francis Gerau, of New-York, N. Y., for improvement in artificial decoloring compounds.

John Gunner, Jr , of New-York, N. Y., for improved swing bolts for fastening shutters.

J. G. Hock, of Newark, for improvement in gas retort fastenings.

Edward Hedley, of Medina, N. Y., for improved shingle machine.

John Henderson, of Elmira, for improved horse shoe.

D. E. Hughes, of Louisville, for improvement in telegraphs.

Morgan S. Johnson, of Palatine, Ill., for improved method of regulating windmills.

John M. Jones, of Palmyra, N. Y., for printing machines.

Harry Lull, of Hoboken, for improvement in feathering paddle wheels.

Nathan B. Marsh, of Cincinnati, for improved water meter.

Augustin Miller, of Grafton, Va., for improved hydraulic engine.

James M. Miller, of New-York, N. Y., for improvement in surface condensers for steam engines.

Wm. G. Oliver and Thomas Harrison, of Buffalo, for improvement in devices for setting artificial teeth.

Philip Perdeu and Alex. W. Brinkerhoff, of Sycamore, O., for improvement in ash leaching apparatus.

Max Pettenkofer and Chas. Rutland, of Munich, Bavaria, for improvement in the construction of gas generators. Patented in Bavaria, Feb. 24, 1851.

E. Price, of Waterproof, La., for improved elevator for cotton, sugar cane, etc.

Napoleon B. Proctor, of Burlington, Vt., for improved floating drawbridge.

A. D. Puffer, of Somerville, Mass., for improvement in lining metal pipes with gutta percha.

John Robinson, of New Brighton, Pa., for improved method of hanging reciprocating saws.

James D. Sarven, of Columbia, Tenn., for improved carriage shaft coupling.

Nathan Thompson, Jr., of Williamsburg, for improvement in surface condensers for steam engines.

John Taggart, of Roxbury, Mass., for improvement in excavating scoops.

Samuel H. and Mathew C. Walker, of Lancaster, Pa., for improvement in gas retort cleaners.

Thos. Ward, of Birmingham, Pa., for improved music rack.

Edward S. Watson, of Chenango Forks, for improved saw set.

George W. Zeigler, of Tiffin, O., and Manasseh Grover, of Sandusky, Ohio, for improved mode of extracting stumps.

Wm. R. Dutcher, of Troy, assignor (by intermediate tranfer) to Harvey Church, of Troy, aforesaid, for improvement in machinery for making rope and cordage.

James W. Martin, of Burlington, N. J., assignor to Lewis Rotherwell and James W. Martin, aforesaid, for improved weighing carts.

John Magee, of Lawrence, Mass., assignor to himself and W. J. Towne, of Newton, Mass., for improvement in ventilating registers and dampers for stoves.

Melton Roberts, of Belfast, Me., assignor to himself, Isaac N. Felch, of same place, for improved lathe attachment for turning irregular forms.

John Stuber, of Utica, assignor to John Carton, of same place, for improvement in locomotive and railroad lamps.

Lucius B. Adams, of Smithfield, Pa., for improvement in head blocks of saw mills.

Wm. Ball, of Chicopee, Mass., for improvement in steam stamps.

James Beetle, of New Bedford, for improved car window.

Albert Bisbee, of Columbus, O., and Y. Day, of Nashville, Tenn., for improved photographic pictures on glass.

Martin Buck, and James H. Buck, and Francis A. Cushman, of Lebanon, N. H., for improvement in brick machines.

Wm. Clark, of New-York city, for improved attachments for piano legs.

Nathan S. Clement, of Worcester, Mass., for improved breech loading fire-arms.

Wm. Clemson, of East Woburn, Mass., for improvement in grinding circular saws.

Charles T. Eames, of Milford, Mass., for improvement in boot-trees.

Daniel Fitzgerald, of New-York, N. Y., for improvement in portable houses.

Kingston Goddard, of Philadelphia, Pa., for improved method of securing nuts to carriage axles.

Wm. B. Godfrey, of Auburn, Iowa, governor, for side wheel and ocean steamers.

Emmons Hamlin, assignor to himself and Henry Mason, of Boston, Mass., for improvement in reed and musical instruments.

Wm. O. Grover, of Boston, Mass., for improvement in sewing machines.

Henry Gross, of Tiffin, O., for guard circular saws.

Elliot Miller, of Charlestown, Mass., for improved calipers.

E. M. Hendrickson, of Brooklyn, N. Y., for improved lock and key.

F. A Hoyt, of Boston, Mass., for improvement in floats for steam boilers.

S. C. Ketchum, of Brooklyn, N. Y., for improvement in sizing hat bodies.

Wm. F. Ketchum, of Buffalo, N. Y., for improved mowing machines.

C. K. Landis, of Philadelphia, Pa., for improvement in operating steam engines.

A. B. Latta, of Cincinnati, O., for improved safely valves for steam engines.

Wm. B. Lindsay, of New-Orleans, La., for improvement in cotton gin.

C. A. Mann, Jr., of Pike, N. Y., for improved excavator.

Wm. W. H. Mead, of Chestertown, N. Y., for improved governors for steam engines, &c.

H. L. Mooney and W. B. Carter, of Astoria, Ill., for improvement in boring hubs.

Marcus Ormsbee, of Boston, Mass., for new method of winding thread from skeins.

Conrad Leicht, of New-York city, for improvement in billiard cues.

Philetus Phillips, of Middletown Point, N. J., for improvement in musical notation.

Robert Pilson and S. P. Heath, of Laurel, Md., for improvement in looms.

James Reynolds, of New-York city, for new method of cleaning gutta percha.

J. G. Ross, of New-York city, for improvement in hand propellers.

Wm. J. Stevens, of New-York city, for improved self-sealing preserve vessels.

Herman Winter, of New-York city, for improvement in valve gear for steam engines.

Samuel Gaty, of St. Louis, Mo., for improvement in ships' capstans.

Franz Uchatius, of Vienna, Austria, (patented in Austria, March 14, 1855,) for improvement in making steel.

Clark Tompkins and John Johnson, of Troy, N. Y., for improved rotary knitting machines.

T. D. Worrall, of Boston, Mass., for improvement in securing plane bits.

James T. Youart, of Troy, N. Y., for improvement in grain and grass harvesters.

Wm. D. Arnett, of Cincinnati, O., for improved replaceable axle box for railroad cars.

J. W. Fox, of Durhamville, N. Y., for improved method of drawing fluids from bottles.

Henry White, of Oneida Castle, N. Y., for improved shingle machine.

Harvey Miner and H. M. Stevens, of New-York city, and Wm. Saunders, of Hastings, N. Y., for improved coupling for vehicles.

Daniel and George Tallcot, of Oswego, N. Y., for improvement in ships' capstans.

A. B. Richmond, of Meadville, Pa., for improved fellies.

W. W. Wier, of Chicopee, Mass., and Wm. Grover, of Holyoke, Mass., for improved self-acting mules.

George W. Zeigler, of Tiffin city, O., for improvement in ploughs.

C. S. C. Crane, assignor to S. M. Tinkum, of Taunton, Mass., for improved corn shellers.

J. F. Allen, of New-York city, assignor to N. L. Cole, of Norwich, Conn., for improvement in slide valves.

Thomas Sands, of Chelsea, Mass., assignor to himself and J. P. Lindsay, of Roxbury, Mass., for improvement in parlor organs.

Wm. Alley, of Columbus, Ga., for improvement in uterine supporters.

Solomon Andrews, of Perth Amboy, N. J., for improvement in gas burning lamps.

Josiah Ashenfelder, of Philadelphia, Pa., for improvement in marble sawing machines.

N. Aubin, of Albany, N. Y., for improvement in feeding apparatus for gas retorts.

Jesse Battey, of Honeoye Falls, N. Y., for improved method of regulating windmills.

Joseph Becker, of New-York, N. Y., for improved piano-forte action.

William Burdon, of Brooklyn, N. Y., for improvement in relieving slide-valves from the pressure of steam.

John Casey, of New-York, N. Y., for improvement in window frames.

Richard H. Cole, of St. Louis, Mo., for improvement in nut machines.

Thomas Estlock, of Philadelphia, Pa., for improved device and walls of buildings for preventing damage to goods by water in case of fires.

Richard H. Cole, of St. Louis, Mo., for improvement in making nuts.

Richard H. and John C. Cole of St. Louis., Mo., for improved machine for polishing metallic nuts.

George Crangle, of Philadelphia, Pa., for improvement in rotary brick machines.

Rufus Ellis, of Boston, Mass., for improvement in needles for knitting machines.

Benjamin Gilpatrick, of Lowell, Mass., for improved saw set.

Sylvester H. Gray, of Bridgeport, Conn., for improvement in machines for felting hat bodies.

Jacob Green, of Philadelphia, Pa., for improvement in gas-consuming furnaces.

John G. Hock, of Newark, N. J., for improvement in the arrangement of a gas retort bench.

Christian Knauer, of Pittsburg, Pa., for copying press.

Wm. D. Leavitt, of Cincinnati, O., for improved sawing machine.

Henry F. Mann, of Westville, Ind., for improvement in harvester frames.

Wm. N. Manning, of Rockfort, Mass., for improvement in melodeons.

Robert Myers, of Factory Point, Vt., for improved marble sawing machine.

Foster Nowell, of Lowell, Mass., for improvement in wool carding machines.

R. H. Peverly, of Chelsea, Mass., for improvement in self-regulating ships' compasses.

Samuel Richards, of Philadelphia, Pa., for improvement in glass furnaces.

Josiah A. Rollins, of Buffalo, N. Y., for improvement in melodeons.

Isaac M. Singer, of New-York, N. Y., for improvement in sewing machines for binding hats.

Lysander Spooner, of Boston, Mass., for improvement in elastic bottoms for chairs and other articles.

Wm. Samuels and George L. Stanbury, of Jackson township, Ind., for improved boring machine.

Wm. B. Treadwell, of Albany, N. Y., for improvement in cooking stoves.

John A. Toll, of Sugar Bridge, O., for improved marble sawing machine.

Otis Tufts, of Boston, Mass., for improvement in operating valves of steam engines.

Henry S. Vrooman, of Logansport, Ind., for improved sawing machine.

Chapman Warner, of Green Point, N. Y., for improved filter.

Marshal Wheeler, of Honesdale, Pa., for improvement in gas regulators.

Allen B. Wilson, of Waterbury, Conn., for improvement in grain and grass harvesters.

Henry R. Worthington, of Brooklyn, N. Y., for improved method of attaching steam to a conical valve.

Linas Yale, Jr., of Newport, N.Y., for improved lock.

Frederick B. E. Beaumont of Upper Woodball, Eng., for improvement in fire-arms.

Solon Bishop, of Horner, N. Y., for improvement in washing machines.

John T. Bever, of Haynesville, Mo., for improvement in washing machines.

Samuel L. Denney, of Lancaster, Pa., for improvement in hand corn planters.

David L. Davis, of Dedham, Mass., for improvement in elastic bearings for railroad chairs.

James W. Evans, of New-York, N. Y., for improvement in amalgamator.

Mahlon S. Frost, of Detroit, Mich., for improvement in railroad car brakes.

Cyrus Garret, and Thomas Cottman, of Cincinnati, O., for improvement in subsoil ploughs.

Horace L. Hervey, of Quincy, Ill., for improvement in paralletic instruments for measuring distances.

George Kesling, of Lebanon, O., for improvement in fire-arms.

Servetus Longely, of Cincinnati, O., for improved apparatus for rolling and handling barrels, etc.

John McChesney, of Louisville, Ky., for improvement in washing machines.

Jacob J. and H. F. Mann, of Westville, Ind., for improvement in reaping machines.

Josiah Mumford, of Clarksburg, O., for improvement in revolving last holders.

Joseph Smith of Condit, O., for improvement in machines for raking and loading hay.

Oren Stoddard, of Busti, N. Y., for improvement in machines for husking corn.

Lucius E. Treadwell, of Warren, Mass., for improvement in lattice bridges.

George W. N. Yost, of Pittsburg, Pa., for improved driving wheels for steam drags or propeller.

George W. N. Yost, of Pittsburg, Pa., for improved steam and land propeller.

Samuel Fahrney, of Boonsboro, Md., assignor to Abraham Huffer and Benjamin Fahrney, of Washington Co., Md., for improved vice.

Cullen Whipple, of Providence, R. I., assignor to the New-England Screw Company, of same place, for improvement in making screws.

Wm. P. Wood, of Washington, D. C., assignor to Samuel De Vaughn and Wm. P. Wood, of same place, for improved mitre box.

Daniel Dodge, of Hessville, N. Y., for improvement in nail machines.

The Plough, the Loom, and the Anvil.

VOL. IX. AUGUST, 1856. NO. 2.

Agricultural.

THE UNITED STATES—HER PAST AND HER FUTURE.

THE following is the conclusion of a very able article in De Bow's Review for June, under the above head. We are not quite as *hopeful* as the writer; we wish we were; and we will be, if we can see evidence that our American citizens are generally adopting the obligations and responsibilities of American citizens herein set forth:

Our vast extent, multiplying and diversifying the resources of the country, increases its independence of other countries, augments its power, enlarges the sphere of social improvement and enjoyment, elevates and expands the individual as well as the national mind, and in every way widens the basis of national permanence and progress.

The purposes which the Almighty evidently designs to subserve, through the instrumentality of the American nation, authorizes a confident belief that it is yet destined to a long and increasingly glorious career. Brought into existence just at that period when the world had begun to rise to that intellectual and moral eminence, and to enjoy, through the widening range of commerce and enterprise, guided by science and well regulated intelligence, that extended intercourse between the various portions of the earth which would give to a great and prosperous nation the utmost facilities for impressing itself upon the world; starting with a population uncommonly free from the errors of former and elsewhere prevailing systems, and which has developed, in every step of its career, the elements both of mind and heart most approved of Heaven, and best calculated to supply the demands of human progress; occupying a geographical position with reference to the nations of the earth, which the condition of the rest of the world would naturally indicate as most favorable to adjust its capacities of usefulness to the wants of mankind—the indications are unmistakeable, that the providence of God has marked out for our nation a career of usefulness as broad and as grand as the interests of the world, and whose duration, therefore, must be commensurate with the magnitude of these appointed results.

Here, in this favored land, is to be illustrated in living, actual example, those benign institutions of civil government which give freedom and elevation to man; that system of religion which, coming directly from God, brings the individual man in direct relationship to his Maker; teaches him the whole range of his responsibilities, and invests him with the efficient motives for their successful performance, and that intellectual emancipation, in which the mind, untrammelled in its aspirations, is urged by all the power of its own spontaneous activity, and the encouragements of enticing reward to every field of inquiry and improvement. The world around us is struggling for freedom from intellectual and physical shackles, that it, too, may enter upon this high and glorious estate. It is not by actual interference that we are to assist in this struggle. It is not physical, but intellectual and moral aid, which the world in the present crisis demands. These are the weapons by which alone advancing nations can secure their preparation for, and successfully assert their claim to, the glorious emancipation we enjoy. It is, then, by our own brilliant example, standing out, as it does, midway the world, and offering conspicuously to the gaze of surrounding nations the glorious exhibition, and the hope of a higher, happier state, that we are to secure to the world the redemption they need, and to usher in the era of happiness to universal man. This, then, is the mission to which Providence has assigned the American nation, and this is the mission which, even now, it is most gloriously fulfilling.

May we not hope that our national existence is destined to a continuance as long as the duration of this field of usefulness; and that its power and glory will ever correspond with the increasing extent and grandeur of the world's susceptibilities of elevation and improvement.

The relative position of the United States to the nations south and west of her, which embrace the largest portion of the inhabitants of the globe, point her out as destined to effect the most important and permanent results in the history of the world. It was in the East that civilization first began. Gradually it has extended itself westward, but always developing itself in each step of its progress in ampler proportions and brighter light, until at last, in noontide splendor, it has displayed itself upon the American continent. But in every case it has been by colonization, and the consequent amalgamation of races, by which the aboriginal race was supplanted, that this western march of an increasing civilization has been realized. The capabilities of improvement in any race are circumscribed by definite limits. And if the regions of South America, of the Pacific Isles, and of the vast continent of Asia, are destined to become the seats of a civilization higher than any now enjoyed, which, as an inference from the general course of its progress hitherto, and the apparent design of Providence, seems quite certain, it must be by the infusion of elements, both of race and of knowledge, the offspring of a people and of a civilization elsewhere existing. The relative position of the United States to these vast regions designates her as the instrument, by which these conditions of this advancing civilization are to be fulfilled. Already has she, by a rapid course of colonization, supplanted the inferior race of her recently acquired Pacific territory, and with one rapid bound extended the western limit of her own noble race and civilization to the very shores of the Pacific. Thus even now is she brought into immediate contact with Mexico, South America, the Isles of the Pacific and even Asia herself. It is not difficult to perceive that a people, so active and enterprising as ours, with all the facilities for immigration and colonization in respect of these regions —which an increasing commerce and a widening international intercourse, promoted by the remarkable improvements, which the modes of transit of later times will secure, will not be long in spreading in the midst of these regions. But wherever they go, this inferior native population, as the result of amalgamation, and that great law of contact between a higher and a lower race, by which the latter gives place to the former, must be gradually supplanted, and its place occupied by this highest of races.

It is highly probable, therefore, that in the revolution of years the descendants of the American people, still higher elevated in the scale of being, and possessing the vast treasures of a glorious civilization, and the blessings of a saving Christianity, will occupy the entire extent of America, the rich and fertile plains of Asia, together with the intermediate isles of the sea, in fulfilment of the great purpose of heaven, of the ultimate enlightenment of the whole earth and the gradual elevation of man to the dignity and glory of the promised millennial day. Results so far reaching and grand, require for their realization a lapse of time, and an extent and grandeur of means, that bespeak for our country a yet long and glorious career.

A country so abounding in all the elements of permanence and prosperity, so elevated by the dignity and grandeur of the objects to the realization of which it is committed, and yet containing in itself so many of the seeds of decay, must devolve upon its citizens the most high and sacred duties.

In those countries, where the responsibilities of government are confined to certain classes, that part of the population excluded from those classes being without power to impress itself upon the government, may be excused from the duty of familiarizing themselves with its principles and operations. But in our country, where every man may exercise an efficient agency in the machinery of government, and where the entire sovereignty is but the aggregation of the individual sovereigns which compose it, the obligation to study the constitution of the country and the proper mode of its just administration, presses with the utmost sacredness upon every freeman. It is not enough that American citizens should have a mere superficial acquaintance with the general character of the government and the history and interests of parties, such as may be derived from the common newspapers and political speeches of the day ; such knowledge both misleads and renders its possessor the more susceptible of delusion by the ambitious. But the constitution itself should be read and studied by every one for himself; its principles, and their mutual relations as a regular system, should be clearly apprehended ; and the history of the application and the operation of these principles, as exhibited in the entire history of the administration of the government, should be the object of constant attention and inquiry ; so that every man, not depending upon others for direction in his political sentiments and action, should be able to determine for himself intelligently, by reference to the fundamental principles involved, all questions, in the solution of which he as an American citizen is interested. Such a course is necessary to elevate the masses above the delusions of the designing, and to secure to every man those high qualifications of intelligence and statesmanship, which the theory of the government both presupposes and demands. No American should be without a printed copy of the constitution of his country ; and, as the great chart of his liberties and immunities, it should be the text-book of his constant reference and study.

That independence of judgment and of conduct, which holds well settled opinions of the constitution and political policy paramount to the interest of party and the claims of men, is the essential quality of true American patriotism. Without it, the individual man is so hampered and restrained, as to be incapable of that enlarged and symmetrical development and progress which our wise and liberal system of government is so well calculated to secure. Without it, our government, instead of being the expression of the people's will, will be in effect but an oligarchy, the instrument of ambition of bold aspirants. Without it, indeed, the constitution itself will cease to be the political directory, and only referred to and used as an auxiliary to power and influence.

An enlightened public spirit, which seeks to make the country prosperous and happy, by the development of its resources and the multiplication of its conveniences and enjoyments, it is the sacred duty of every American citizen to maintain. Such a spirit, thus practically exercised, necessarily promotes the well-being of every citizen directly, and likewise indirectly by that security and permanence which the general support of such interest necessarily secures to the whole nation. Enterprises designed to forward the interests of Christianity, of public education, of commercial and industrial pursuits generally, on a scale of the highest magnificence, embracing the claims of the far-reaching future as well as the wants of the present, should engage the attention and co-operation of every free American.

Finally. Recognizing the existence of a great superintending Providence, which guards and directs the interests of nations, and especially of one so evidently designed to compass the grandest results of usefulness in the world's history as is ours, every American should not only, by an enlightened consultation of the providential bearings of the nation seek to conform his own course of action to them, but, if he be a praying man, should constantly hold the vast interests of the nation before the throne of Divine grace, and secure, by the power of his own personal interest there, the protection and guidance of the Almighty in the onward destiny of our beloved Republic.

Thus, blessed with such glorious elements within, and surrounded by such favorable circumstances without, the hearts of the American people may justly swell with triumphant anticipations of the increasing power, prosperity and usefulness of the nation.

Sowing Turnips.—Do not forget that about the last of July, or forepart of August, is a good time to sow a patch of common turnips. The soil for turnips should be moist, rich and mellow. Ground where corn has failed, or stands too thin, will answer if clear of weeds and well stirred. Or a piece of clean wheat stubble may be ploughed for the purpose; also patches in the garden where peas or early potatoes have been harvested. Turnip seed is plenty and cheap in most stores where seeds are sold. It is best to buy enough at once to resow with, in case dry weather or the fly should destroy the first sowing. The seed, if fresh, will keep good for three or four years.—*Farm Journal.*

CHEMICAL ANALYSIS OF SOILS.

BY DR. JOHN D. EASTER, OF BALTIMORE.

MUCH has been said of the analysis of soils;—whether it is useful, how it should be made, should the farmer be a chemist, and if so to what extent? All these and other questions are better answered in the following by Dr. Easter, than we remember to have seen them otherwhere. The farmer would do well "to acquire a theoretical knowledge of so much of chemistry as relates to his profession," or if his time is too valuable, or if the study is irksome to him, let him see to it that his sons, who are looking forward to the farm, acquire it, but further he should not attempt to go, nor urge them to go:

I propose, in this paper, to consider the true use of chemical analysis of soils, and some of the requisites of a valuable analysis.

As it is from the soil that plants derive the principal part of their constituent elements, the presence in the soil of these elements, in forms in which they may be absorbed by the rootlets of the plants and assimilated in their cells, is indispensable to their perfect growth. Where the want of fertility arises from the absence of one or more of these constituents, or to their being locked up in combinations in which plants cannot use them, chemical analysis is perfectly competent to detect the cause of the evil and point out its remedy.

But the growth of plants is influenced by a multitude of other circumstances to which chemical analysis can furnish no clue. A soil may abound in all the elements of a very fertile one, and yet be perfectly barren. The soil of the great Colorado desert in California, which I have recently analysed, furnishes a good example of this. It possesses in abundance every element necessary to extreme fertility, but is entirely barren from the want of water.

The reverse of this also frequently occurs. The chemist receives a specimen of soil, in the chemical constitution of which he can detect no deficiency, and, in his laboratory, he can assign no cause for its alleged unproductiveness. An examination of the locality probably shows him that it is underlaid by a stiff tenacious subsoil, which retains an excess of water, and no provision has been made for drainage.

The difference in the mechanical texture of stiff and loose soils is familiar to every one. The fertility of many stiff clays may be seriously impaired by ploughing too wet, rendering them tough and impenetrable to the tender rootlets of plants. In this case, as no chemical change takes place, the chemist in his laboratory would seek in vain for the cause of the difficulty.

Every attempt to improve the character of a soil must heretofore be preceded by a judicious consideration of its mechanical texture, its power of absorbing and retaining water, and its capacity for heat. Hence it is important that the agricultural chemist should, if possible, himself examine the locality, in order fully to estimate the wants of the soil. The employment by every State of an agricultural chemist, who should visit in person every part of the State, is therefore strongly to be recommended.

In the next place, it is requisite that an analysis of the soil, in order to bė of much value, should be thorough. It must include separate estimations of the parts soluble in water and in acids, and the insoluble portion. For the portion soluble in water represents what is available for the wants of the growing crop, while the portion soluble in dilute acids, is the index of what may by decomposition become the food of plants. This undecomposed portion of the soil may often, by the application of lime, ashes, and other caustic manures, be more speedily decomposed and rendered available.

The analysis should include also, if possible, the sub-soil as well as the surface soil, in order to guide the farmer in the process of deepening his soil. There are, of late, many advocates of indiscriminate deep ploughing. But a fertile soil may be underlaid by a barren subsoil, by throwing up large quantities of which the fertility of a field may be destroyed for years. The subsoil, not unfrequently, contains large quantities of protoxide of iron and other substances which are not injurious to vegetation until they have been subjected to the action of the atmosphere. On the other hand, the subsoil often contains elements of fertility which are not so abundant in the surface soil, in which case deep ploughing will improve both. It is important that the agriculturist should know these differences, in order that he may know where he should plough deep and where refrain.

A still more important consideration is, that no analysis can be of any value to the farmer who is not himself a chemist, unless it be accompanied by a discussion of the indications it affords, and a recommendation of suitable means of improvement. Our agricultural journals and reports abound in analyses which are about as intelligible to the unscientific farmer as the inscriptions on the pyramids, or a chapter from La Place's *Mechanique Celeste.* Most of our intelligent farmers know, that lime, phosphoric acid, and the alcalies, play important parts in the economy of vegetation, but few of them have any idea how much of these valuable ingredients is requisite to fertility, or what are the best means of supplying their defficiency. Until every farmer is also a chemist, an analysis of a soil or manure which is not followed by a commentary on its defects or virtues, leaves him just where the diagnosis of a disease, without a prescription for its relief, leaves the patient. He is no wiser nor better off than before. It will not do to presume that when the chemist pronounces what a a soil contains, the agriculturist will know what it *ought* to contain, and how to supply its wants. Every farmer should insist upon an interpretation of the analysis furnished him by the chemist.

In conclusion, I would draw your attention to the duty of the intelligent agriculturist to acquire a theoretical knowledge of so much of chemistry as relates to his profession, that he may be enabled to judge for himself of the value of a substance from the chemical analysis of it, and also of the probable value of the analysis itself, for at least one half of the analyses which farmers daily pay for are absolutely unreliable and worthless. The agriculturist should also be able to judge for himself of the texture, moisture and color of the soil, and the means within his reach for modifying them. At the same time, I would by no means advise that he should attempt to become a practical chemist and do his own chemical analysi-, as some persons of more zeal than judgment insist he may. I have pointed out the necessity for thoroughness in chemical examinations of the soil, and every one who has had only a few months' experience in a laboratory knows that a thorough analysis of a soil requires much time, great care and dexterity in manipulation, and a knowledge of all the disturbing influences and sources of error. This few farmers have the time or opportunity to acquire, and few would, for the sake of making the few chemical examinations they might in their lifetime require, be willing to devote to the study time which might be so much better spent in acquiring a practical knowledge of their own noble profession. Besides this, the expense of fitting up a laboratory would more than pay for all the analyses any farmer is likely ever to need. The many formulas which have been proposed for the use of farmers are therefore of very doubtful utility. Let every farmer make a laboratory of his barn-yard, and carefully collect and employ all the liquid as well as solid manures within his reach, and if the chemist is not enriched thereby, his fields will be.—*Transactions U. S. Ag. Society.*

REQUISITES OF AGRICULTURE.

WHAT are they? Chiefly, that the farmer *know* his duty; that, true to himself, he *do* it; and that the Government, recognizing this as the leading interest, should *do* its duty in relation to it. It is our purpose to discuss the question above propounded, often and more fully, as time and opportunities occur. We wish to discuss it with the utmost candor, without the least party bias, and if possible without wounding any man's political views. At present, we have but little to say; and we will be limited to the topics already suggested.

1. That the farmer should *know* his own duty—should be (and should keep himself) *read up*, in all matters pertaining to his calling. If by favor of early education he entered upon his life employment, with a mind well instructed and highly disciplined, he has an advantage which can hardly be estimated. If not, he may, in most cases, do much, by a diligent improvement of leisure hours, to retrieve the early loss. But if his case is peculiar; if he is too busy to inquire, or too old to learn, either of which we suspect is impossible, let him at least rescue his children from the disadvantages under which he himself labors. No one would deny that the merchant, who understands the resources of the country, the state of foreign trade, and the present condition of the markets, possesses important advantages over the one who is ignorant of all these things. But it is not less manifest, that the farmer, who knows how best to preserve the fertilizers of the homestead and to procure others advantageously; how to adapt the manure to the soil and the crop to both the soil and the manure; how to make each manure and each field tell most effectually on the great end of agriculture, possesses equally important advantages over the one who knows less of these matters. That "knowledge is power,"

is as true of agriculture, as of government, of commerce, of mechanics, or any other art. And what use of power is more beneficent than that converting the floating elements of nature—the wind and water and soil, into food and clothing for man. We would not censure the ambition that should strive to possess and to *exert* the greatest possible power in this line.

2. That the farmer, true to his own interest, which is always consonant with the public good, should *act* up to the knowledge he may have been able to acquire. The manufacturer of cotton cloth ascertains that the wastes of his mill are worth something for a lower species of manufacture—something very small, not more perhaps than half a mill on each yard he manufactures. But he estimates that the half mills would amount to $500 on a million yards; and he preserves these; and the saving amounts to a large sum in a lifetime. Many a barn-yard steams away as much value each second of time as that of the waste fibres in the manufacture of a yard of cotton cloth, All farmers know, or have the means of knowing, how to prevent this. The prevention, like the savings of the waste in a cotton mill. would amount to enough in a life-time to make a happy competency for old age. We mention this as one of the smallest savings of the farm. That of a proper distribution of food to animals, of protecting them kindly, of making each dollar's worth of food produce the greatest possible thrift, would be much greater. Others, which we could name, would be greater still; and the difference in the results of slatternly and saving management would become very wide by the end of fifty years. We have said that "knowledge is power" in the business of farming; but in order to avail, it must be carried out in practice, and that in little things as well as large. Indeed, farming consists largely of little things. A thousand little rills will fill a reservoir as soon as one large one; and a thousand little leaks will empty it as soon. To know how to increase productiveness without increase of expense, or how to increase productiveness with somewhat less than a corresponding increase of expense, so as on the whole to enlarge the profit, and then how to expend the products in the manner most favorable to further productions, and to carry this knowledge into the every-day-business of farming, making every new idea gained tell on the results, is what the individual farmer is to strive for; and he has the satisfaction of feeling, that so far as he succeeds, he benefits the public at the same time that he benefits himself, that what he gets is in no sense taken from others, as in the case of a dealer less honest than shrewd, but is actually so much added to the general prosperity. When the farmer has qualified himself as best he can for his calling, and has pursued it earnestly, he has done what he can, *as an individual*, to advance that superlatively important interest, the nation's agriculture.

3. That the Government should perform certain duties for agriculture, which are above and beyond the reach of the farmer in his ndividual capacity. We do not propose to enter upon disputed ter ritory. To foster one interest at the expense of another is the farthest from our wish. But it has seemed to us that the furtherance of agriculture is not the interest of one class, but of all. Who is not interested in the increase of the earth's productions? Is it the poor man, who has every thing to buy, and nothing to buy with? Is it the mechanic, the manufacturer, the merchant, the professional man? It has appeared to us, that, if any one has reasons to dread the effects of a greatly increased production, it is the farmer himself. This may seem a strange idea. But let us look at it. If the produce of our fields were all at once doubled, without a corresponding increase in the home consumption, the farmer would have more work, but no more pay. In proportion as the grain he lugs to his barn increases, the price would decrease. It is true that exportation to foreign countries might afford a little relief, but not much, hardly enough to become appreciable. Every country must and will produce mainly its own bread and meat. The exceptional cases never have offered, nor will they ever, for any considerable length of time, more than the slightest relief for those countries where there is an over-production. That the whole human race is to live out of the soil is hardly more irrevocably settled, than it is that all are to live from the soil that is near them, at least on their own continent. It would be an odd state of things if all the blacksmiths in a State should congregate in one town, all the spinners in another, all the tailors in another, all the shoemakers in another, and all the farmers in a dozen or a score of others, far removed from those pursuing the mechanic arts. The farmers would say, we want the mechanics among us, to do our work, to consume our produce, to pay us for it. They would say, we cannot live without their work, and we cannot live without the privilege of feeding their families. But where were our mechanics eighty years ago, while we were yet under British rule? They were not even in a remote corner of these provinces. They were in Europe. There was our blacksmith, our locksmith, our gunsmith, and nearly all the rest of the smiths and spinners and tailors. The foreign farmer had almost the exclusive privilege of feeding them; and our fathers had the poor privilege of paying for their work as best they could, after the price had been enhanced by sundry profits and transportations. Then it was, and for thirty or forty years afterwards, that farm produce brought next to nothing, and other necessaries were about as high as at present. Many a farmer has given twenty pounds of nice veal for a yard of cotton cloth that would hardly hold together to be brought home; and although the exchange was not quite so unfavorable as

a whole, yet it was far from being fair and equal. The whole tendency was to impoverish the American farmer; and it would be precisely so now if we were as dependent on the foreign manufacturer as our fathers were. But are we not dependent to a far greater extent than is for our interest? Are not too many of those who do our handy work yet on a foreign soil? Are they not fed by the foreign farmer? Should they not come among us? To import industry is to increase wealth. Look for instance at the men, who make the vast amounts of iron consumed among us. Why should the iron ore of Missouri, piled mountain high, instead of having to be lifted from the bowels of the earth, the best yet discovered, and enough for the whole world, be neglected for inferior qualities from abroad? Why should not the coal of Pennsylvania, laid up for us in inexhaustible quantity, be used for manufacturing it? And why should not American laborers—those who are so by birth or by choice—perform the labor? It is labor that makes a country great and prosperous. The importation of laboring men enriches; the importation of the results of labor performed abroad impoverishes. Our resources are vast. Their development will injure no other country; it will benefit ours. If the single article of iron could be manufactured among us to the extent of our wants, the influence would be incalculable, and no class would feel it beneficially sooner than the farmer. Let it not be inferred from anything we have said that we are advocates of a high tariff. We advocate no such thing. But we should be unworthy of the name *Plough, Loom and Anvil*, if we did not earnestly desire such encouragement to all the industrial arts, as will at once reward the mechanic and the farmer, and hasten the development of our agricultural, mineral and other resources.

THE COST AND MANNER OF USING GUANO IN AREQUIPA.

Under date, Arequipa, March 20th, 1856, Mr. Thomas Reuncy writes to a friend, asking for information relative to the manner of using guano in that district, as follows:

Guano brought from Chincha Islands to Islay is there sold to the chacreros (farmers) round Arequipa at from 4 to 6 reals the fanega; the fanega weighs five arrobas, or about 125 lbs. The price varies from 4 to 6 reals; at present the latter price is asked. This would make the English ton worth about $13, or say £2 10s. in Islay.

It is applied to two crops only, maize (Indian corn) and potatoes, carefully by the hand. To maize, when the plant is about two months old and about three-fourths vara high, one-half handful is applied near each root. A large quantity is said to be prejudicial, by "burning the plant." The guano is then covered with earth, and a small quantity of water (by irrigation) is applied "to fix the guano." If the state of the soil does not absolutely require it, no more water is applied until after six or eight days.

The quantity required for each "topo" of 500 varas (about 1½ acres) is four fanegas, or say 500 lbs. For potatoes the quantity required is the same, and is applied much in the same manner as regards the age of the plant, and a small quantity of water "to fix the guano." The stalk of the potato is then about one-fourth vara in height, and the earth heaped up in ridges the same as in Britain. A person inserts a spade in the top of the ridge beside each plant, whilst a woman follows pouring about half a handful of guano into the hole thus made and covering it with earth, so that the ridge remains the same as before the application of the guano.

To wheat the application of guano is not approved, principally, we believe, on account of the rankness it produces in the stalk, thereby delaying the ripening of the grain—a point of great importance in lands where they count on obtaining two crops a year.—*Hunt's Merchants' Magazine.*

INSECTS INJURIOUS TO VEGETATION.

LEPIDOPTERA CONCLUDED.

We resume our exhibition of these destructive insects, commencing with the group called

Tinaæ. This term was originally used in a limited sense, designating certain well-known destroyers of clothing and other household stuffs. It was so applied by Linnæus and other English entomologists, because they gnaw holes or winding paths in the material upon which they live. The word comes from the Gothic *Maten*, to gnaw.

There are many destructive insects, infesting houses, granaries, stores, &c., belonging to this group, which are designated by the peculiar habits of each species. In the winged state, the Tineans have four short and slender feelers, a thick tuft on the forehead, and very narrow wings, which are deeply fringed. They deposit their eggs in the spring, and very soon die. The eggs are hatched in fifteen days, and the little whitish caterpillars or moth worms immediately begin to gnaw whatever is within their reach, covering themselves with the fragments, which they form into hollow rolls and line with silk. Within these rolls they pass the summer, carrying them about on their backs, or fastening them to the substance which they devour. In the autumn they cease eating, fasten their habitations, remain quiet, and perhaps torpid through the winter, change to chrysalids within their cases in the spring, and in about twenty days are transformed to winged moths, come forth, fly about in the evening till they have paired and are ready to lay their eggs. Then they slip through cracks into closets, chests, and drawers, or under carpets, or in the folds of curtains or garments, and the like, and prepare for a new colony.

The grain moth of this country is probably identical with the *Anacampsis Cerealella* or the Angoumois Moth of Europe. It is a four winged insect, about three-eighths of an inch in length. It has two tapering curved feelers, turned over its head. Upper wings narrow, light brown, without spots, and with a lustre of satin. They cover the body horizontally above, but droop at the sides. The lower wings are ash-colored. It lays its eggs, sixty to ninety in number, in clusters, on the ears of wheat, rye and barley, usually while the ears are young and tender, but sometimes when the grain is stored. The spring brood produces a brood in the autumn. The caterpillar is not more than one-fifth of an inch long, white, head brownish. It has six small jointed legs, and ten very small wart-like prop legs. Duhamel describes it as having two little horns just behind the head, and two short bristles at the end of its tapering body. It eats the heart of the grain, and undergoes its transformations within the cavity thus formed.

Its ravages may be checked by drying the damaged grain in a hot oven or kiln. A heat of 167 degrees Fahrenheit, continued for twelve hours, effectually destroys them.

A pernicious insect known as the Bee Moth seems to have been well known to the ancients, and is described in the 4th Georgic of Virgil, line 246.

"Aut dirum *tinaæ* genus," &c.

Fabricius gives this moth the name *Galleria Cereana*, or the *Wax Galleria*, the name being suggested from its eating wax. It was probably imported in hives from Europe. It is a winged moth or miller, from five-eighths to three-fourths of an inch in length, its wings expanding nearly an inch and a half. Its feelers are two, tongue short, the fore wings shut together flatly on the top of the back, slope steeply at the sides, and are turned up at the end like the tail of a fowl. The male is a dusty gray color, his fore wings glossy, and streaked with purple-brown on the outer edge, with a few dark brown spots near the inner margin, and scolloped inwardly at the end. His hind wings are light yellowish gray, with whitish fringes. The female is larger and darker colored, her fore wings longer, not so deeply notched, the purple brown tinge and dark spots are more abundant, and the hind wings are dirty or grayish white. The first brood comes out in April, and a second in August. By day they remain quiet, and in the evening, when the bees are at rest, take wing, enter the hive, and lay their eggs. Sometimes, if an entrance is not found, they lay their eggs in chinks on the platform or other secure place about the hive, and the caterpillar, scarcely larger than a thread, enters the hive, and devours the wax, passing through the cells in all directions, breaking them down and destroying them. They are most numerous in the upper part of the hives. As soon as they are hatched they prepare a silken tube, in which it moves at pleasure. As they increase in size they enlarge their shield. In the night, when the bees are quiet, they partly free themselves from this retreat, and devour the wax. The bees are at length obliged to abandon their hive and their young, leaving their enemies in full possession. These caterpillars grow to the length of an inch or more, coming to their full size in about three weeks. They then spin cocoons, of an oblong oval shape, and are changed to chrysalids of a light brown color, rough on the back, with an elevated dark brown line upon it from one end to the other. These insects are most destructive in hot, dry summers.

The only remedy for these pests, when they have once entered a hive, is frequently to examine them, and to destroy all the webs and cocoons to be found. Numbers may also be caught by giving them a sweet syrup in a shallow vessel. They are very fond of this, and will get into it, and are thus drowned. Great numbers are often caught in this way. But a still better security is found in a properly-constructed hive, or one so arranged as to forbid the moth from finding any secure place for the deposit of her eggs, and the young caterpillar from finding a ready entrance into the hive. Hives, contrived to secure this end, have been described in this journal. We consider the most successful to be that of Dr. Eddy, the account of which, with illustrations, may be found on the 356th and 357th pages of the seventh volume. There may be others, unknown to us, of still greater merit. If so, we shall be happy to make them known to our numerous readers.

A WORD TO FARMERS' BOYS.

We all have to be boys before we can be men; and although it is not left to our choice *where* our boyish days shall be spent, whether in city or country, yet *how* they shall be spent depends partly at least upon ourselves. Both the where and the how are important to our success and usefulness in life, but the latter is by far the most important. To illustrate our meaning, we copy from *Fowler's Sketches of Living American Preachers*, an exceedingly interesting and instructive work, just published by Fairchild & Co., 109 Nassau street, N. Y. Of the early life of Dr. Baird, Mr. Fowler says:

"Robert was a farmer's boy. His early days were spent like those of all farmers' boys. He ploughed and hoed, and did 'the chores,' and during the winter months trudged to the village school, working as faithfully at geography and arithmetic, as in summer on furrow and sod. And is it not a fact worthy of attention that such a large proportion of our great men are reared on soildom? A natural connection exists between such a training and future usefulness. We will find that many of those who are now the working men of the age—the effective philanthropists, the devoted patriots, the guiding statesmen—have had their early training in connection with the farm."

Now, here is a thought for the boys, who help on with the farm work in summer, and go to school in winter. We could speak just as encouragingly for the girls who grow up on the farm, and perhaps may at another time—but our object now is with the farmers' boys. Let them consider, what is unquestionably true in our past history, and probably will be of our future, that the farm is the best place in the world to produce full-grown men. The alternation of out-of-door work with study, which so much obtains with farmers' sons, is the best training in the world to mature a sound body and a harmoniously active mind. The farm, of course, makes nearly all the distinguished farmers. It is not so much a matter of course, but it is yet true, that a large portion of the eminent mechanics, manufacturers and merchants are raised on the farm. And so it is with our more public men. If we had a bright boy that we hoped to make a Robert Peel of, or a Daniel Webster, a Gardner Spring, or a Robert Baird, we should want him to work on the farm summers, and attend school winters, through at least the first half of his teens.

But the boys should understand that it is not merely being born and growing on a farm that makes great men. Without some fixed purpose, some effort of their own, the farm will not make them good farmers; nor will it fit them to excel in other employments. Of the individual who is the subject of the above extract, the writer of his life remarks: "Robert Baird manifested at the outset of life an unusual fondness for reading. . . . . He also evinced in early life a remarkable memory. He garnered up the fruits of his reading." Here was the secret of his success. Providence did him a kindness in putting him on a farm; but for all that, he might have lived and gone through life without learning much, and without even acquiring the faculty of expressing what he had learned in fitting language. He made himself, and that by just such efforts of reading, reviewing, and studying, till he could remember what he read, as every boy can undertake, if he will, with a pretty good prospect of success. It is from the farmers' sons, now in their teens, that most of the distinguished men of twenty-five years hence are to come. They are to furnish the wealthy farmers, the mechanics that know how to *think* as well as *work*, the enterprising merchants, the leading men of their age in all departments of useful and honorable life. But which of them are to become eminently useful and honored, will depend very much on themselves. Those who do not *try* will certainly fall short. Those who *try* may succeed. What say the boys to *trying?*

LONG-WOOLED SHEEP FOR MUTTON.

MESSRS. EDITORS—In my former articles in the *Country Gentleman*, I gave the result of an experiment in regard to the comparative consuming qualities of the New Oxfordshire and Merino sheep; also a cheap and easy method of obtaining a good flock of mutton sheep, by crossing the long or middle wooled on the Merino or common sheep of the country. The success which has attended the introduction of the New Oxford sheep among the farmers in this vicinity, as well as the satisfactory result attending the crossing them with our merino stock, induce me to give your readers some facts and observations which may prove both profitable and interesting. In giving an account of the habits and qualities of these sheep, I have always endeavored to deal fairly, both with them and the public, preferring to give facts drawn from experience, rather than theories without a foundation on which to base them.

Through the medium of the agricultural press, I hope many of our New England farmers will be persuaded to cultivate a good breed of mutton sheep, feeling confident that it is better business than to depend merely on the fleece for profit. For three years past I have furnished one of my neighbors with a buck to make a cross on his Merino ewes. The following is the loss and gain attending the first cross. As near as could be judged by the weight and sale of the first clip of wool, the value was diminished twenty cents to the fleece. The average weight of the sheep in the fall, after they were one year old, was 87 lbs., making the whole flock, both ewes and wethers, equal in weight and flesh to his best lot of full-grown Merino wethers, besides a gain of over two dollars a head on the value of the sheep. They are, except in fleece, every way more desirable, and excel, for profit, our best Merinos. The lambs are raised with less care and expense; they are more quiet, better breeders, good nurses, and when raised are such sheep as find a ready sale.

In the fall of 1853 I sold my brother one old ewe weighing 130 lbs., and a small ewe lamb weighing 62 lbs. The next year he received from the flock of John T. Andrew, Esq., West Cornwall, Ct., another ewe which weighed 128 lbs. These two ewes have been fed some kind of grain from the time they dropped their lambs, about the middle of March, until they were turned to grass. With this exception, these sheep both old and young, were kept for two years strictly on hay and grass. At the end of two years the old ewe weighed 188 lbs; the lamb, now two years and nine months old, 192 lbs., and the second ewe bought, 164 lbs., making a gain of 224 lbs., or what would be equal to 45 lbs. on one sheep for a year. The two old sheep in the time raised four lambs, whose average weight at seven months was 94 lbs., making 376 lbs. The average weight of their fleeces was a little over 7 lbs. We find the loss on this wool in scouring it for the carding machine to be 29 per cent., which deducted from its present weight leaves a fraction over 5 lbs. to the fleece, of well scoured wool.

The income on these sheep, valuing the wool at 30 cents per pound, the gain on the ewes, and the weight of the lambs at 6 cents a pound, a price the butchers paid at that time for extra fat Merino sheep, would be $46.50, or $9.30 for the keeping of one ewe a single year, and the summer keep of her lamb.

The following notice of a sheep broker's sale, which I find in a February number of the New-York *Tribune*, shows the value of these sheep when fatted for the market:

"The greatest sale this winter, was made by Richard H. Sherman, at Allerton's, of three long-wooled sheep for $22 each. They were fatted by Ab. Burton of Dutchess county, and weighed 200 lbs. each, live weight. These are the right kind of sheep for profit to the feeder and consumer, though too fat to suit the common taste for lean meat."

It requires no extra effort to bring a good New-Oxfordshire sheep to the weights here mentioned at two and a half or three years old. The lamb I sold my brother, at two years and nine months old, came within eight pounds and the old ewe within twelve pounds of the two hundred, with but very little besides good hay and grass, and within the time raised two lambs, which together weighed over two hundred pounds more. Four ewes of this flock, being all that were old enough, have borne seven lambs this season. The largest is now three months old, and weighs 70 pounds.

Since I commenced breeding these sheep, they have lacked but one of bearing three lambs for every two ewes. The average weight of my entire flock of last year's lambs was 82 lbs. on the 17th day of September. At that time I commenced selling. I should judge by the weight of some I sold about the first of December, that they would have averaged 90 lbs. if they had been kept until that time. Lawrence Smith, West Worthington, Mass.—*Country Gentleman.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

PEACH TREES—PROPAGATION OF FRUIT TREES.

Mr. Editor:—In our Southern latitude the peach, a most delicious fruit, seems adapted to the soil and climate. However, the peach is difficult to graft, and by the seed propagation is depended on. Numerous important discoveries have been made accidentally—witness that of the manufacture of glass. I have lately made the discovery that if the small twigs of a peach tree—such as ought to be pruned off in the spring—are buried in the ground in a horizontal position, with three or four inches of the twig left out, it will sprout and grow in advance of anything that comes up from the seed. Another way to propagate the peach before it can bear fruit is to bend down the sprouts that are apt to come up from the root of a young tree, and cover them for a foot or so with earth well pressed down. The sprouts thus covered will take root, and the next spring may be planted out like young trees. Thus numerous trees may be got from a favorite one before it is of age to bear fruit.

We hear ideas advanced as truisms, and seldom take the trouble to test their value. It has been said that, unless the fruit was ripe, a peach tree that came up from the seed would never bear good fruit. Accidentally, again, I have discovered that if a tree becomes diseased while it is loaded with fruit, the kernel will seemingly try to mature, and be able to sprout and make a tree. The high water of '44 killed a peach tree in Madison Parish, La. Next spring, though the peaches did not appear to be more than half grown when they dropped from the trees, they came up, and in a few years produced choice fruit. Pumpkins, watermelons, and mustard, that were drowned by the high water, produced good seed. If nature cannot mature the fruit, she seems to be careful that the seed shall not be lost.

SALMAGUNDI, La., May 10, 1856. W. M. D.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

PROSPECT OF CROPS IN LAMOILLE CO., VT.

MESSRS. EDITORS:—I am reminded I ought to send you a short notice of the prospects of the farmer, in whose prosperity we all have an interest. For our bread to them we must look.

The weather so far this season has been very versatile, varying between extremes of cold and heat; on the 24th of June and 7th of July there was frost in many locations. The mercury stood—

	Sunrise.	Noon.		Sunrise.	Noon.
May 13th	30°	—	June 21st*	63°	88°
" 14th	39	78°	" 24th	38	80
" 17th	30	80	" 29th†	76	100
June 12th	48	88	July 7th	34	80
" 18th	42	86	" 14th‡	56	86

* At 4 P. M. 90°. † At 2 P. M. 102°. ‡ At 3½ P. M. 92°.

The hottest day for the last twenty years was the 6th of September, 1844, when the mercury at 12 M. stood at 104, at 2 P. M. at 106. There can be no mistake, for on rating my thermometer at noon at 104° Rev. Zadock Thompson was at my house, having a thermometer, which he hung at the side of mine, and *that* soon rose to 104, and both to 106 before 2 o'clock. At 4 o'clock there was a tornado with rain, that prostrated buildings, forests and much fence.

The season has been rather dry, and much cold north-west wind, then in the south; the change of temperature so sudden, that a change in apparel twice in one day is frequently requisite. Notwithstanding, the crops look promising, except hops. There is an abundant crop of grass; corn stands well, stalks are large, tassels appeared on the 3d of July. The cool nights are favorable to grains, which look well. The hop is attacked by an insect; the leaves are shrunk and curled up. The vines in nearly half the yards are up the poles about three feet, with very few blossoms. Such yards have not been hoed, and will not pay for gathering. On the whole, the prospect of the farmer is flattering.

Hyde Park, Vt., July 16, 1856. ARIEL HUNTER.

GUANO—ITS HISTORY.

GUANO, as most people understand, is imported from the Islands of the Pacific—mostly of the Chincha group off the coast of Peru, and under the dominion of that Government.

Its sale is made a monopoly, and the avails, to a great extent, go to pay the British holders of Peruvian Government bonds, giving them, to all intents and purposes, a lien upon the profits of a treasure intrinsically more valuable than the gold mines of California. There are deposits of this unsurpassed fertilizer in some places to the depth of sixty or seventy feet, and over large extents of surface. The guano fields are generally conceded to be the excrements of aquatic fowls which live and nestle in great numbers around the islands. They seem designed by nature to rescue, at least in part, that untold amount of fertilizing material which every river and brooklet is rolling into the sea. The wash of alluvial soils, the floating refuse of the field and forest, and, above all, the wasted materials of great cities, are constantly being carried by the tidal currents out to sea. These, to a certain extent at least, go to nourish, directly or indirectly, submarine vegetable and animal life, which in turn goes to feed the birds whose excrements at our day are brought away by the shipload from the Chincha Islands.

The bird is a beautifully-arranged chemical laboratory, fitted up to perform a single operation, viz: to take the fish as food, burn out the carbon by means of its respiratory functions, and deposit the remainder in the shape of an incomparable fertilizer. But how many ages have these depositions of seventy feet in thickness been accumulating!

There are at the present day countless numbers of the birds resting upon the islands at night; but, according to Baron Humboldt, the excrements of the birds for the space of three centuries, would not form a stratum over one-third of an inch in thickness. By an easy mathematical calculation, it will be seen that at this rate of deposition, it would take seven thousand five hundred and sixty centuries, or seven hundred and fifty-six thousand years, to form the deepest guano bed! Such a calculation carries us back well on towards a former geological period, and proves one, and perhaps both, of two things—first, that in past ages an infinitely greater number of these birds hovered over the islands; and secondly, that the material world existed at a period long anterior to its fitness as the abode of man. The length of man's existence is infinitesimal, compared with such a cycle of years; and the facts recorded on every leaf of the material universe ought, if it does not, to teach us humility. That a little bird, whose individual existence is as nothing, should, in its united action, produce the means of bringing back to an active fertility whole provinces of waste and barren lands, is one of a thousand facts to show how apparently insignificant agencies in the economy of nature produce momentous results.—*London Farmers' Magazine.*

TREATMENT OF BROOD MARES.

A common cause of accidents to mares in foal is improper working. This may arise from carting, going in the threshing mill, or ploughing of hard headlands, or stiff soils, or harrowing land where the horses' feet dip, producing over fatigue or heating of the system. Mares, for at least three months previous to foaling, should not be carted or worked in a threshing machine, or called to perform any labor involving any shaking or straining of the body. Nor should they be pushed beyond the space they are inclined to step at when performing even light work. Ploughing, from the draught being steady and the labor not exciting, is the most suitable. At this kind of work mares may be continued up to the time of foaling, and without injury, provided they are gently treated, and regularly fed and wrought. During wet days or even showers, they should not be exposed. If they get wet, they should be rubbed dry, and a warm mash allowed upon returning to the house.

For at least one month prior to the expected period of foaling, the mare should be placed in a loose box. This may be formed in the end of an open cattle shed, provided it is made comfortable by boards or straw kept in position by strong bars and common fence railing. The general absence of a loose house on the majority of farms renders such temporary erections often necessary. The mare should be loose, not tied to anything, and all harness, etc., removed during the night to prevent accidents from cleeks.

If the mare is turned out to a park, previous to or after foaling, it should be to one free of all places dangerous to the foal. Old quarries, deep ponds, ditches or water holes of any kind are dangerous, even if the foal is some weeks old, but more particularly during the first few days after it begins to move about. Nothing is more painful to the feelings of the owner than the loss of a promising foal by accidents arising from causes which might have been prevented. If no suitable park or paddock is convenient for the mare and foal, an out-house, or still better, an open shed, should be set apart for the mare and foal. Many superior horses have been reared in this manner, which have never been depastured at all.

After the mare shows indications that parturition is at hand, she should be watched, but not disturbed. The most reliable indication is, that at the point of the teats there will be observed a waxy exudation. Sometimes the milk will drop from the teats a day previous to foaling, but generally the gummy exudation is the only symptom. When this appears, foaling will usually take place within forty-eight hours. The mare is seldom long in labor, and the foal is generally dropped when no one is present. The mare should be disturbed as little as possible. Nature usually, when left to itself, overcomes any difficulty. Occasionally, however, the foal bed requires to be broken, to allow the foal to breathe. The foal, if strong, will gain the use of its limbs within two to five hours of being dropped. It readily finds its way to the milk vessel. Sometimes, however, this is so tight that it does not readily catch the teats. The dam occasionally, from an over-excitability, prevents the foal from sucking. In such cases, the foal should be assisted by drawing a little milk out of the udder, and kept in position to suck; and, if essentially requisite, a halter may be put upon the mare to keep her steady for the first and perhaps the second time the foal sucks. If there is a scarcity of milk, the mare should receive bran mashes, boiled linseed, hay, etc., anything indeed to increase the flow of milk. If this cannot be effected, the foal may be reared on cow-milk. Two of the best horses we ever reared were so nursed. Both of these horses, as regards condition and form, were superior. One Clydesdale, entire, was purchased for Ireland, where he obtained several premiums and was a source of great profit to his owners.

As to treatment, we again repeat, the mare should be disturbed as little as possible, and persons with whom she is not familiar should not go near her for the first few days, as the foal is sometimes injured from the state of excitability in which the mare is for several days after foaling, besides sometimes dangerous to strangers going near her. From the ninth to the twelfth day the mare should be stinted, and, if possible, the same horse as the sire of the foal should be used.

The food of the mare foaling should be soft, to increase the lactic secretion; and, in the absence of green food, which is by far the best, such as is usually given to farm horses, with an allowance of carrot, turnip and hay, with at least two half-feeds of dry corn daily till abundance of green food is obtained. The change from the dry to soft food should be gradual. We may further state, that it is advisable not to put the mare upon grass previous to foaling, as we have known cases where injury arose from this cause.—*North British Agriculturist.*

CUTTING GRASS AND CURING HAY.

Timothy should never be cut until after the seed is formed, and then between the milk and dough state. Orchard grass, however, is so much more tender when cut in the flower, and is therefore so much preferred by cattle when so cut, that it should not be permitted to ripen into seed before cutting; it does so, however, to a great extent after cutting, and contains much more nutriment than timothy.

Many farmers do not consider the scorching effects of our June and

July sun, and the consequence is, that hay is too much dried in this country. Unless the grass be very thick and heavy, it will generally cure sufficiently when exposed in the swath for two days. When shook or stirred out, it should not remain in this condition beyond the first day, or it will thus lose much of its nutritive juices, nor should dew or rain be permitted to fall upon it, unless in cocks. It is better, partially drying, to expose it for three or four days in this way, and as soon as properly cured, place it under cover. It is a good practice to salt hay when put up, and it is thus secured against damage from occasional greenness; and there is no waste of the salt, as it serves the double object, after curing the hay, of furnishing salt to the cattle and manure heap.

Clover should be cut after having fully blossomed and assumed a brownish hue. By close cutting more forage is secured, and the clover afterwards springs up more readily and evenly. The swath, unless very heavy, ought never to be stirred open, but allowed to wilt on the top. It may then be turned over, and when thus partially cured, placed in high, slender cocks, and remain till sufficiently dry to remove into the barn. Clover may be housed in a much greener state, by spreading evenly over it in the mow from ten to twenty quarts of salt. Some add a bushel, but this is more than is necessary for the clover, or judicious for the stock consuming it, as the purgative effects of too much salt induce a wasteful consumption of the forage. A mixture of alternate layers of dry straw with the clover, by absorbing its juices, answer the same purpose, while it materially improves the flavor of the straw for fodder.—*Working Farmer.*

A WORD ON THE FARM WORK FOR AUGUST.

The haying and summer-harvest are now supposed to be over; the hoe crops to have received what attention they require till the time for gathering them in; and the farm hands to have rested a little from the severity of the previous month's labor. If all this is so, now, before the fall work presses, is a good time to collect material for bedding and for absorbents to be used in the stalls and yards during the coming winter. Salt-hay and water-grass in pastures are useful for these purposes. If thrown out on pleasant days, cattle will consume the larger part, and the balance will furnish bedding. It is a mistake to suppose that late cut, coarse marsh hay is worth nothing except as litter. If you were to undertake the wintering of stock on such alone, it might avail nothing, and if the animals you should attempt so to winter were highly valuable, it might prove worse than nothing, for they might be of less value in the spring than in the previous autumn. We do not believe in starving animals through the winter, nor in giving them so poor feed, that they will starve within an ace sooner than eat it. Yet a limited portion of inferior hay, with much that is good, may be made of great service in wintering a mixed stock, provided that the inferior will be given only at intervals; as for instance, to give it at noon to cattle that are fed scantily on first quality hay morning and evening; or if the inferior be given at many successive feedings, that an allowance of corn meal, oil-cake or succulent roots be given at the same time, regard being had both to the quantity and quality of the food *as a whole.* That is, if your hay be of the very best quality, but you cannot afford as much as the animal would eat, it is advantageous to make up in quantity by an inferior quality of feed in part; or if your hay be very poor, late cut, innutricious, but you have a great abundance, then it is for your interest to procure richer food to be interspersed with it, in order to bring up the quality of the feed as a whole to the thrift-producing point. We have seen farmers who would secure better results in the wintering of stock-cattle from five tons of good hay and one ton of very poor, or a ton of rye straw even, than others would from six tons, all good. Hence we say, that poor hay has considerable value in the hands of the farmer who understands how to use it rightly; and we believe that the straw, the corn-stalks and the very worst of hay should be mostly consumed by stock cattle, and might be thus converted into manure with considerable profit, if the animals were treated each day to a portion of very nutritious food, as corn meal, or oil cake, or even to a plenty of roots. We would therefore recommend the gathering of hay of an inferior quality, partly as food and partly as bedding. But our object at this time is to suggest the collecting of swamp muck, mould from the border of woods, or anything at command of a like nature, to be used as an absorbent of the liquids in the yards and stalls during winter. By collecting such matters at this season, exposing them a while to the sun and air, and then carrying them under cover in as dry a state as possible, and using them as absorbents, the manure of a farm may be just about doubled in value, and at an expense for labor less than the increase of value, so as to give a profit on the labor as compared with that on money expended for manures. Not that we would discourage the purchase of manures; but we would commend the home sources of fertility first. We believe that in very many cases, the expenditure of money for labor, to be employed in gathering the fertilizing substances at hand, would go farther in enriching the farm, than so much sent off for the purchase directly of fertilizers.—Eds. P. L. and A.

Old Izaak Walton said, "Doubtless our Heavenly Father might have made a better fruit than the strawberry, but, certes, *he never did.*"

ALL SORTS OF PARAGRAPHS.

THE first cargo of wheat ever brought to Buffalo was landed in 1838, only 18 years ago. The commerce of that port in grain in 1855 was 25,000,000 bushels, implying an average growth of 1,388,888 bushels a year.——Mr. Robert Chisholm, of Beaufort, S. C., has been engaged in the cultivation of the olive since 1833, and has succeeded in making oil from the olive, but does not think it remunerative, and therefore confines himself to the pickling of the fruit, making better pickled olives, in the estimation of good judges, than those imported from France.——In Boston, 100 years ago, idleness had increased, on account of the then recent wars, to an extent that alarmed the good people of that city. A society was formed for the promotion of industry. At one of its anniversaries, 300 ladies brought their spinning wheels upon the Common, and gave the spectators a sample of their skill in working them. This is believed to have been the first exhibition of American industry. It was teaching the loafers by example; and we suppose it proved effective; for the Bostonians have since been, and still are, an amazingly industrious people.——The fourth annual exhibition of the U. S. Agricultural Society, to come off at Philadelphia, October 7th-11th, will not fail to be a splendid affair. The city of brotherly love is able to do up things rightly; and with the last year's example of Boston before her eyes, will not be delinquent; and all know that whatever responsibilities rest upon the worthy President, Hon. Marshall P. Hilder, will be effectively sustained.

CONNECTICUT SOAP STONE.—A company, with a capital of $25,000 has been formed for the purpose of working the soap stone quarries two or three miles west of Welcottville.

HOW TO PRODUCE LARGE FRUIT.—A correspondent of the *Gardener's Gazette* says, by a very simple and easy process, fruits of many kinds may be raised about one-third larger than is usually the case, and of greatly improved quality. The secret consists in supporting the fruits so that they shall not be allowed to hang the whole weight upon the stalk, or twist about in the wind. The *Gazette* states that when the fruit is allowed to hang naturally upon the stalk, the increasing weight strains the stem or twig, and thus lessens the quantity of nutritious food flowing to the fruit. The fruit may be supported either by tying it to a branch with a piece of matting or by inclosing it in a small net. Flowers, such as dahlias or peonies, may also be rendered much larger by the adoption of this system.

The Rochester *Union* says the weevil is making sad havoc in the wheat fields in Western New-York.

It's the little troubles that wear the heart out. An elephant which would face an army of men with handspikes, makes an inglorious retreat before a swarm of gallinippers.

Cheerfulness is a moral armor. It protects the mind from the javelins of dyspepsia, and makes it as impregnable to the assaults of duns and unliquidated due-bills as Gibraltar is to popguns.

That man only is truly brave who fears nothing so much as committing a mean action, and undauntedly fulfils his duty, whatever be the dangers which impede his way.

The *Maine Farmer* has some excellent ideas on economy. It says: "It is no man's duty to deny himself of every amusement, every luxury, every recreation, every comfort, that he may get rich. But there is yet an economy, which is every man's duty, and which is especially commendable in the man who struggles with poverty—an economy which is consistent with happiness, and which must be practised if the poor man would secure his independence. It is every man's privilege, and it becomes his duty, to live within, not up to his means. The man who feels that he is earning something more than he is spending, will walk the streets with a lighter heart, and enter his home with a more cheerful countenance, than he who spends as he goes, or falls gradually behind his necessities, in acquiring the means of meeting them." And so we should neither be indolent when want is creeping upon us, nor die in the forenoon (if we can help it) from considerations of economy, as Tom Wyatt did:

> "Silent, beneath this churchyard stone,
> Lies stingy Thomas Wyatt;
> He died one morning just at ten,
> And saved a dinner by it."

Mignonette.—In its native country this is a shrub, and not an annual as with us. It should be sown in a light sandy soil, as when it is grown in a stiff soil it loses its fragrance. When it is wished to obtain the tree mignonette, a vigorous plant of the common kind should be chosen from seedlings sown in April, and put into a pot by itself; all the Summer the blossom-buds should be taken off as fast as they appear; and, in the Autumn, the lower side-shoots should be taken off, so as to form a miniature tree. It should afterwards be transplanted into a larger pot, with fresh soil, formed of turf broken into small pieces, and sand. The plant should be kept in a green house or warm room all winter, and regularly watered every day, and in the spring the stem will appear woody. The second summer, the same treatment should be observed, and the following spring it will have bark on its trunk, and be completely a shrub. It may now be suffered to flower, and its blossoms, which will be delightfully fragrant, will continue to be produced every summer for many years.—*The Horticulturist.*

Something for All.—So various is the appetite of animals, that there is scarcely any plant which is not chosen by some and left untouched by others. The horse gives up the water-hemlock to the goat; the cow gives up the long-leaved water-hemlock to the sheep; the goat gives up the monk's-hood to the horse, &c.; for that which certain animals grow fat upon, others abhor as poison. Hence no plant is absolutely poisonous, but only respectively. Thus the spurge, that is so noxious to man, is a most wholesome nourishment to the caterpillar. That animals may not destroy themselves for the want of knowing this law, each of them is guarded by such a delicacy of taste and smell, that they can easily distinguish what is pernicious from what is wholesome; and when it happens that different animals live upon the same plants, still one kind always leaves something for the other, as the mouths of all are not equally adapted to lay hold of the grass; by which means there is sufficient food for all. To this may be referred an economical experiment well known to the Dutch, that when eight cows have been in a pasture, and can no longer get nourishment, two horses will do very well there for some days, and, when nothing is left for the horses, four sheep will live upon it.—*Farm Journal.*

Senior Editor's Table.

THE *enlightened* American Christian and Patriot would not desire that we should all be farmers; for then there would be everybody to sell and nobody to buy agricultural produce. The farmer, in such a case, would dwindle to a mere peasant. He could command no money, could make no exchanges, could indulge in no luxuries. The real comforts of life would have to be reduced to the lowest possible point. All stimulants to industry would be taken away. Indolence, stupidity, semi-barbarism would follow. In such a state of things it would be of no use to urge upon the farmer that his is a noble profession, that he should be educated for it, should be a man of taste, of enlarged mind, of liberal views, of great refinement. It would simply be asking of him an impossibility. You might as well tie a man's feet and tell him to run. But let the farmer know that there will be a demand for all he can grow, that there will be a market for his produce, independently of some accidental deficiency abroad, a home market at renumerating prices, and there will be no lack of enterprise in his calling. What we want is, that a portion of the people, say one-half, should seek a living by the farm, while the rest, equally industrious in other callings, and contributing equally to the general good, should be consumers of farm produce, willing and able to pay a renumerating price for it, thus assuring the farmer of a stable demand for produce at reasonable prices. Then he will work cheerfully; will set his head at work to devise ways and means of increasing productiveness; will pay a good price, and freely too, for labor; will improve his lands, adorn his home, and give his children as good an education as the best. What the farmers of our country want, is that the men who make their iron should make it here, and consume their produce the while; that their wool should be grown here, and that the manufacturer of their cloth should feed on the farmers' surplus of breadstuff; that, as a nation, we should become truly independent—able to supply our own wants. Why should the Scotchman make our iron and the despot of the Russian serf get the money we pay for it, unless we love foreign despots better than our own farmers? If we ever learn to develop our own resources, instead of enriching foreign nations; and to manufacture for ourselves, instead of depending upon foreigners for the very necessities of life, it will be well for American agriculture. Such a race of farmers as the world has not yet seen will exist among us. At present, the English farmer has all the advantage of the American. He pays, in rents, poor rates &c., from 20 cts. to $50 per acre, annually, for his land, averaging perhaps $12 an acre for the use of good, arable land; but this is little compared with the higher price he will get for produce for the next few years, provided the policy of his Government and ours should remain as now. And we would positively rather be the owner of a ten years' lease in that country, than of a farm in fee simple in this, so far as the laying up a competency for old age is concerned, unless important changes are to take place here, and a larger portion of American industry is to be turned to mining and manufacturing, thereby at once encouraging immigration and assuring the farmer of a stable market and remunerating prices. It is vain to say that prices have been high enough, and too high, the year or two past. We know that there was a cause for this, a mere temporary cause, one which *may* not, and which every good man hopes *will* not return.

A judicious protection to *any* and *every* branch of productive industry is a protection to the farmer; is not enriching somebody else at his expense, but enriching him, or what is better, is enabling him to become rich, by his own labor and enterprise; is making his business *a paying business*. If the *Loom* and the *Anvil* are to remain in Europe, if the men who work them are to remain there, and are to continue to be fed by the serf of continental Europe, it will not pay to run the *Plough* deeply and widely on our broad prairies. We have been advocates for deep ploughing, thorough cultivation, and high intellectual culture among farmers; but unless the Plough, the Loom and the Anvil can be brought together, so that the men who swing the sledge and the women who watch the shuttle can feed on the products of *our* fields, we may have to change our tone, to conclude that shallow ploughing and heedless cultivation will produce all that we shall need, and that the production of more will only injure the farmer by lowering the price. We may be driven to the conclusion that the farmer may as well plough shallow and take it easy, on the ground that if he exerts himself ever so much he will not be able to educate his children and save something for old age. But hoping for better things—that the farmers of our country will see their true interests, will demand their rights, and *will get them*—we would speak a word of encouragement to the farmers. The times are changing. Fifty years ago the farmer gave 8 lbs. of veal for a pound of cut nails, to mend his fence with, not but half as good as we now make. This never can happen again. Should our Government do its worst, instead of doing its best, as we confidently expect it will, it could never bring farm produce as low, compared with those things which the farmer has to buy, as it was when the British Government compelled us to buy all our goods of her, except such as we could manufacture in the chimney corner, or as it was for many years after we became *nominally* independent, but were *really* dependent on Great Britain for every necessary of life, except what grew on the farm. There may be a temporary glut of bread and meat. We should not think it strange if within one year the farmer should find himself producing at a miserably small profit, perhaps at a positive loss. But it will not last. The American people are beginning to understand better than ever before, that their true interest is to distribute themselves among all the industrial arts, with a view to the production and interchange among ourselves of whatever we need;

that if the foreigner is to work for us, he must work on our own soil—dig the ore from our own mountains, smelt it with our own fuel, and work it into whatever forms we require, for his own and our benefit, and not for the special benefit of foreign landlords and tenants. Hard times may be ahead. We know nothing about that. But we confidently believe that, in the long run, farming will be so far remunerating, that the man who has chosen it for the field of his life's industry will have no occasion to regret his choice; no lack of means to make his home comfortable, inviting, tasteful; none, to educate his children well enough to enable them to enter advantageously his own profession or any other they may choose.

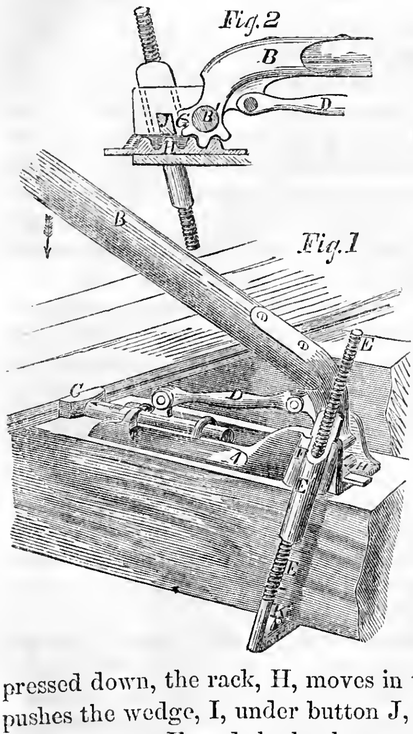
We can never be satisfied till we see the American farmer head and shoulders above the farmers of other lands. Instead of *all work and poor pay*, we want it should be *intelligent industry and sure pay*. It ought to be so. It will be. Since our last issue we have had occasion to travel leisurely through parts of New York, Connecticut and Massachusetts, and to make a hasty excursion or two into New Jersey. We see here and there a farm in a very old style; laid out with no regard to order or system; the fields taking such shape as the convenience of the moment must have dictated; fences overgrown with bushes, briars, weeds; no neat garden, producing food and luxuries, and adorned with flowers; buildings, looking very much as if the owner had failed to profit by late high prices; manure heaps, redolent of what would be better under ground than above; the whole indicating the lack equally of an eye to profit and of a humanizing taste. But happily these are the exceptions. The occupants of such farms, we suspect, do not take an agricultural paper. They do not learn what others are doing. They have fallen behind the times. Almost everywhere signs of improvement are manifest. Nearly all crops we see are promising. Farm buildings, with a few miserable exceptions, are assuming a more pleasing aspect. There is better economy in their construction—more neatness, convenience and good taste. The farmer dwells in Nature's temple, is always surrounded by the works of Divine Art, takes lessons from the choicest pencillings of a perfect Master. In matters of order and taste, of neatness and economy, he should be second to none. It is too bad when, as in some instances, rare but not as rare as we wish, he makes his premises a blotch on the fair face of creation.

We had more to say, but the printer's *claudite rivos* (shut off your gossip) warns us that our pages are full. We had intended, among other things, to ask our farmer readers, who of them will get up a club for us, of four or more, on the conditions mentioned on the second page of our cover? We do not believe that our journal is the only good one of the kind, nor that it will be, for although we hope to improve from month to month, we believe others will improve also—that there will be a general improvement in agricultural journals, as there is in agriculture. Yet we mean to make it good among the good; and when we ask our farmer friends to aid in its circulation among their neighbors, we ask but what we think they will approve, and will carry into effect as opportunities occur.

Mechanical.

IMPROVEMENT IN CARPENTERS' CLAMPS.

A NEW invention of this kind has recently been patented by Mr. H. W. Oliver, of Whitneyville, Ct., which is designed to assist carpenters in clamping boards firmly together during the process of laying floors.



A is the bed plate of the instrument, having a hand lever, B, pivoted near its lower end, at B. C is the clamp bar, connected with lever B, by means of rod D. When lever B is pressed down, clamp C will be moved forward, in the direction of the arrow, and pressed against the edge of the board.

The implement is attached to the floor beam by means of the screw hook, E, the nut of which slides up and down between the guides, F, on plate A. The lower end of the lever B terminates in a segment gear, G, (see fig. 2) which works the rack, H. back and forth. One end of the rack, H, is made wedge-shaped, J is a button which attaches nut E to A. When lever B is pressed down, the rack, H, moves in the direction of the arrow, and pushes the wedge, I, under button J, whereby the latter is lifted, and with it the nut E, and the hook screw, E. The teeth of the latter, at K, are thus made to enter the beam and hold the implement from slipping.

When the rack, H, is moved in a contrary direction, the wedge I withdrawn from beneath the nut J, and the hook screw, E, drops, carrying the teeth, K, out of the wood, so that the implement may be moved along on the beam to a new position.

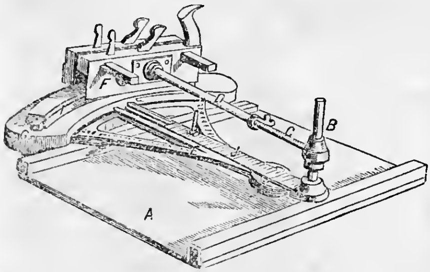
When the lever, B, is bent down (as in fig. 2,) it remains self-fastened, the rod, D, being brought to a parallel line, like a toggle joint.

The facility with which this implement may be fastened and detached, its simplicity, cheapness of manufacture, and great strength, render it a most excellent assistant for carpenters.

J. A. Knight & Co., 334 Broadway, New-York city, is agent, &c.

FELLY CUTTING MACHINE.

The difficulties heretofore experienced in regulating the curve of the fellies of wheels seem to have been well met by a recent patent secured by Mr. William M. Johnson, of Clifford, Pa., in which the curve is adjustable to the size and depth of the felly which it is desired to cut, in a very perfect manner. A is the bed-piece, which supports the working parts of the machine; B is a stationary upright guide pin, upon which the hub turns which holds the rod, C, passing into and adjustable within the tube, D, the tube, D, being made fast to the plane, F, as represented. The felly, I, is made fast to the felly-table, G, which is also made adjustable with the centre pin, B, by means of the bar, J, sliding within a dove-tail channel of the triangular frame attached to the bed-piece, G. A clutch upon the top of J holds it firmly in place, except voluntarily moved and set by the graduated bar, J—C being graduated, the tube, O, is also made adjustable as desired.

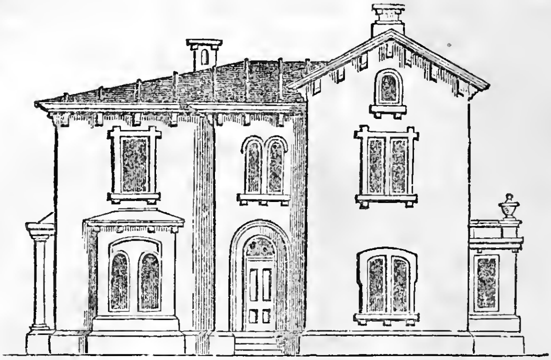


Fellies for carriages are planed very rapidly by this machine, and the work is of good quality. The plane here represented is moved by hand power, which wagon-makers ordinarily would use. Any power may, however, be applied.

New Corn Planter.—Messrs. R. W. Fenwick & Reinhold Boeklin, of this city, have recently obtained two patents for a machine for planting and covering corn by hand. The invention consists, first, in the conical valve on the lower end of the seed slide, whereby the discharge of the seed can be effected simply through the depression of the seed tube and resistance of the soil against the seed slide as the tube descends, and thus the necessity of employing loose connections for operating the seed slide avoided; and, second, in the hinged plate on the lower end of the seed tube, whereby a quantity of earth is always taken up, no matter what may be the nature of the soil, and dropped on the corn in a manner to cover it perfectly, as fast as it is discharged from the seed tube. It can be made by a common workman, is quite cheap, compact and durable, and so constructed that it must plant regularly and surely as it enters the soil, clamp a quantity of earth, and, when raised out of the soil, lift and drop the same upon the seed, so as to cover it.

SMALL COUNTRY VILLA.

The elevation of the principal front consists of a gabled projecting portion, forming the main part of the building, and which is higher than the rest. It contains the family-room, dining-room, &c., and has an attic above the chamber, lighted in front and in rear by a circular-headed window.



On one side is seen the elevation of the end of the projecting bay in the library, finished with a corner piece, supporting a pedestal and vase, between which and the wall of the house is a balustrade, which may form a balcony to the second story side window. At the side of this portion of the building, slightly recessed, is the porch, with its open arch below and couplet window above. This recess is just sufficient to permit the projecting cornice of the roof to abut against the side of the main wall. Receding from this is that portion of the building containing the drawing-room, with its projecting bay window in front. The roof is covered with tin, laid over rolls. The cornice is supported by simple brackets.

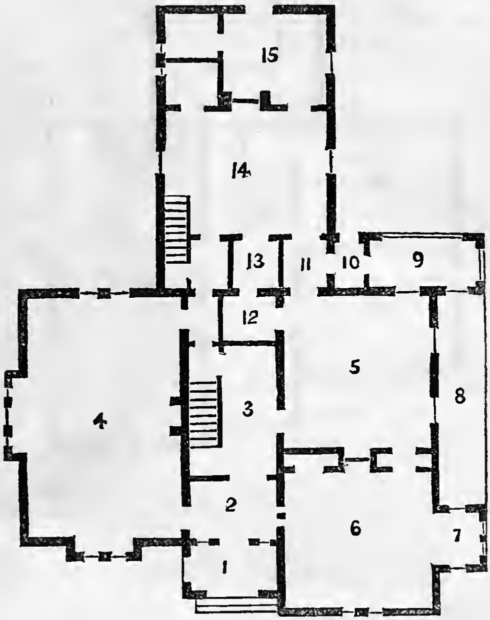
The other sides are finished in a corresponding manner, the whole illustrating, in a good measure, the modern Italian models.

The entrance porch, the inner entry, and the conservatory would permit the use of encaustic tiles. The terrace might be floored with strips of wood of different colors, as black walnut and yellow pine, in some geometric pattern, the whole being oiled and varnished. The walls may be decorated with panels, or the room might be divided into two, without material damage.

The height of the drawing-room, hall, dining-room, and library should not be less than twelve feet, the rooms in the rear being nine feet in the clear.

Such a building should stand upon rising ground, with a still higher background, and with shade trees. A verandah round the drawing-room might be added.

The Principal Floor is thus arranged. No. 1 is the principal entrance, being an open porch. No. 2 is the entry. No. 3 is the inner hall, separated from No. 2 by glass and double doors ; this hall is nine feet wide. No. 4 is the large drawing-room, 30 feet by 16, with projecting bay windows in the front and upon one side. No. 5 is the dining-room. No. 6, family parlor or library, with a deeply embayed window or wing, No. 7, forming a pleasant retreat for reading, &c. One of its windows opens upon a covered terrace, No. 8, the other end of which terminates with the conservatory, No. 9, a view into which may be obtained from No. 7. No. 10 is an entry. No. 11, a passage way into the kitchen, No. 14, and is provided with shelves, &c. No. 12 is a store or china closet, and No. 13 the same. The kitchen is 16 by 14 feet. A stairway leads to the second story, underneath which another leads to the cellar. No. 15 is the laundry and scullery, with store closets, &c.

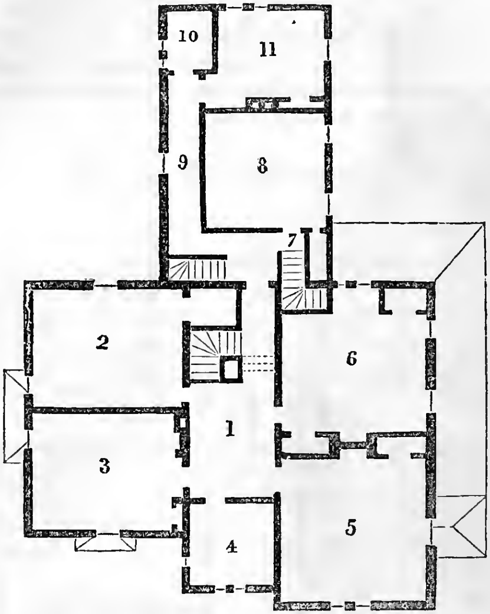


The cellar should be seven feet high, under the whole house, and contain rooms for vegetables, milk, stores, &c.

The Chamber Floor is arranged as follows: No. 1 is the upper hall, lighted by a dome overhead, inserted in the attic floor and illuminated by glass on a level with the roof, not observable from outside the building. Nos. 2 and 3 are large chambers, the former having a very large closet. No. 4 is over the entrance porch. No. 5 is over the family sitting-room, and No. 6 is over the dining-room. A stairway, No. 7, leads to the attic, projecting into No. 6, and corresponding to which on the other side is a closet of similar size. No. 8 is a chamber, No. 9 a corridor leading to a bath-room, No. 10, and to the servants' sleeping-room, No. 11.

The walls are eight feet high to the top of the plate, the ceilings following up the rake of the rafters, so as to permit a straight ceiling of ten feet or more in the highest part of the room. The rooms in the main part of the building, on this floor, are nine feet high in the clear.

As to the cost, this would vary with the changes and additions suggested, and with the material used. It has been built by contract, in the vicinity of an Eastern town, of frame filled in with brick, and smooth ceiled on the exterior, finished substantially, for $4,000.



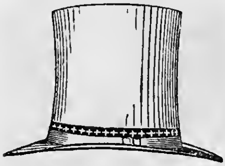
American Patents.

IMPROVED FIRE-ARM.—A fire-arm has been invented in Connecticut, having a conical ball like the Minie bullet, with powder inside the ball. The bullet is made hollow, and filled with a charge of powder, and covered with a cap on the end, which, on pulling the trigger, explodes like a percussion cap. The barrel is grooved like the Minie rifle—spirally, so that the ball when discharged receives a whirling motion, which greatly increases its force. The gun is loaded at the breech, by which a ball is introduced larger than the bore of the gun. When the weapon is discharged, the lead is forced into the grooves of the barrel, which instantly prevents all escape of air, and the whole power of the explosion is thus concentrated upon the bullet, which issues from the weapon with incredible velocity. These balls may be left in the water twenty-four hours and yet serve as well as if dry.

IMPROVEMENT IN WAGON WHEELS.—Wm. A. Ashe, of New York city, has patented an invention which consists in forming a narrow tongue at the centre of and on the inner circumference of the tire, and a deep, narrow groove, of corresponding shape to the tongue, in the outer periphery of the fellies, for the purpose of securely fastening the tire on the wheel without the aid of bolts or holdfasts. Another purpose is to prevent the liability of the tire to loosen from shrinkage of the wood. The edges of the tire are made quite thin, so that by use they bend around and conform to the edges of the fellies, thus always keeping the latter in place.

Grain Harvesters.—John C. Hicks, of Rockaway, L. I., has secured a patent for an improvement in grain harvesters, which consists in a peculiar means of operating the rake, whereby it is drawn over the platform of the reaper, turned around and thrown outward, and then turned to the outer end of the platform to be again drawn inward or over the platform. A motion is thus communicated to the rake similar to that given by the hand, and the grain is swept from the machine and is deposited in regular piles upon the ground.

Another patent has also been obtained by C. Wheeler, Jr., of Poplar Ridge, N. Y., which consists in a peculiar means of operating a reciprocating rake, whereby it is made to descend in a horizontal position and rake the cut grain from one end of the platform with a quick movement, and then ascend and pass back to the opposite end with a moderate movement, during which time the platform is again filled with grain and the rake is lowered and ready for the succeeding stroke.



Seller's Ventilating Hat is a newly patented invention, which effectually serves to keep the head cool in the warmest day, and by thus adding to the comfort of the wearer, is also a protection to the hair, preserving it in a healthy condition. Some of our friends have worn this hat, and speak very highly of it. This contrivance adds about $1 or $1.50 to the first cost, and may be used in hats of any form or even added to an *old one*. The small engraving in the margin shows its nature. The ventilation may be opened or closed at pleasure.

English Patents.

Improvements in Machinery for preparing, spinning, and doubling Fibrous Substances. By Robert Ashworth and Samuel Stott, of Rochdale.—This invention consists, firstly—in constructing a compound spindle and tube or collar, that is to say a tube or collar free to revolve in suitable bearings, to which is secured a flyer. Through this tube and the collar of the flyer a spindle or rod is passed, which carries at its upper part a circular plate for supporting the bobbin. Tubes and collars thus made will be steady when running on high velocities, whereby a greater quantity and better yarns will be produced than by means of spindles of the ordinary construction. The circular plate which carries the bobbin is for the purpose of regulating the speed of the bobbin, by acting as a drag, and allowing the bobbin to run at a speed equal to the length of yarn to be wound on the bobbin. Secondly—in pressing together rollers which are used for drawing or pressing together fibrous substances, by an elastic substance, in such manner as not to exert any force or weight on the bearings of the bottom rollers.

Improvements in Machinery for spinning and twisting Cotton, Silk, Flax, Wool, Hemp, and other Fibrous Substances. By Charles Felton Kirkman, of Argyll-street, Regent-street.—This invention relates to a mode of constructing and working the flyers of certain descriptions of spinning machinery, so as to put two twists into the roving or yarn, at every turn of the flyer, instead of one, as is usually the case, and at the same time causing the yarn to wind upon a bobbin, which is placed vertically and horizontally, and made to rotate within the flyer as the latter travels round it. The flyer employed in carrying out this invention consists of an oblong frame, at the top and bottom of which are attached cross-bars, furnished with eyes, through which the yarn passes from the delivering rollers above to the bobbin within the flyer. The additional twist is given to the yarn by causing it to pass from the upper part of the flyer several times round one of the legs and arms of the flyer, to the lower part of the same, and thence up through an eye beneath the bobbin, on to and around the latter, which is caused to rotate, at a proper surface speed, by means of a roller which rotates in contact therewith, and is actuated by suitable gearing within the flyer.

Improvements in treating Oils and Fatty Matters. By Antoine Fidelis Cossus, of Cagliari, Sardinia.—This invention consist in treating and purifying oils and fatty matters with powdered carbonized peat and schist, and afterwards running into a filter, in which the fluid portions pass through several partitions covered with fabric; each successive partition being covered with a finer fabric than that through which the fluid last passed. After this process of filtration, the oil or fat is finally cleared, by being passed through unsized paper stretched over a cylindrical or other suitably formed frame.

Improvements in Machinery or Apparatus for preparing Cotton and other Fibrous Substances for Spinning. By Evan Leigh, of Collyhurst, Lancashire.—This invention relates to an improved method of making cotton "laps" for carding engines, and more particularly for "finisher cards." In the present mode of making cotton laps on blowing machines, and others, termed "Derby doublers," there is nothing but the cohesion of the fibres of the cotton wool when pressed to bind the laps together, and great inconvenience arises, and much waste is occasioned by the rolls sticking together whilst unlapping at the "carding engine." The present invention consists in preventing this inconvenience and waste, by traversing a bobbin of slubbing or of soft twisted cotton (or sliver of cotton, twisted or untwisted, from a can) transversely across the machine whilst the lap is being made, and allowing such slubbing, roving, or sliver to draw off the bobbin, or be withdrawn from the can through the calender rollers of the machine, and be rolled up with the lap in a zig-zag or diagonal direction, which has the effect of tying or binding the cotton laps better together—preventing their expansion when taken out of the machine—allowing of their transport without injury, and of their unrolling freely.

Improvements in constructing Air Springs. By George Bell, of Cannon-street, West.—This invention has for its object the constructing of air springs for carriages and other uses, and consists in employing water or other fluid, (provided with flexible covers of waterproof fabric) in enclosed metal chambers wherein the air is confined, in such manner that the water keeps the air from coming into contact with the flexible covers, and also from coming near the openings where the air is introduced, and also from the joints of the chambers were the covers are fixed. Hence the air will be enclosed on all sides, except where it is in contact with the water or other fluid in a metallic chamber, in such manner as to prevent leakage.

Improvements in the Manufacture of Chlorine. By Charles Tennant Dunlop, of Glasgow.—This invention relates to the employment of the residuum obtained in the manufacture of chlorine, which residuum ordinarily consists of chloride of manganese, in the preparation of an artificial oxide of manganese, which is well suited for the manufacture or production of chlorine. The special process preferred by the patentee in carrying out his invention is the transformation of the chloride of manganese into a carbonate of manganese by the agency of any of the means already well known to chemists, and then subjecting the carbonate thus prepared to the action of heat in contact with atmospheric air. Whatever impurity the chloride of manganese may contain, as chloride of iron for instance, is first separated either by calcination or by the agency of a suitable precipitant. Practical working has decided that the carbonate of manganese, thus treated, yields an oxide of manganese of a richness equivalent to about eighty per cent. of pure peroxide.

The carbonate of magnesia may be obtained by precipitation from the chloride of manganese by the agency of carbonate of ammonia. The muriate of ammonia resulting from this treatment may either be sold or employed as such, or it may be retransformed into a carbonate in the usual way, and then again employed for the precipitation of fresh chloride of manganese. Hydrate of lime is also employed in the production of carbonate of manganese from these residual matters; the hydrated oxide of manganese thus obtained being subsequently transformed into carbonate of manganese by the transmission through it of carbonic acid.

By another process, carbonate of manganese is obtained by passing carbonic acid through the solution of chloride of manganese which has been previously mixed with a quantity of carbonate of lime. The carbonate of lime under the influence of the carbonic acid decomposes the chloride of manganese into carbonate of manganese, from which latter substance the oxide of manganese can be obtained, as well as chloride of calcium, which remains in solution. The production of oxide of manganese suitable for the obtainment of chlorine has been often attempted by following the process of precipitating the manganese as an oxide, and then bringing it to a higher state of oxidation by heating it in contact with atmospheric air, as well as by other means. But the essential feature of the present invention is, the production of oxide of manganese from the residuum of the chlorine manufacture, by first manufacturing or producing the carbonate of manganese, and then heating this carbonate in contact with atmospheric air.

Improvements in constructing and lubricating the Bearings of Mule Spindles. By Samuel Oddy, of the Adelphi Iron Works.—This invention consists, first, in making the front of the top bolster or rail in which the spindles revolve open, so that a portion of the spindle may be exposed to the action of a piece of felt or other suitable material, by which the oil or other lubricating material is absorbed and imparted to the spindles. Secondly—in making the footsteps of mule spindles in rails of any convenient length, with a rib to guide the lubricating material into the footsteps. And lastly—in covering the footsteps with lids extending over several spindles to prevent the escape of the lubricating material, and to keep the flyings out of the footsteps.

Improved Mechanism for operating the Shuttles of Looms. By William Edward Newton, of Chancery-lane.—It has been hitherto supposed that a shuttle when driven from the shuttle-box must preserve a nearly horizontal position to prevent it from flying out of the web; and to accomplish this, a picker, sliding upon a rod, has been most generally used, which picker was impelled by a string or picker staff. To obviate the use of a sliding picker, resort has been had to a means of so hanging the picker staff as to give it a rectiliniar motion, or a motion parallel to the shuttle, by means of one or more pivoted arms, or by connecting a rocker to it, which gives it a variable fulcrum. The object of the present invention is to avoid the use of all these devices; the inventor having found that the picker staff, confined at the lower end by a pin, in the usual way, for driving the sliding picker, will act equally well directly upon the shuttle, provided it does not pass much beyond the perpendicular. In carrying out this plan, the bottom of the staff is placed as near the side of the loom as possible; so that when it stands perpendicular it is nearly at the end of the shuttle-box.

This improvement therefore consists in the use of a picker staff (for driving the shuttle) hung in the usual way, but so that its action on the shuttle shall cease when it has reached a perpendicular position. If the picker staff passed over a larger portion of the arc of a circle than above mentioned, it would, as soon as it passed a perpendicular line, begin to depress the heel of the shuttle and elevate its forward end, so as to cause it to shoot out of the loom. But during the first part of its progress the tendency of the staff is to raise the heel and depress the forward part of the shuttle, which is desirable in weaving, inasmuch as when a picker is used it is set somewhat rising or inclined to point the shuttle slightly downward.

Apparatus for Cleansing out the Sediment from the Water in Steam Boilers and preventing Incrustation of the same. By Edmund Topham, of Nottingham.—This invention consists in adapting to the interior of steam-boilers, and at or near the bottom and angles thereof, certain apparatus, designed for the purpose of agitating and drawing off the water in the boiler occasionally, so as to prevent incrustation, occasioned by the adhesion of the sediment (contained in the water) to the boiler.

The apparatus consists of a shallow scraper, fitting loosely within the boiler, and having one, two or more rods, attached thereto for actuating the same from the outside of the boiler, which rods pass through glands or stuffing boxes of the ordinary kind. At the back end of the bottom of the boiler is an opening, beneath which is affixed a pipe for carrying off the sediment which has been precipitated from the water in the boiler during the day; the discharge of the sediment being effected by the attendant moving the before-mentioned scraper to and fro, by means of a suitable handle or wheels affixed to the outer end of the rods to which the scraper is attached; or, if necessary, the scrapers may be actuated at stated intervals of time by a steam-engine. As, however, the frequency with which the scraper is required to be used will depend greatly on the quality of the water, it must therefore be left to the discretion of the workman in charge of the boiler to use it as often as he finds it necessary. For general purposes about once in every twenty-four hours will be found sufficient.

Improvements in the Manufacture of Pile and other Fabrics. By William Wood, of Monkhill.—This invention relates, firstly, to sizing and dressing, by brushing and smoothing, mohair and other pile warps or yarns, in order to lay the loose hairs or fibres, and preventing their catching or locking together in the crossing of the threads for the sheds, in weaving pile fabrics. Heretofore, when weaving pile fabrics, the mohair and other pile warps have been used without being previously sized and dressed, and it is found that the loose fibres, projecting from the threads, when thus used, by looping with each other, prevent the proper opening of the shed, and thereby impede the proper insertion of the wire and the passage of the shuttle. But by subjecting the pile warp yarns to a sizing process, and then brushing and thereby smoothing the same as they come from the size, the otherwise loose fibres are laid close to and longitudinally of the threads; whereby such threads, by the smoothness produced to their surfaces, cross each other freely, and perfect sheds are obtained for the wire and the shuttle.

Secondly—the invention relates to wetting and damping the yarns, especially those for the warps, whilst being woven into velvet and other pile fabrics, at or near the point wherein the weaving cloth is produced. In the weaving of mohair and other yarns in the manufacture of piled fabrics, the patentee states, that the closing together of the fabric at the point where cloth is produced, is much facilitated if the threads of warp are wet or damp, especially when dressed pile warps are used. To effect this, he employs, by preference, a rotating or other brush, suitably supplied with moisture, and carried by brackets from the lay swords or arms, and moving with them; so that when the lay is at the back, or furthest from the cloth, the bristles of the brush used may penetrate amongst the warp-threads, and moisten them; and when the beat-up takes place, the brush, by coming forward with the batten, will be brought into contact with the surface of a brush or roller, revolving in a trough of water or other liquid from which it will receive a fresh supply of moisture. The water or other liquid is kept heated by steam or other suitable means, as it then more readily penetrates the fibre, and is more effective in softening it. Another mode of producing this moistened and softened effect, whilst weaving pile and other fabrics, is by applying a perforated or slit pipe to the batten, in lieu of the brush, and allowing steam to escape therefrom amongst the warp-threads, at the time the lay is at the back. In order to admit of such pipe moving with the batten in the beat-up, steam is conducted thereto by means of a tube of vulcanized india-rubber, or other suitable material, and the admission of steam to such pipe at the time desired, and the shutting it off therefrom, is governed by a tap or valve, operated by studs or projections at each to-and-fro-motion of the batten.

Thirdly—the invention relates to using, for the pile warps of pile fabrics, single spun threads of mohair, worsted or cotton, instead of doubled threads, as is usually the practice.

Heretofore it has been customary to use for the pile-warps of pile fabrics, threads composed of two or more single yarns twisted together—thereby involving the cost of spinning the single yarns as fine again, or thereabouts, as they are ultimately used, when the two are afterwards twisted into one thread, and also the course of such twisting together and doubling. Thus, supposing the size of thread desired is that known as N° 20s, if that thread is composed of two threads, each must be first spun to N° 40s or thereabout—and being then twisted together, they produce the size desired; whereas, if the threads are used single, they need only be spun to N° 20s. By using single in place of double spun yarn for the pile-warp, a much softer and fuller appearance is said to be obtained to the pile surface, especially to cut-pile or velvet-fabrics, than when double spun yarn is employed. In carrying out this part of the improvements, the single yarns are dressed, by sizing and brushing, before weaving, as mentioned under the first head of the invention.

Fourthly—the improvements relate to raising one-half of the pile-warp threads at a time, to form a shed when weaving silk, worsted, or cotton velvet, or cut-pile carpeting, in order to avoid a striped appearance on the face of the fabric.

Heretofore, when using silk or cotton in the production of velvet, or worsted in the production of cut-pile carpeting, it has been usual to raise up the whole of the pile-warps required to form a complete row of loops across the fabric at one operation, and (where wires are used) over each wire; whereby the loops formed have been in rows from selvage to selvage of the fabric, and a striped appearance is thereby produced. But it is found that by raising up only one-half of such pile-warps at a time over each wire (when wires are used), that is, one half over one wire, and the other half over the next wire, the transverse rows and stripes are broken, and a much more even and regular appearance is produced on the surface of the fabric.

Improvements in Self-acting Temples to be used in Weaving. By William Maynes, of Stockport, Cheshire.—This invention applies to self-acting temples of that kind which present a continuous bar or streight-edge parallel to the face of the reed, over which the cloth passes, and upon which it rests. The only form of this temple which has hitherto been brought into extensive use is that called the "trough" or "box and roller" temple, which consists of a long roller revolving in a semi-cylindrical box or trough. The present improvements apply partly to the instrument and its form, and partly to modified constructions of it, wherein the essential characteristic of a continuous bearing bar or straight-edge is retained, while other arrangements are dispensed with.

Improvements in Smelting, and in Apparatus to be used therein. By William Turan, of Marazion, Cornwall.—In his improved method of smelting, the patentee divides the internal bore of the blast nozzle or nozzles in such a manner that it or they shall deliver a divided jet, or two or more jets of blast, into the interior chamber through the same tuyere; the pressure, temperature, and general qualities of the blast delivered by the respective jets being either alike or dissimilar, as may be advisable, and of such form and relative proportions as the peculiar circumstances of the furnace and materials may require. The throat and mouth of the interior chamber, through which the decomposed blast escapes into the atmosphere, and of so much of the interior chamber as lies above the boshes, is constructed of a breadth equal to or in excess of the breadth of the chamber at the upper bosh line, and of an area in the plan section equal to or in excess of the area at the upper bosh line.

The form of the jet and the intensity of the blast delivered by the respective divisions of the divided nozzle-pipe may be varied by substituting other nozzles differently divided, and the general dimensions of the nozzle likewise may be adapted to local circumstances; but it is preferred to form the nozzle of two cylindrico-conical cases of different size, the lesser being inside the larger, and maintained in its position excentrically or concentrically, as may seem best, by suitable connecting pins or pieces—care being taken that such connections do not materially impede the delivery of the blast. When it is desired that the blast issuing from the circular central orifice shall be of equal pressure and intensity with that issuing from the annular orifice, the proportion of taper, if any, in both inner and outer cases may be nearly similar.

By means of the improvements herein described, iron ores are smelted with greater economy of fuel, blast and other materials than heretofore, and iron ore of every description are smelted with raw or uncoked coal, which hitherto has been coked before use in the blast furnace; and iron of fine quality is produced without passing the ore through the preliminary operation of calcination, which has not heretofore been accomplished with the ores known to geologists as the carbonates of the coal formations, and to practical smelters as the clay band and black band iron stones.

Making Letter Envelopes.—Tons of paper and barrels of mucilage are used up in this city every month in the manufacture of an article so unpretending as letter envelopes. Four firms are engaged in the business on a large scale, and several others in a small way. It is estimated that the number of envelopes made in this city every week, is at least 40,000,000. Out of New York, there is a factory in Worcester, Mass., which manufactures to a large extent, and there is one doing a more moderate business in Philadelphia.

The process of manufacture may be thus briefly described. A ream of paper, or about 500 sheets, is placed under a knife of a shape corresponding with an envelope when entirely opened, which is forced down by a powerful screw press, worked by a hand lever. The pieces cut out, slightly adhering at the edges, from the action of the knife, resemble a solid block of wood until broken up. The flap is afterwards stamped by a similar process. A boy is able to prepare 50,000 per day in this manner, taking one, two or three envelopes at each movement of the hand. They are then taken by 100 girls, seated at long tables, by whom they are folded and gummed. A single girl will apply the gum to 60,000 or 70,000 in a day, and from 5,000 to 7,000 may be folded in the same time. In these processes the girls acquire great celerity and skill, being stimulated by the wages offered, which vary from 12 to 30 cents for each 1,000. The envelopes are next counted, banded, and packed. Some varieties are embossed or otherwise decorated, requiring additional labor. The establishment of which we are now speaking, consumes not far from twelve tons of paper per month, in the single article of envelopes. This quantity of paper, at 10 cents per pound, would cost $2,400.

TRADES IN LONDON IN OLDEN TIMES.

We find in a musty English folio in the Astor Library, published in 1754, that the principal trades in London were duly incorporated, the members having peculiar privileges, amounting generally to a monopoly within the city. The reason for this is thus stated: "As the government of this city is chiefly maintained by the superior magistrates, before spoken of, viz., Mayors, Sheriffs and Aldermen, so a necessary part of the government thereof consists in the Companies of the Freemen, which freemen seemed anciently to be called *Barons*."

Baron, in its widest sense, signified a freeman or one born of free parentage or a free citizen. Hence "the barons of London" meant the free citizens of London.

These barons consisted of different classes of citizens, of which a part were members of corporations, or persons embodied together, by charter, for the better management of affairs, having also trusts of charity reposed in them, and being endowed with lands and livings for that purpose. Of these companies, there were almost as many as there are "trades and mysteries practiced and possessed. But the first twelve are the chief, and are by some styled *Honourable*." It was required that the Lord Mayor belong to one of these twelve.

The first of these companies was

The Mercers.—These were incorporated in 1393, or in the 17th year of Richard II. They could hold lands to the value of £20 by the year. The company consisted chiefly of such as sold rich silks, brought from Italy, and who lived for the most part in *Cheapside*, *St. Lawrence-Jewry*, and the *Old Jewry*. The mercers were afterwards called merchants. The company was managed by four warders and about forty assistants. These are the overseers of the school of St. Paul's and of Mercer's Chapel school. "Their hall stands," says our author, "in Cheapside, near the Poultrey, and has likewise a pair of handsome gates leading into it out of Ironmonger-lane. When any one of this company is chosen mayor, to make one of the triumphs of the day when he goes to Westminster to be sworn, a beautiful young virgin used to be carried through the streets in a chariot, in all the magnificence imaginable, with her hair dishevelled and hanging about her shoulders, to represent the maiden-head which the company give for their arms. And the lady is plentifully gratified for her pains, besides the gift of all the rich attire she wears. Such a pageant made part of the splendor of the day in 1701, when Sir William Gore was mayor."

There was also erected a large fund for the widows of clergymen and others, which was commenced in 1698. It amounted to near £100,000.

There have been near a hundred Lord Mayors of the Mercers' Company.

The second of the twelve companies was that of

The Grocers, which was incorporated in the 20th year of Edward III., A.D. 1345. Its officers were a master, four wardens, and seventy assistants. The Hall of this company was in the Poultrey, and was afterwards used by the Bank of England, until they erected for themselves their own banking-house.

This company traded in various commodities, by wholesale and retail; such as figs, almonds, raisins, corinths or currants, sugars, spices, etc. They dealt so largely in pepper that they were sometimes called *Pepperers*.

Starch was first sold by the grocers, and was introduced in the latter part of the reign of Queen Elizabeth. In 1544 or 1545, Sir John Packenton obtained the Queen's patent for the exclusive manufacture and sale of starch. Hence the grocers were cut off from this trade. This company also held lands and funds. Most of their property was consumed in the great fire. They afterwards rebuilt their hall, in such style "that it far exceeded any hall that now (1754) is or probably ever was in London." They have also built seven alms-houses, and their charities became very extensive.

Drapers.—The company of drapers was incorporated in the 17th year of King Henry VI., A. D. 1439. Their patroness was the Blessed Virgin. It is governed by a master, four wardens and thirty assistants. The allowance made to the sick and poor is from £10 to £20 per annum. It is not a trading company.

Another company was "set up" in the time of Elizabeth, called the New Drapers, consisting of Italians, Dutch, French and Flemings, "that transported themselves into England in the days of King Edward, and early in the reign of Elizabeth, and wove cloth mixed with woolen and linen. Previously to this, this work was done in other countries, the wool being exported from England. The different kinds of this new drapery are set forth as follows: "Bays of the double middle and single sort, Rash or Shannet of the Florens making, Serche (serge) of the French sort, Says of the Flanders sort, Norwich Grograin, Narrow Woolsteds, Mocadoes, double, single and tuft sort; Plomets, Carells, Fustians of Naples, Blankets called Spanish Rugs, Knit hose of Woolsted yarn." We hope this list is quite intelligible to our readers, more so than to us.

We get, in the account given of this, a little political economy, which will not injure the reader of more recent times. The learned author of the folio lying before us says, "Now they made the Queen's loss by this manufacture to appear thus: a sack of wool weighed 364 lbs., and, being transported by the merchants of the staple, yielded to her Majesty, for custom, 6s. 8d., subsidy 33s. 4d., and license 20s., that is £3. The sack of wool, being converted into cloth, would make four broad short cloths;" and this yielded her Majesty less profit than she received from the sack of wool transported, by 33s. But when afterwards application was made to Thomas Smith, the Queen's customer, for his judgment on these matters, he showed the Lord Treasurer Burleigh "that though there were some loss to the Queen's customs inwards, yet it was recompensed by her customs outwards, and also profitable for the commonwealth, since such numbers of those commodities could not be wrought in the realm by strangers only, but that they must set on work many poor people natives of this realm; and whereas it was thought that the making these would prove the decay of cloths and kerseys, there were as many made then as had been in times past, and as much now within the realm as had been before time, and that it appeared by the custom-books that there were as many carried out of the realm as before."

Fishmongers.—There were two companies of these, viz.: Stock-fishmongers and Salt-fishmongers, each bearing different coats of arms. The patron of the company was St. Peter. It was governed by six wardens and twenty-eight assistants. Among the statutes respecting this company we note the following: That no fishmonger buy a fresh fish before mass at the chapel upon the bridge be celebrated, or at the church of St. Magnus; that no fishermen must sell fresh fish after mass, and salt fish after prime; that no fishmonger ought to go to buy fish beyond the bounds appointed—none to buy fish in any boat unless brought thence to land. We also notice a complaint for forestalling fish.

The Fishmongers' Hall was erected in Thames street, and was rebuilt after the fire of London, " with a spacious and graceful quadrangle." A life-size image of that famous Lord Mayor, Sir William Walworth, with a dagger in his hand wherewith he slew the rebel Wat Tyler, was placed in a niche in the great hall.

Goldsmiths.—The goldsmiths were incorporated in the 16th year of Richard II., A.D. 1392. St Dunstan was their patron. Four wardens and about ninety assistants composed the government. "The ancient mutiny in the city, between the goldsmiths and the fishmongers, for precedence," says our author, " would not be appeased. The discord remaining, a proclamation was made by the mayor and aldermen, by their own authority, without any other warrant, that the rebels should return to peace, and that none should receive them under pain of forfeiture of life." Some of them were banished and expelled the city, and deprived of their freedom, because they would not render themselves to peace.

At this early period we find the craft skilled in fraud in relation to the quality of their wares. The buyers of silver and gold plate were said to have been wronged of five, eight, and even thirteen shillings in the ounce weight. The goldsmiths vindicated themselves by an address to the Lord Treasurer.

Among the ordinances made for the goldsmiths were an obligation to search twice, thrice, or four times a year for things unlawfully made, " and if any such be found, to break it, though it be worth a hundred pounds, or two," and " to imprison or fyne the partie." The ordinances were to be read before the society, convened for the purpose four times a year, &c. Once a year a jury of twenty-four persons were taken from this company to the court, who in the presence of the Lords of the Council tried pieces of every sort of money coined the foregoing year, and exactly assayed and weighed them. This company obtained several charters in different reigns. Edward IV. made them perpetual. Their hall escaped the great fire, being of smooth brick, with a spacious quadrangle built of free stone.

The goldsmiths deal in jewels and precious stones, and setting them, and in making vessels of gold and silver. In the reign of King William it was enacted that no silver vessel, plate or manufacture should be wrought or made of less fineness than eleven ounces ten pennyweights of fine silver in every pound weight troy, nor sold or exchanged until the same had been marked with the two first letters of the surname of the worker and with the marks of the Company of Goldsmiths, London, being a lion's head erased, the figure of a woman, commonly called Brittania, and a mark denoting the year, under penalty of forfeiture thereof.

There have been about forty Lord Mayors of this company.

Skinners.—The company of skinners was incorporated in the first year of Edward III., 1327, and made a " brotherhood" in the 18th of Richard II. The crest and supporters were granted by William Harvey, in 1561. The name of the company was " Master and Wardens, Brothers and Sisters of the Guild or Fraternity of the Skinners in London, to the Honor of God and the precious Body of our Lord Jesus Christ."

" This company flourished in former times," says our author, " when sables, lucerne and other rich furs were worn for tippets in England." Henry Lane, in 1567, speaks thus of them : " It was a great pity but it should be renewed, especially in courts and among magistrates, not only for the restoring of an old worshipful art and company, but also because they be, for our climate, wholesome, delicate, grave and comely, expressing dignity, comforting age, and of long continuance, and better with small cost to be preserved, than those new silks, shaggs and rags; whereon a great part of the wealth of the land is hastily consumed."

The skinners were numerous, and "did set at work great numbers of tawyers (tanners) and other poor sort of people. Coney skins, and other furs of that country, were bred or collected by pedlars, and sold to the skinners. These they fitted for wear, and sold to nobles, gentlemen and other subjects of England," while the meaner sorts and parts were vended to any who would buy, and were exported.

But merchants began to trade in these goods, and a controversy arose between them, so that in 1592 the skinners petitioned the Queen on the subject. This petition set forth that, "Whereas they were fallen into great Poverty by Reason of the engrossing and inordinate transporting of Coney skins, and that thereby they could not have Choice of the best sort for her Majesty's Service, and her Subjects, no Pedlers or Petty Chapmen might gather or ingross any Skins or Furs of the Bread of *England*, but under License of the two Justices of the Peace of the Country where, &c.; and that such Licensed should not make Sale of any such Skins or Furs so gathered by them, but to some Persons known to be of the Trade of the Skinners, and that all others might be restrained to buy and transport them."

This petition seems to have been effectual. The company afterwards "upon some trouble and doubt," was confirmed by Parliament. The author from whom we cite, next adds as follows:

"The acte contayneth also a special proviso, That as it iustifiethe all Graunts made to the said Companys of Skynners, so all Leases, Tearmes, Assurances, Acte or Thing, made or graunted by them in Respecte of either of said Incorporations, by any Name or Names whatsoever, shal be good, according to the trowe Meaning of the same, notwithstanding any mistaking, misnaming or not trowe naming of either of said Incorporations."

"The Hall of this company is situated on *Dowgate Hill*, handsomely built since the fire of London, wherein, for the convenience of it, the Lord Mayors sometimes keep their mayoralties, and of late years the *East India* company have occupied a part of it, for which they pay £300 per annum.

"The Skynners is a rich company. They take no quarteridge. It is the sixth of the twelve chief companies. There have been above thirty lord mayors of this company," and they have also "been honoured by having of their fraternity, six Kings, five Queens, one Prince, nine Dukes, two Earls, and a Baron."

Merchant Tailors.—This company was incorporated in the 21st year of King Edward IV., A. D. 1480, and afterwards a new patent was granted by King Henry VII., in which they are styled "The Men of the Art and Mystery of Merchant Taylors, of the Fraternity of St. John Baptist in London," &c. It was a very numerous and very rich company, composed of merchants, drapers, tailors and some other trades, and was governed by a master, four wardens and about forty assistants. The hall of this company was built in Threadneedle-street, was consumed in the great fire, and afterwards magnificently rebuilt.

July 16, 1607, the day of their annual election, King James I., the prince and others of the nobility dined with them at Merchant Tailors' Hall, and were entertained with music, both vocal and instrumental, and with speeches. The King dined in what was called the King's Chamber, and was afterwards presented with a purse of gold. Speeches were delivered, and a roll of the compary was presented to the King, which contained the names of seven kings, one queen, seventeen princes and dukes, two duchesses, one archbishop, thirty-one earls, five countesses, one viscount, twenty-four bishops, sixty-six barons or lords, two ladies, seven abbots, seven priors and one subprior, besides knights and esquires, &c. "The King then said that he was free of another company, yet he would so much grace the company of merchant tailors, that his eldest son, the prince, should be free thereof, and that he would see and be a witness when the garland should be put upon his head. And then they resorted to the prince, who dined in the great hall, and the company presented him with another purse full of gold, and the clerk delivered his roll; and his highness said that not only himself would be free of the company, but many of his lords would be free of the company. And he commanded one of his gentlemen, with the clerk of the company, to go to all the lords present, and to require them that loved him, and were not free of another company, to be free of his company. Thus twenty-two earls and lords and many great knights and esquires made themselves free."

There have been about eighteen Lord Mayors free of this company.

Haberdashers or Hurrers, as they were called in ancient times, were incorporated as a brotherhood of St. Catherine, in the 26th year of King Henry VI., A. D. 1447. They have also been called Milliners, " so named from Milan, in Italy, whence the commodities they dealt in chiefly came; such as owches, brooches, agglets, spurs, caps, glasses, &c. Their shops made great display, and the people were led to spend extravagantly, so that great complaint was made among the graver sort."

Vintners.—These were anciently wine merchants that traded chiefly in importing wine brought from Gascoigne, and selling it here to the court and the nobility, and to the retailers that kept tavern in London and elsewhere.

The company had an ancient charter from King Edward III., forbidding "any merchant to trade for wine to Gascoigne, but only such as were free of this craft of vintners." It was also commanded that Gascoigners, when they brought in their wines, should not sell them in small parcels, but by the pipe or ton. Four persons were also to be appointed, " of their own mystery, to oversee all manner of wines sold by retail at taverns, and that their prices were reasonable."

In the 7th year of Edward VI. an act was past concerning the price of wines, and "stinting" the number of taverns in each great town in the kingdom. "Fourty taverns or wine-cellars only are allowed in London, and three in Westminster." But in these early times the plea of "unconstitutionality" was urged. It was said to be a violation, not of natural rights, but of the charter of London, which gave permission to every citizen to carry on what trade he pleased. Constant petitions for changes, and new statutes enacted in accordance with them, seem to have rendered the history of those times very similar to our own. We add a few of the ancient rules and ordinances concerning this company, as follows:

It was ordered that " six persons, being vintners, sholn be governors and counsillors to al vintners and to al vintners' attorneys that shallun pass the seas to Bourdeaux. That after they have landyd and ben there two days, and partely understood of the likelehode of the prices, that or (ere) eny buy, they al meet and take ordere what every man sholn gyve, and none to excede upon payne to forf to the King £xx, and £xx to the Felowship; and who that can espie eny doing the contrarie, be it master or servant, shal have to tell (pay) twenty nobles for his travell. None shall color straungers' goods to the hurt of the King's customes, or highening of the pryce of wynes. None shall sel wynes tyl the Wardeins have given them the pryce, upon payne to forfeit 6s. 8d. for every gallon so sold. None shal utter one wyne insted of another upon payne, for every offence, to pay xxs."

About 170 years ago (the book cited being printed in 1754), the whole number of mere vintners and such as sold wine by retail in London amounted to 128, as appeared by a paper given in, in the year 1564 by the company.

Clothworkers.—This company date their first charter in the 20th year of Edward IV. A master, four wardens, and about sixty assistants formed its government. They were incorporated under the name of "The Fraternity of the Assumption of the Blessed Virgin Mary, of the Sheermen of the City of London." King James I. dined with the Lord Mayor, Sir John Watts, clothworker, and afterwards went into Clothworker's Hall and was made free of this company, with several nobles. When received by the company, the King spoke kindly and with respect, and asking "Who is master of the company?" the Lord Mayor answered, "Sir William Stone." To whom the King then said, "Wilt thou make me free of the clothworkers?" "Yes," said the master, "and do think myself a happy man that I live to see this day." Then said the King, "Stone, give me thy hand, and now I am a clothworker."

Fullers.—King Edward I. established this company to secure this work within the city. It was forbidden that any fuller, dyer or thessaran should carry cloths out of the city to be fulled or dyed, on certain penalties.

Tellars or Telars were weavers of cloth, and were very ancient. We can find but little of them.

Burilers were a mystery for the inspection of cloth woven, as to the well making of them and measuring the breadth of them. Among the ordinances concerning this company were these: That none make cloth mingled with a thread of England and of Spain; that no cloth be made of flocks and thrums, &c.

Fourteen Lord Mayors have been of this company.

TRIP FROM NEW-YORK TO THE WEST.

Wending our way to the Battery Pier No. 1, North river, we stepped on board one of the fine steamers plying between New York and Amboy, and connecting there with the cars for Philadelphia. We found this a delightful sail, and are persuaded that no one who knows the beautiful scenery along which, on this route, he passes, would choose any other. The cars, as usual, were in waiting, and we in due time arrived at Philadelphia. From this city, choosing the most wild and romantic route, we thence went up through the valley of the Schuylkill, passing the beautiful villages of Norristown, Pottstown, and Phœnixville. These villages are sustained by manufacturing establishments, and illustrate the importance of a home market. This valley is one of the richest mineral regions of the State. Lead, iron, zinc, and copper mines are found there, and are wrought extensively. The Pottsville Railroad and the R. P. Canal, both of which pass through this valley, furnish all necessary facilities for cheap transportation.

Leaving Auburn, our next destination was Harrisburgh. This route passes through a section of country comparatively new. The road was built by a New-York Company for the transportation of coal, found along the route. From Harrisburgh we went to Pittsburgh. Our first view worthy of note was that of the Susquehannah and the bridge crossing it, with the mountains in the distance. The river, the mountains, the rapids of the river, taken together, and combining as they do in one view the sublimities of nature with the beauties of architectural art, form one of the most attractive views on this continent. Passing the bridge, we run along the Susquehannah river and throughout the entire distance the same sublimity of scenery presents itself. Our only regret was that we passed along so rapidly. At Altona we found one of the finest and best kept hotels in the States. The landlord, Mr. Thompson, is a perfect gentleman, whose every effort is to please and render his guests happy. After a refreshing sleep on a clean bed, and a good breakfast, we again set off for the famed Alleghanies. From Altona the road winds up the mountains, the grade being ninety-two feet to the mile for twelve miles. Along this part of the road the scenery is grand beyond conception. The track is cut out of the side of the mountain. Upon your right tower the lofty bluffs of the Alleghanies, whilst to your left appears a yawning chasm, into which you look down perhaps seven or eight hundred feet. Anon we cross this chasm, and nearly doubling our own track again are running along the side of the opposite ridge.

Thus winding around this mountain, and again doubling another chasm, we find ourselves entering a tunnel three-fourths of a mile in length, the passing of which brings us to Cresson, a distance of twelve miles, of the grandest scenery imaginable. After this we pass Johntown, where are many iron manufactories. This also is the termination of the Pennsylvania Canal. Our route was then along the Breakwater Canal to Pittsburg, the battle-ground of Braddock's defeat. From this place appears the smoke from the city of Pittsburgh, the greatest manufacturing city in the Union, and the terminus of the Pennsylvania Central Railroad. The Ohio and Pennsylvania Railroad commences at this place and runs to Crestline in Ohio, thence to Chicago, through Fort Wayne, Cincinnati and Columbus, and opening the entire West. The little Miami Railroad and Great Miami connect Columbus to Cincinnati. These roads run through the most fertile parts of Ohio. There is also a road running from Pittsburgh to Cleveland in Ohio. This entire route possesses peculiar attractions for its scenery, its safety, and also for the urbanity of its officers.

[The above route was taken and described by one connected with this office some weeks since, but was accidentally mislaid. It is yet, however, as good as new.—Eds. P. L. & A.]

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

INDUSTRIAL STATISTICS.

SAW MILLS NEAR WILLIAMSPORT, PA.

MESSRS. EDITORS:—I herewith send you an account of the different saw mills in operation in this vicinity. To give a detailed description of *all* the different mills which cut the lumber which passes down the West Branch, would occupy entirely too much space, and probably prove of little interest to most of your numerous readers. I will therefore simply notice a few of them between Lockhaven and this place. Lockhaven has in operation four large mills of about two hundred saws, and cuts each day from one hundred-and-twenty to one hundred-and-fifty-thousand feet of inch lumber. These mills include one round and I believe four stock or square gangs. The mills of Mr. Dickenson, at Lockport, and of Messrs. Christ. Long & Co., at Chatham's Run, are each extensive and are doing a large amount of work. Numerous small mills are in operation below these on the river and its tributaries, but we pass to Pine Creek before meeting any doing a very large business. Near its mouth we find the mills of Messrs. Trump & Brothers and the very extensive mills of Messrs. Phelps, Dodge & Co., the product of which I am unable to state. If we go up Pine Creek, we meet, at numerous points, with mills, some of which are very extensive, and do a large amount of business. These are in operation to the distance of seventy odd miles from the river, and at each flood send down a vast amount of lumber. Below Pine Creek, we pass Larry's Creek, studded for miles with mills, but all of a small class—yet doing in the aggregate a large amount of business. At the West Branch Boom, some four miles above this place, we find the mills of Mr. J. H. Perkins doing a large business, and proving itself a superior mill. By its side is the very extensive mill of Messrs. Du Bois & Lowe (not yet in operation). Crossing the river we are at the mill of Messrs. Dodge & Bro., containing one gang, a stabbing gang, and single saw or English gate; together with one large circular, two edgers and a lath saw; next below is the mill of Messrs. Sampson & Ballard, which saws about eighty thousand feet per day. Next the mill of Messrs. Bronson & Co., sawing about sixty thousand feet per day. Below town, we have five large steam mills doing a large business. But I am taking too much space; I will therefore state that the mills are common English or gate mills, merely round gangs, slabbing gangs, common or stock gangs, and circulars—and that here a person can assure himself of the advantages or disadvantages of each kind. I shall at all times be pleased to give either yourselves or your readers more definite information as to the capabilities, cost, &c. of each kind of mill, if desired.

Yours respectfully,

July 8, 1856.

J. A. MONTGOMERY.

A WORTHY EXAMPLE.—Minnesota is the model of a prosperous, peaceful, well-governed Territory. The Legislature has just adjourned, having disposed, satisfactorily to the whole population, of all business brought before it. In reply to circulars addressed to the members, to postmasters and other persons in public position, returns of the population have been collected up to May 1st. It is ascertained, with reasonable accuracy, to be 120,000, more than sufficient to justify the admission of Minnesota as a State.

IMMENSE FAILURE OF ENGLISH IRON.

Any experiments which tend to develop the comparative value of American iron, we consider of great value to the industry of this country. We are inclined to the belief that modes and processes will yet be developed by which our own iron will be made equal to any of foreign manufacture, and then Pennsylvania and some other States will secure a trade equal to the whole of that manufactured by Great Britain and Russia at the present day. Hence we value such statements as are contained in the following article from the *Railroad Advocate:*

The New York Central and Erie roads have ordered their tires of the Bowling Works in England. They thus have the advantage of having their tires made to their own order, and if they insist on express care in filling their order, as we have a right to suppose they do—they certainly command, by the value of their patronage, the very best efforts of the English rolling mills. Both these roads have been exclusively committed to the B. O. tire—they have given magnificent orders to the B. O. works. Minot, while on the Erie road, made his last order for $56,000 worth of their tire. The last order of the Central road was drawn up, in the shops, for 1,000 bars or 500 tires, but it was cut down ultimately to about 700 bars.

Well, this was only the *semi-annual* order—the road works up some 1,200 bars or 150 *sets* of tire yearly—and this on a stock of 215 engines, many of them running on the same tire with which they went out of the shop.

The master mechanics of the Central road report the service of their tires at about eighteen months, or 35,000 miles run. They should last twice as long.

So, it appears, the English tires do not last as they should. But to details—at the Syracuse shops of the Central road, it appears that they averaged two welds of broken tire a day for four months of last winter. This was over 200 breaks, on a stock of 85 engines. Thirty were often welded in one week. Mr. Cox, the master mechanic at Syracuse, is putting up a new crane, and making active preparations for a spirited campaign next winter, in welding up broken English tires. Mr. Van Vost at Schenectady, with a smaller lot of engines, says he has had five engines come in, in one morning, with broken tire. At Albany and Rochester the failure of tire was nearly as great. In some cases it seemed like a fatality. One set of tire, 1⅞ inches thick, broke (each one) three or four miles under a 17 ton engine. As fast as they were welded, they would break in a new place.

But it was not only in breaking that the B. O. tire gave out. Many were lost by splitting in the tread, by flakeing, by crushing, and by having lumps come out, leaving deep, ragged holes in the tread.

But on the Erie road, with the same make of tire, there were few square breaks, but an alarming failure in crushing, scaleing, splitting, etc. At the Dunkirk shop we are told that over *one-half* of all the B. O. tires put on have failed in that way. There is no defect in iron which these tires did not seem to possess.

The Lowmoor tire, being almost identical with the B. O., is of course subject to the same defects. The iron is mined from the same beds, and worked by the same process. The *name* constitutes, as we believe, the real difference in the tire.

The Erie road is using Ames' tires for their renewals, and judging from present indications, will adopt it all together. The Central road, if it were a *poor* road, would have *swamped* under the ill success of the English tire; and rich as it is, can probably afford to save something by using the American tire.

Junior Editor's Table.

EDUCATION; ADDRESS OF H. K. OLIVER, ESQ.—Anything that promotes general education helps the farming and other industrial interests. It is for the want of this among agriculturists, that lawyers and clergymen are so often called upon to make addresses before Agricultural Societies. The city of Salem, Mass., under the mayorship and personal supervision of Hon. S. C. Phillips, has secured one of the most perfect systems of schools and school-houses to be found in the world, and these schools have been so long in operation as to show success to be a point already attained. We have known a gentleman, and a stranger, to journey more than a hundred miles to attend their annual examinations.

Recently, for some cause unknown to us, three schools have been merged into one, having but one head, with numerous female assistants. This Union was celebrated by an address from Mr. Oliver, agent of the Atlantic mills at Lawrence. This abounds in wise sayings, remarkably well expressed, and shows that Mr. Oliver is alike at home in this as in his counting-room. It has been printed in a handsome manner, by Messrs. Ives & Pease, and we esteem ourselves highly honored in being favored with a copy. We would extract liberally, did our limits permit. But we must be content with one short paragraph, while scores of equal worth might be selected. We choose this, because it is short and enforces one of the most important and most neglected of truths:

"Cato said the first duty of the farmer was to plough; the second, to plough; the third, to plough; and *mutatis mutandis*, I say to you, a teacher's first duty is to study; his second, to study; his third, to study—yea even if, at times, flesh and spirit seem almost to break down under it. *Crede experto*—nothing else will permit you to keep up with the demand of the times and the demand of pupils. Therefore study, and if you intend to teach at all, teach with but little thought wasted upon its exhausting weariness, and with few longings for a change of pursuit."

We should like to see a description of the building. It would no doubt be with the careful attention of our readers. Who can furnish it? School-architecture is among the most important of sciences.

EDITORIAL UNITY AND DUALITY.—If any of our readers who note some of the suggestions on page 124 in reference to equestrian feats at fairs, by females, should happen to recollect what we have written on this subject in times past, they may fear, from so sudden a collision, a general devastation and breaking up of affairs. And surely, if the Plough should attack the Loom and the Anvil, or if the Loom should attempt to weave the Plough and the Anvil, *nolens volens*, into a web to suit its own fancy, the consequences might be dreadful even to think of. Nor would the Anvil, set in hostile array against his fellows, be likely to make a child's game of it. The "Harmony of Interests" has long been a favorite story with this office, and the mutual relations of the various industrial interests have been so developed as to prove to us that like some phenomena of the heavenly bodies, even apparent irregularities threatening dire calamities work themselves out safely, and tend to perfection in the final result. We can assure our readers that there is no occasion for alarm. All the parts of our machinery in danger of such violent contact are well padded, and no harm can possibly result. And so long as each is assured that himself is the wiser on a point like that in issue, the *mens conscia recti* will afford each of us tolerable comfort, although all mankind do not exactly come up to the ideal standard. The world may be at ease on this matter.

Miscellaneous.

DIGNITY OF THE MERCANTILE PROFESSION.

"The merchants of the United States compose the true aristocracy of the country. Elsewhere there is always a class which, being recognized by society as a superior, can close its door in the face of a man engaged in mercantile pursuits. Here, however, the position of the merchant is admitted to be paramount. If his business be a respectable one, and if it is pursued fairly and honorably, he is not only entitled to claim admission to any class to which he aspires, but he is at once placed by social courtesy among the first.

"This is very proper, for upon him devolves the conduct of every measure intended to promote the public good; his judgment is consulted, and his liberality confidently relied on, whenever there is any movement of progress to be effected. As a general rule he is looked upon as a patron of science, literature, and the arts. Not only the Useful, but the Graceful and the Beautiful are the recipients of his bounty. He builds a railroad of a thousand miles—through mountains and over rivers—making the desert smile with plenty, and carrying comfort and luxury to the wilderness. He builds and endows a college for the sons and daughters of toil; or a chapel for the pious poor. His means are a bank, whereon the charitable and the needy, the deserving and the undeserving, the philosopher and the foundling, all alike draw at sight, and find their drafts promptly honored. The man of science solicits his judgment as to the practicability of his forthcoming invention; the artist craves his favor for his works; and the author looks to him for patronage. His time and his money are thought to be alike at the service of every adventurer, his advice and counsel are freely demanded, and in fine he is made the confidant, and frequently the servant, of the public. In view of all this, he surely merits the highest place which society can grant.

"Occupying, then, this desirable position, does it not become the young merchant to fit himself to adorn it? If so much power for good or evil is given to his position, should he not be fitted to discharge the trust which society reposes in him? '*Whatever is worth doing is worth doing well*,' is a truism which cannot be too often repeated. As much preparation is necessary in assuming the occupation of the merchant as in embracing any of the learned professions, though this preparation is of a different sort. An idea commonly prevails, among certain people, that nothing is requisite for success in trade but industry and attention. With these qualities a man *may* succeed, though they form but a small part of the essential qualifications of a merchant. There is scarcely any branch of knowledge which may not be advantageously used in the counting-house, and a liberal education tells as well on the merchant's cash-book as in the lawyer's brief."

The closing remark of this extract from *Hunt's Merchants' Magazine* is as applicable to the farm as to the counting-room. It is true that the knowledge most needed by the farmer is of a different kind. The merchant may better afford to dabble in what may be called the polite literature of the day; the very latest news is more important to him; and he needs more of that kind of polish which comes from being rubbed against the world. The farmer requires science rather than literature—a knowledge of nature, of her laws, of the material world, its dead matter and its living organisms, of the transmutations from the one to the other, how all the floating matter about him is alternately dead and living, how the solid rocks become soil, how the soil becomes plants, how the plants become animals, how animals revert back to the elements of air, water and soil, ready to go again and again the same round of changes, and how he may guide these transformations for his own and the world's good.

Few men have said more good things than Mr. Hunt. We suppose that the merchants patronize him liberally. They certainly ought. Whether they are, as Mr. Hunt says, "the true aristocracy of the country" or not, certain it is that no man has done more than he to make them such. If they are the true aristocracy, he should be set down as the *nobilissimus nobilium;* as the leader to whatever is high-minded, noble, honorable, deserves the first place. His labored expositions of commercial law, his collected knowledge of the resources of commerce, the vast amount of statistical information he is continually putting forth, his earnest calls upon the young merchant to prepare, by a thorough training and large acquisitions of knowledge, for the high position he aspires to, his teachings that straightforward integrity is the merchant's jewel, that *honesty* is the best POLICY, an argument more effective perhaps with some than an appeal to better principles—all these make us reluctant to differ from him; and we are not sure that we do.

If by merchants, Mr. Hunt means only the Hancocks, the Laurenses, the Morrises, the Lawrences, and others, who, with liberal attainments in knowledge, which more than wealth makes the *man*, with wise calculation and strict integrity, have accumulated fortunes, and yet nobly served their country, honoring every draft that humanity could fairly bring against them, then we have no controversy with him. These *are* nature's noblemen. They have no need of a patent from earthly courts. Their title is from the King of heaven. We have many such, and we cheerfully give them a high place; but we want to put the farmer of Mount Vernon, the mechanic Ben Franklin, the inventor of the steam boat, and scores more of farmers, mechanics and inventors, dead and living, in the same category. We desire to honor the successful, upright, generous merchant in company with his equals of every useful calling. But if Mr. Hunt means by merchants all who live by buying and selling, and we know of no better definition, then the case is different. Great, honest, noble-hearted men will grow up in the profession, but scamps and Schuylers will grow up among them, in the very city where Mr. Hunt's teachings, sound and cogent as they are, most abound. Taking all who live by trading as merchants, there is not very much to brag of on the score of integrity. There is quite as much moral worth other where. Nor is it true that there is more intelligence in the aggregate among merchants than among others. The merchant acquires better the power of communicating thought. He can generally tell a little more than he knows; while the farmer and mechanic, less flippant, can hardly tell as much as they know; and this makes an essential difference with superficial observers. The former, we believe, are quite as intelligent as the latter, in the highest and best sense of the term—not as closely posted up to the moment, but somewhat better acquainted with the great past, and full as apt to draw useful lessons from it.

Let no one suppose that we think lightly of the merchant's calling. It is useful; it is necessary; a high civilization could not exist without it; and whatever changes may affect the world, it can never become unimportant. If the merchants do not become too numerous and too *keen* for the less trading classes, we wish them well. We are as much indebted to the merchant, who brings the article we want to the place where we want it, as we are to the mechanic who made it, or to the farmer who produced the raw material. Where our coat would have been, if the farmer had not given the wool, or if the mechanic had not manufactured it, or if the merchant had not placed it within our reach, is more than we know. Agriculture, mechanics and commerce are sisters of kindred birth. Agriculture is the eldest; and on her the others lean. Mechanic art is next in age, and in conjunction with agriculture supports commerce. Commerce, if legitimately employed, does the behests of both, and yet is essential to the highest prosperity of both. Commerce, being the youngest of the three, sometimes waxes wanton, thrusts herself in where she is not wanted, sends her "between men" to work mischief between the producer and the consumer, speculates to the advantage of none but herself, and rather too often brags of being a little *smarter*—more clever our English cousins would say—than her elder sisters, all of which we must overlook for the real good she does. The idea underlaying Mr. Hunt's remarks, as quoted above, seems to be, that where there is no patent nobility, created by royal order, supported by the people, there will be a self-created and self-sustaining nobility. This is so; and under a free and well administered government, the nobility, in the latter case, will be more numerous than in the former, more influential, and quite as deserving of popular respect. Such a nobility we have in this country. They hold rank only during good behavior; and the tribunal before which they stand is not an easy one. Their children sometimes inherit their brains and their hearts with their estates, but not always; and in the one case there is much to be hoped from them, while in the other not much is to be feared. We fancy that the mercantile profession furnishes just about its fair proportion of them, but not more. On second thought, we *guess*, the *Merchants' Magazine* will agree with us here. But what constitutes a nobleman, where no patents royal have been issued? Who are our noblemen? We have not time to answer this question now. Hereafter we may amuse ourselves, and possibly interest our readers, in efforts to hunt them up; and we will only say now, that if we should find some of them, or think we find them, where they have not been suspected of being, it would not be strange.

THE PAID BILL.

A Ballad of Domestic Economy.

O fling not this receipt away,
  Given by one who trusted thee,
Mistakes will happen any day,
  However honest folks may be.
And sad it is, love, twice to pay;
So cast not that receipt away.

Ah, yes, if e'er in future hours,
  When we this bill have all forgot,
They send it in again—ye powers!
  And swear that we have paid it not—
How sweet to know, on such a day,
We've never cast receipts away!

Punch, in "Humorous Poetry" of the English Language.

Live for a Purpose.—The secret of all success in life, of all greatness, nay, of all happiness, is to live for a purpose. There are many persons always busy, who yet have no great object in view. They fritter away their energies on a hundred things, and never accomplish anything, because never giving their attention to only one thing. They are like butterflies, flit from spot to spot never gaining wealth; while the ant who keeps to a certain circuit around her hole, lays up stores for winter comfort. Such persons are doomed to be dissatisfied in the end, if they are not sooner; for they find in the race of life they had been passed by all who had a purpose. It is not only the positive drones, therefore, but the busy idle that make a blunder of life for the want of a purpose.

NEW CORN PLANTER.

The accompanying engraving represents Fenwick and Boeklen's machine for planting and covering corn by hand, on which two patents have been secured, bearing dates respectively August 7th, 1855, and May 6th, 1856.

Fig. 1 is a central section, showing the planter in the condition it is before touching the ground. Fig. 2 is a section at right angles to fig. 1, showing the parts in the condition they assume when the seed plunger is forced into the ground. Fig. 3 is a similar section to fig. 1, showing the parts in the condition they assume as the seed tube is being lifted up to draw the seed plunger from the ground.

AGRICULTURAL FAIRS.

Agricultural Fairs.—The fourth annual exhibition of the United States Agricultural Society will be held at Powelton, Philadelphia, on Tuesday, Wednesday, Thursday, Friday and Saturday, October 7th, 8th, 9th and 10th, 1856. Premiums are offered, varying from $25 to $200, amounting in the aggregate to $12,000. For premium list, application may be made to Wm. S. King, Secretary, Boston, or to John McGowen, Assistant Secretary, 160 Chestnut street, Philadelphia.

Alabama, at Montgomery,	Nov.	11, 12, 13, 14
American Institute, at the Crystal Palace, New-York,	Sept.	23 to Oct. 25
American Pomological Society, at Rochester,	Sept.	24
California, at San Jose,	Oct.	7, 8, 9, 10
Canada East, at Three Rivers,	Sept.	16, 17, 18
Canada West, at Kingston,	Sept.	23, 24, 25, 26
Connecticut, at New-Haven,	Oct.	7, 8, 9, 10
Georgia, at Atlanta,	Oct.	20, 22, 23
Illinois,	Sept.	30, & Oct. 1, 2, 3
Indiana, at Indianapolis,	Oct.	20, 21, 22, 23, 24, 25
Iowa, at Muscatine,	Oct.	8, 9, 10
Maine,	Oct.	28, 29, 30, 31
Michigan, at Detroit,	Sept.	30, & Oct. 1, 2, 3
New-Hampshire,	Oct.	8, 9, 10
New-Jersey, at Newark,	Sept.	10, 11, 12
New-York, at Watertown,	Sept.	30, & Oct. 1, 2, 3
North Carolina, at Raleigh,	Oct.	14, 15, 16, 17
Ohio, at Cleveland,	Sept.	23, 24, 25, 26
Pennsylvania, at Pittsburgh,	Sept.	30, & Oct. 1, 2, 3
South Carolina, at Columbia,	Nov.	11, 12, 13, 14
United States Agricultural Society, at Philadelphia,	Oct.	7, 8, 9, 10
Vermont, at Burlington,	Sept.	9, 10, 11, 12
Virginia, at Wheeling Island,	Sept.	17, 18, 19
Wisconsin, at Milwaukie,	Oct.	8, 9, 10

American Institute Fair.—The Twenty-eighth Annual Fair of the American Institute will be held at the Crystal Palace, beginning Sept. 22, and continuing till Oct. 25. New dies have been procured for the gold, silver, and bronze medals. The gold medal will be double the present size, and will be awarded only to the best machinery and other articles of high merit. The silver medal will also be enlarged. The bronze medal is a new feature. The new dies will be ready for exhibition during the fair. A list of premiums is announced for grain, flour, fruits, flowers, vegetables and dairy productions. Quack medicines to be expelled ignominiously, as last year.

CENTRAL POWER—EMIGRATION—AND AGRICULTURE OF WARREN CO., IOWA.

Messrs. Editors:—No State in the Union has ever been settled up with such rapidity as this new and fertile State. Emigration is from every State within the boundaries of Uncle Sam's dominions, and from "sweet Ireland," with spade in hand. Many from John Bull's aristocratic power, both high and low, and finally from all parts of the civilized world, have found an asylum here upon the fertile soil of Central Power. No better soil for the oppressed and downtrodden, to obtain a livelihood by the "sweat of the brow," can be found.

Towns and villages are springing up in all parts, and are being peopled with energetic, business men. Thousands of acres of untilled prairies are being turned over for cultivation yearly. Where but a few years since the red men assembled in council, to sing the war song and dance the war dance, is now the thriving village or the fine farm; and the plough and other farming implementsare used to cultivate bread for its thousands of emigrants, which are flowing in daily from all portions of the world. Hardly a day passes but what we can see the emigrant's wagon settling within our midst. Why is this? Iowa, like all other States, has it advantages and disadvantages. Her soil is of the very best quality, composed of a black sandy loam, deep and durable, yet very light and easy to till. Central Iowa has the advantage of the Des Moines River, which is navigable to Fort Des Moines a portion of the year. This is a very beautiful stream, and not unhealthy. Its bottoms are the best of farming lands, with a heavy body of timber. Fort Des Moines, the future capital of this State, is located in the forks of the Des Moines and Coon River, and is a very thriving town, destined to be a large place. The timber is of a good quality, though rather scarce in some portions. Stone is also plenty, especially in Madison and Polk Counties. Coal abounds in Warren County, so that the facilities for agriculture cannot be beat in any other portion of the Union. There is an abundance of limestone both in Madison and Ware Counties. The inhabitants of Warren are principally employed in agriculture.

Although the farming is not altogether as it should be, yet we are improving every day—perhaps as fast as any other portion of the State of the same age. And well we may, for our soil cannot be surpassed. For raising cattle we have a fine country, but as a general thing, we have not the blood that we ought to have either in swine, cattle or sheep. Our first settlers were principally from Missouri, and have not that energy or enterprise that the people of the North have. Their swine were suffered to run at large, and fatten themselves from what they could gather from the timber, seldom, if ever, knowing what corn was, unless they broke into the field and took it by theft. So with their cattle and horses, especially of the young stock. I often wonder that men of capital do not go into improving their stock, also that Eastern capitalists do not emigrate here for that purpose. The expense of keeping is not near as much as at the East. Still we are improving some in this country, hoping that in a few years we will be up even with our sisters the Buckeye and Sucker States. Gentlemen, especially the young, you that have turned your attention to this braneh of agriculture, come over and help yourselves and help us. Here is the place to get your money back in the cattle business. This country has the very best of pure water, both for man and beast, and a plenty of it. Our market is new, a home market; the emigration is so great that it consumes all that is raised at present. Wheat is worth $1 25 per bushel, corn 50 cents, oats 50 cents, other things in proportion. Land is cheap, but is rising very fast. Young men, why will you stay in the Eastern States with your little, and always live from hand to mouth? Come to the West, buy a small farm, and grow up with the country, and in a few years you can reverse that old saying, and live from mouth to hand. I know by sad experience that it is hard to leave a father's roof, where all is plenty, for a new country. We have fine schools, and growing better every day. The view of many that we are barbarians, is a false one. We have our district schools, high schools and our Sabbath schools. It is true that many portions of this State, like all other new States, are destitute of schools, but it will not be so long. We have at this time no railroads, but we shall have plenty of them in a few years. By the time that this State has one-half the age that Ohio has, she will be where Ohio is at present. All new countries have their own disadvantages. Fruit is rather scarce, but my opinion is that this portion of the State will be as good for fruit, such as apples, pears and plums, as any other State in the Union. Peaches I would not recommend; when the season is favorable we can raise the very best of them, but the winters are often severe, so that they are an uncertain crop. What I have seen of the apples that have been raised here are of the finest quality. I have never seen better in the Buckeye State, and there they think they cannot be beaten in fruit. I have been in many of the Western States, Wisconsin, Michigan, Illinois, Indiana, and many of the Southern States, and I prefer this to any of them. If any of your readers wish for information, I will give it them through the *Plough, Loom and Anvil*, or by private letter. L. S. SPENCER.

NEWMAN'S MILLS, Indiana Co., Pa., July 8, 1856.

MESSRS. EDITORS:—The weather since my last has been variable. The season and crops are about one month later than usual. As a general thing there has been plenty of rain to answer all the purposes of the vegetable world; but the weather has been so changeable, now hot and now cold, that things have made but little progress. There would be a few days warm and pleasant, and things would begin to put out finely; when perhaps the wind would set sail towards the west, and shake the clouds over us, giving the earth and the things therein a good shower bath. Then it would shift around to the west or north-west, and blow so cold that one's toes and fingers would be quite comfortable near a good fire; and his back would relish the companionship of a good, warm coat; and vegetation would get so into the blues, as to look and feel like going back into winter quarters, or at least to look that way so intently, that the next warm spell would not much more than induce it to look and move ahead once more, when it would encounter another squall and another fit of the blues. The last week or two of May, the weather was very remarkable for changes. High winds and cold rains and frost were frequent. On the 30th of May, in the forenoon, it was so cold as to make one feel, especially in the regions of his toes and fingers, that winter was coming out in a new edition. In the afternoon of the same day it snowed, like fury, two or three times, so as to make the ground look white as winter, the wind and storm coming from the north-west, the direction of the great lakes. That night the wind lulled, the snow ceased, the clouds disappeared. But on the morning of the 31st, vegetation did not get off with the blues; it got as low as the blacks. The ground had quite a crust on it. All this year's growth of the grape-vines was killed back to the bud. The tomato plants and such like were nearly all killed. The leaves on the trees were so affected, that before night the air was so perfumed as to make one think of haying-time. Till that morning we had a fine prospect of a large crop of apples. But if you ask me how it is with the prospect since, why I will tell you, as I told a neighbor the other day—"I guess there wont be much sin committed about these 'diggings,' this year, in the line of fruit stealing."

As to wheat and rye, not much was sowed last fall, owing to the season being so wet, and last harvest so very abundant. What was sowed came up very thin; and the hard winter, the cold spring, and now the fly and the midge, or weevil, are not thickening it very much. The grass crop, I think, will not be very heavy. The oat crop looks quite promising at present. As to the corn crop, it is not promising. Nearly all the seed corn planted, like the Dutchman's, came up missing. Some planted over; others left their ground for buckwheat. So far as I know, not many potatoes were planted; but what were planted look very well at present. Owing to the poor prospects of the wheat and rye crops, and the uncertainty of what little corn is growing ever reaching maturity, I think there is sowed, and to be sowed, more buckwheat than is usual here, in order to secure one more chance for something to eat.

The ignorance or disregard of the laws of life and health, which prevail among our farmers, is much to be lamented. A man cannot be wise to devise, or strong to labor, who is not strong in health, both of body and mind. And no man can be strong in body and mind, who does not live in obedience to the laws of life and health. God bless the farmers, and make them wise, healthy and strong, prosperous and happy.

Yours truly, D. M.

Climatology.—The writer of the following, which we cut from the *Country Gentleman*, a paper from which we never borrow without commending, seems to have lived long in each of the climates of which he writes. He may be supposed to know whereof he affirms. We commend his conclusions to the curious. Of the climate of England, of the Atlantic States, and of the Pacific coast, he says:

1. In the first, a man is of ruddy complexion and full flesh; in the second, sallow and spare; in the third, about like the first. In the first, when in health, labor never *tires* him, and food and rest can be foregone for a while with considerable indifference; in the second, labor *tires*, and food and rest are found *necessary* at the usual times; in the third, it nearly resembles the first. In the first, he desires substantial food; in the second, knick-knacks; in the third an equal number of each.

2. Feminine beauty, in the first, consists mostly in a very soft and delicate skin and radiant color. In the second, a finely formed countenance, and finely proportioned, easy and graceful body. In the third, a union of the two, and therefore excelling both the others; and as Circassia is the apex of beauty in the old world, so is this destined to become in the new.

3. In the first, the prevalent diseases are generally of the chronical or lingering class, and appear to arise chiefly from the want of tenseness of fibre, and inaction of the secretions and excretions; they are mostly scurvy, scrofula, swellings, rheumatism, hypochondria, dropsy, flatulent cholic, gravel, consumption, and putrid fever. In the second, including the South so far as before mentioned, bilious fever, dysentery, flux, diabetes, dropsy, inflammations and congestions of the liver, lungs, and brain, and the "tarnal" ague. In the third, we claim almost an exemption from all the above, and it is hard to say if any disease prevails. In a locality or two, on the Williamette in Oregon, and Columbia river bottoms, the ague has prevailed to some extent, but elsewhere there appears to have been no prevailing sickness, with the exception of now and then coughs and colds. In the first, a man dies of slow and lingering sickness; in the second, of acute and violent disorders; in the third, by accident, violence, intemperance, or real old age.

5. In England, a working man is a *drudge*, but *his hours of labor are moderate;* in the States, *he toils through too many hours in a day;* in this country, *he merely does enough.*

6. In the first, a poor man continues such of *necessity;* in the second, through *sickness*; in the third, he *cannot remain so.*

7. In the first, he *never makes a start;* in the second, *starts easily;* in the third, *with privations.* The reason of the last is that the necessaries of life are high in price, and those who have wealth are too lazy to hire much for the sake of increasing it.

Facts Worth Considering, *in relation to British Husbandry*, from the *New-England Farmer.*—Warwickshire is the richest farming district in England. We at once see the chief cause of its great rural prosperity. The parts of the county which have hitherto fallen under our observation have been exclusively agricultural, with outlets and markets, no doubt, from their proximity to London; but the great stimulus of manufactures, within the counties themselves, has been entirely wanting. In Warwickshire, Birmingham, with its dependencies, a great manufacturing district, presents itself. The population of the county is one to the acre, and four-fifths of the population are engaged in manufacturing; whence it follows, that an acre is required to produce food sufficient for one person, and that a farmer, who brings his produce to market, finds four consumers to bid for it, and these consumers all in the receipt of high wages, which enable them to pay good prices. How is it possible that agriculture should not prosper, under such circumstances?

Staffordshire affords, probably, one of the most striking examples, in England, of the influence which the vicinity of manufactures exercises on agriculture. This county is not naturally fertile, and mountains, barren and wild, run through it. Owing to the extraordinary progress manufactures are every day making, the population of the county exceeds 600,000 upon an area of 730,000 acres. With such a mass of population the land must be stubborn indeed, which cannot be forced to produce. The potteries and iron foundries produce the immense wealth, which re-acts on agriculture. Large property predominates in Staffordshire, as in all counties not naturally fertile.

Averse as we are to the relation of landlord and tenant in the United States, one cannot but admire the confidence and kindly relation which exists between landlord and tenant, in England. From generation to generation tenants hold their lands in their own families under leases that run from year to year, and make great outlays on the lands, and generally refuse a longer lease, when offered to them.

In this county is Drayton Manor, a few years since the residence of Sir Robert Peel. When he carried the repeal of the corn-laws, he caused all his lands to be drained, at his own expense, upon condition that the tenants paid him four per cent. on the outlay, which terms they accepted; and then revised their rents, reducing all such as were not moderate enough, which were few, and offered his farmers long leases. These they refused, preferring the yearly tenantry, under which they had held their lands for generations, in their families. These estates of Sir Robert are the model of good management.

A Curious Fact.—We were very much interested yesterd aymorning in receiving a young brood of California quails, belonging to Mr. Geo. Dietz, which owe their existence to extraordinary conditions. Mr. Dietz had a pair of these birds, the female of which died about the 7th of April. On opening her, he discovered one full-sized and several partially developed eggs in her ovarium. The male appeared very disconsolate at the loss of his *cara sposa*, so much so that fears were entertained for his life. He gave vent to grief in various ways—refused to eat or be comforted in any manner. Suddenly he disappeared in a close box connected with the cage. Once in two or three days he would show himself for a few moments, and then retire to his solitary retreat. Ultimately he was no longer seen to emerge; and fearful that it was all over with the devoted widower, Mr. D. knocked off a board, and he introduced his hand in the box. The bird jumped out, much emaciated and almost lifeless. Still he would not eat. Yesterday morning, however, the mystery was explained. His birdship walked triumphantly out of the cage, precisely twenty-one days from the time that he first disappeared, introducing himself as the father of thirteen younglings, over whom he is now cooing with all the notes of the most experienced dame, and instructing them in the manners of his race. Long life to him and his progeny, after such an unusual assumption of maternal duty.

The eggs were of course laid by the female before her death. Yesterday the father of the brood, a very handsome bird, was brooding his half-orphans with all the apparent solicitude of a mother, spreading out his wings over them, clucking, and conducting himself as if determining that his little family should not feel the want of a mother's care.—*Chronicle.*

Is Religion Beautiful?—Always! In the child, in the maiden, the mother, religion shows with a holy, benignant beauty of its own, which nothing on earth can mar Never yet was the female character perfect without the steady faith of piety. Beauty, intellectual wealth! They are all like pitfalls, dark in the brightest day unless the divine light, unless religion throws her soft beams around them to purify and exalt, making twice glorious that which seemed all loveliness before.

Religion is very beautiful; in health or sickness, in wealth or poverty. We never enter the sick chamber of the good, but soft music seems to float on the air, and the burden of their song is, "Love, peace is here."

Could we look into thousands of families to-day, where discontent sits fighting sullenly with life, we should find the chief cause of unhappiness, want of religion.

And in felon's cells—in place of crime, misery, destitution, ignorance, we should behold in all its most horrible deformity, the fruits of irreligion.

Do Good.—Thousands of men breathe, move, and live—pass off the stage of life, and are heard of no more. Why? They do not a particle of good in the world, and none were blessed by them; none could point to them as an instrument of their redemption; not a word they spoke could be recalled, and so they perished; their light went out in darkness, and they were not remembered more than the insect of yesterday. Will you thus live and die, O man immortal! Live for something. Do good, and leave behind you a monument of virtue that the storm of time can never destroy. Write your name in kindness, love and mercy on the hearts of thousands you come in contact with year by year. You will never be forgotten. No. Your name, your deeds will be as legible on the hearts you leave behind as the stars on the brow of the evening. Good deeds will shine as the stars of heaven.

WHERE TO GO.

The "Brewers" should to "Malta" go,
The "Boobies" all to "Scilly;"
The "Quakers" to the "Friendly Isles,"
The "Furriers" to "Chili."
The little snarling, carolling "babes"
That break our nightly rest,
Should be packed off to "Baby-lon,"
To "Lap-land," or to "Brest."
From "Spit"-head "Cooks" go o'er to "Greece,"
And while the "Miser" waits
His passage to "Guinea" coast,
"Spendthrifts" are in the "Straits."
"Spinsters" should to the "Needles" go,
"Wine-bibbers" to "Burgundy,"
"Gourmands" should lunch at "Sandwich Isles,"
"Wags" at the "Bay of Fun"-dy—
"Bachelors" flee to the "United States,"
"Maids" to the "Isle of Man."
Let "Gard'ners" go to "Botany" Bay,
And "Shoe-blacks" to "Japan."
Thus emigrate, and mis-placed men
Will then no longer vex us,
And all who ain't provided for,
Had better go to Texas.

Frauds in Artificial Manures.—To those unacquainted with the subject, the extent to which farmers are defrauded in the purchase of artificial manures is past all belief. Cautious John Bull has been victimized most cruelly. He has purchased Peruvian Guano that was half sand, superphosphate of lime that was little else than plaster and the useless refuse of chemical works, "Economical Manure" at eight pounds sterling per ton that was not worth as many shillings, "poudrette" that was half street scrapings and half coal ashes. In this country similar frauds have been practiced, and we have done our share in exposing the nefarious practices of these meanest of all scoundrels. As a general rule, farmers in this country are reading men, and, with one or two exceptions, the agricultural press is conducted by those who are willing to expose all such attempts to rob the farmer of his hard-earned money. Still, there is at the present time an extensive trade carried on in fraudulent manures.—*Ex.*

Sprouts around Trees.—Allow no suckers or sprouts to issue from the roots of your fruit trees; cut them all even with the surface and arrest every new development as soon as it appears. Every particle of new wood from this point diminishes the vital force of the system, without yielding anything valuable in return. Pear trees are more seriously injured by a neglect of this duty than other trees, as they are more delicate and less hardy.—*Germantown Telegraph.*

The Markets.—It could hardly be expected of the conductors of a monthly to keep its readers fully informed of the state of the markets. The infrequency of publication would of itself forbid. Our ambition is rather to furnish our readers with a monthly number—large, readable, *preservable*, filled mainly with matters of *permanent* value, such that they will afford a volume at the end of the year worth our subscription price. With this view, we have heretofore omitted the publication of prices current, supposing that our readers would get them sooner in their daily and weekly papers than in ours; and we do not propose hereafter to publish anything like a full list of prices, because we believe we can occupy our space more advantageously to our readers. It is our purpose, however, after the present number to give a brief space to *a monthly review*, embracing, among other things, the state of the markets up to the hour of going to press, and accompanied by such suggestions as we suppose may be useful to our readers, regarding the disposition of their disposable products, etc.—Eds. P. L. & A.

This number of *The Plough, the Loom, and the Anvil* will be mailed, as our last was, to a few non-subscribers, with a view of giving them an opportunity to examine it; and we again invite the attention of gentlemen connected with Agricultural Societies to our offer of this publication for distribution in the way of premiums and gratuities. It will be furnished for such purposes at two dollars a year, and one-fourth of the money returned in agricultural books, to be added to the Society's library, or to be distributed as premiums. Will officers of Agricultural Societies let us hear from them?

Book Notices, Etc.

The Humorous Poetry of the English Language, from Chaucer to Saxe, by J. Parton. New-York: Mason Brothers. 1856. Pp. 689.

A somewhat distinguished clergyman, not far from here, has proved to delighted audiences that mirthfulness is conducive to health. We believe he has also proved—it certainly admits of proof—that it is usually associated with innocence, sincerity, freedom from dark, unhallowed purposes, from troublesome secrets that force self-loathing and weigh down the spirits. If our readers want to laugh, they would do well to buy "The Humorous Poetry of the English Language." Our risibles are none of the easiest, but it has made us laugh right healthfully, and we verily believe it will them. And then it will feed our national vanity—a hungry affair it must be confessed—for it shows that the wit of American humorists is quite as keen as that of the English, and that if Americans laugh less then Englishmen, they at least understand as well how to make others laugh.

"There is much nonsense in this book, and some folly, and a little ill-nature; but there is more wisdom than either; and they who possess it may congratulate themselves upon having the largest collection ever made of the sportive effusions of genius." So says the preface, and we confirm it.

Michigan State Agricultural Fair.—Premium List.—We have received this programme of the Michigan Fair for Sept. 30, and Oct. 1st, 2d, and 3d. The fair is to be held at Detroit. M. Shoemaker, of Jackson, is President, Benj. Follet, of Ypsilanti, Treasurer, and J. C. Holmes, of Detroit, Secretary. The amount to be distributed appears to be large; and the mode of distribution seems to be well chosen for the encouragement of all branches of industry, treating agriculture as its surpassing importance demands, and overlooking nothing on which the wealth, health and happiness of a State depends. We have not the least objection to the female equestrian part. On the other hand, we are glad that our Michigan friends have a silver cup for the best female rider, and another for the best female driver. We only wish the cups were worth $20 each instead of $10. If we are to have a progeny worth perpetuating, our ladies must take more invigorating exercise than is usual among us. We would rather see farmers' wives and daughters turning the swath and raking after the cart, than see them pining for want of exhilarating exercise in the open air; but we would sooner see them riding on horseback to the tune of ten miles an hour. It is an elegant art. Nothing is more conducive to health. *Farmers* have no excuse for not training their sons and *daughters* to it. Is it true, that ladies somewhere down East were sneered at last year for showing themselves at a fair on horseback? If any gentleman—we mean anything in the shape of a gentleman—attempts the like at Detroit, let the Michiganders hiss him off the ground.

The senior editor, since writing the above, ascertains that his associate, while agreeing with him fully in the importance of our ladies taking more hearty, out-door, cheering exercise, would caution the ladies a little as to the time and place for exhibiting their feats of horsemanship, querying, (not deciding, but simply querying,) whether the State Fair is the best time and place. He would therefore *take the responsibility* of the foregoing from any shoulders where it does not belong, but would say to the ladies of Michigan, on his own account, go the innocent, health-giving amusement, by all means; and when you ride, he, if possible, will be there to see.

Provincial Agricultural Association's Prize List, for the Eleventh Annual Exhibition, to be held at Kingston, Sept. 23 to 26, 1856. Open to all Canada.

We see by the above that our neighbors over the line are going to distribute the £. *s.* and *d.* (why will they hang on so "like a dog to a root" to an awkward currency?) liberally for the encouragement of all branches of industry. Nothing, however, appears in their programme about female equestrianism. Perhaps they are a little prudish on that point. It would not be strange. Well, *chacun à son goût.* Success to our Michigan friends *with* their lady riders, and to our Canadian friends *without.*

Might not our State societies get a valuable hint from the following?—"A premium of £15 will be given for the best Report on each of the following counties, viz.: Addington, Haldimand, and Huron. If the successful Report be written by the Secretary of the County Agricultural Society, the premium will be increased to £20."

The Complete Works of Shakespeare. Martin & Johnson: New-York.

We have repeatedly described this elegant work. Two additional numbers are received, with an elegant engraving in each. It continues to merit all we have written of it. Being in quarto form, the entire series of numbers will form a very imposing volume. The publishers certainly deserve a very liberal patronage.

The Old Chest and its Treasures. By Aunt Elizabeth. New-York: published by M. W. Dodd, Brick Church Chapel.

The Old Chest and its Treasures is a neat little volume of 304 pages, made up of clippings from an old family chest, which, for a century or so, had been used as a receptacle of newspapers, magazines, pamphlets, etc., containing anecdotes supposed to be worthy of publication in a more permanent form. It is an effort to teach by example, and we should think would prove successful. The book is well adapted to Sabbath-school and family libraries.

New Music, by Wm. Hall & Son.—Among the recent publications of this distinguished house, we note the following:

Deux Morceaux de Salon Schottish, pour le piano, par Herman A. Wollenhaupt, Nos. 1 & 2; very fine, and not excessively difficult. Camille Mazurka, as played at the New-Orleans Gaiety Theatre; composed and arranged for the pianoforte by

Robert Stöpel; more simple, and very good. "Everything Speaks to Me," poetry by Mrs. L. A. Augier, and music by John Perry; a simple and sweet air. "Kate Strang," Scotch ballad, words by W. W. Fosdick, composed by W. Vincent Wallace; very beautiful, and not difficult. The Fremont Rallying Song, adapted to the French national hymn, La Marseillaise.

Bibliotheca Sacra and American Repository for July is laid on our table. It is a rich number. We have read with great interest the articles entitled "The Theology of Dr. Chalmers," "The Scriptural Authority and Obligations of the Sabbath," "The Imprecatory Psalms," and "Science and the Bible." The other contents are no doubt equally able. Dr. Cheever's Discussion of Slavery, "Plutarch on the Delay of Providence in punishing the Wicked," and several short items complete the contents. Published at Andover, Mass., by S. Draper.

Premium List for the Fourth Annual Fair of the Illinois State Agricultural Society, to be held at Alton, Sept. 30 to Oct. 3, 1856.

Over $7,000 to be distributed in premiums. All branches of industry adapted to that State to take a portion. That is right; for if the mechanic wants the farmer to feed him, the farmer needs the mechanic to make his implements and to buy his surplus produce, and without such a market he might about as well not grow it. The nearer the Plough, the Loom, and the Anvil are brought to each other, the better for all parties. If they are not within speaking distance, the "between man" thrusts in, and the consequence is that the consumer of farm produce pays twice as much as the producer gets. The manner in which the Illinosians propose to arrange their grounds is worthy of all commendation. We find no programme for female equestrianism. But we see there is to be a Floral Hall, to be managed by the ladies, *of course;* and here is a field where they may exhibit feminine taste and skill, without arousing the fastidium of even the dryest old bachelor.

The Farm Journal.—The first number of a journal bearing this name, published at Louisville, Ky., as the organ of the Kentucky State Society, promises well, and we have no doubt will fulfil as well. It is in the quarto form, on good paper, bright and readable.

List of Patents.

FROM TERMINATION OF PREVIOUS LIST TO JUNE 3.

William W. Batchelder, of New-York, N. Y., for improvement in hand-pegging machines.

William Baxter, of Newark, N. J., for improved hydro steam engine.

Charles K. Bradford, of Lynn, Mass., for improvement in harness trace coupling.

Samuel W. Brown, of Lowell, Mass., for improvement in steam pressure guages.

John Broughton, of Chicago, Ill., for improvement in rotary pumps.

Jonathan Burdge, of Cincinnati, O., for improvement in cutting flour mill.

Jeremiah Carhart, of New-York, N. Y. for improved machine for manufacturing reed boards for melodeons.

John M. Carlisle, of Williamson Springs, S. C., for improved method of operating head blocks of saw mills.

James Chattaway, of the county of Hamden, Mass., for improved water-proof percussion caps.

Hiram Collins, of Salisbury, Mass., for improved shutter operator.

Daniel Cushing, of Wheeling, Va., for machine for coating cloth with paint.

Daniel Cushing, of Wheeling, Va., for machine for rubbing and polishing painted cloth.

Austin G. Day, of Seymour, Conn., for improvement in cleaning india rubber.

J. C. Dickinson and Robert Bate, of Hudson, Mich., for improved pocket-book.

Henry C. Dole, of Adrian, Mich., for improved shears for sheet metal.

Robert B. Gorsuch, of New-York, N. Y., for improved method of effecting uniform pressure upon the pumping piston of double acting steam pumps.

John H. Gould, of New-York, N. Y., for improvement in three-wheeled carriages for children.

Henry Gross, of the county of Seneca, Ohio, for improved breech-loading fire-arm.

William Hart, of Maysville, Wis., for improved tool for watchmakers.

William Holmes, of Brooklyn, N. Y., for improvement in thrashing machines.

William W. Hubbell, of Philadelphia, Pa., for improved sabot for rotating shot or shell.

William Huntress, of South Berwick, Me., for improvement in bedsteads.

James Ives, of Mount Carmel, Conn., for improved mode of attaching pads to saddle trees.

Joseph Kurtzeman, of Lancaster, Ohio, for improved method of operating headblocks of sawing mills.

A. S. Macomber, of Bennington, Vt., for improvement in wheelwrights' machinery.

Patrick McGlew, of Waterford, N. Y., for improved die stock for cutting screws.

Jason Palmiter, of Jamestown, N. Y., for improved rotary shingle machine.

M. L. Parry, of Galveston, Texas, for improved method of repairing circular saw teeth.

Joseph Parisette, of Indianapolis, Ind., for improvement in ice-cream freezers.

J. C. Pluche and L. C. Pluche, of Cape Vincent, N. Y., for improvement in attaching teeth to sickle bars of harvesters.

Rufus Porter, of Washington, D. C., for mode of sounding whistles for fog signals.

James Reynolds, of New-York, N. Y., for improvement in mandrels, for making gutta percha tubing.

James Reynolds, of New-York, N. Y., for improvement in feed apparatus for working gutta percha.

Charles E. Russell, of St. Louis, Mo., for improvement in hermetically sealed preserve cans.

David Russell, of Lockport, N. Y., for improved method of applying horse power in fire engines.

William Mont Storm, of New-York, N. Y., for improvement iu safes for ships and other vessels.

J. B. Ferry, of Hartford, Conn., for improved machine for sticking pins.

William R. Thomson, of Cleveland, Ohio, for improvement in constructing railroad car wheels.

Edward A. Tuttle, of Williamsburgh, N. Y., for improvement in registers and ventilators.

Philip Warner, of Lancaster, Pa., for improved bolt for shutters.

Marshal Wheelar, of Honesdale, Pa., for improvement in governor for steam engines.

George W. N. Yost, of Pittsburg, Pa., for improvement in reaping and mowing machines.

Reuben W. Benedict, of Brant, N. Y., for improvement in carriages.

George Blanchard, of New-York, N. Y., for improved apparatus for cutting the strings that secure the corks in bottles.

Charles E. Flagg, of Sherburne, Mass., for improvement in platform supporters.

Amos L. Grinnell and John Z. Williams, of Willet, Wis., for improvement in potato diggers.

Plymon B. Green, of Chicago, Ill., and Edward A. Kennedy, of Newark, Ill., for improvement in seed planters.

Daniel Judd, of Hinsdale, N. Y., for improved rotary excator.

Geo. B. Kaighn, of Lamberton, N. J., for improvement in the mode of attaching horses to shafts of vehicles.

C. O. Luce, of Freeport, Ill., for improvement in seeding machines.

Ebenezer Morrison, of Franklin, N. H., for improvement in corn shellers.

George A. Meacham, of New-York, N. Y., for improvement in seed planters.

H. O. Robertson, of Greenville, Tenn., for improvement in machines for stuffing horse collars.

Lucien H. Allen, of Tamaqua, Pa., assignor to himself and Edmund M. Ivens, of Tamaqua aforesaid, for improvement in casting car wheels.

Alexander Hall, of New-York, N. Y., assignor to himself and James G. Caldwell, of New-York, aforesaid, for improvement in repeating firearms.

John J. Howe and Truman Piper, of Derby, Conn., assignors to the Howe Manufacturing Company of Derby, aforesaid, for improvement in japanning pins.

John J. Howe and Truman Piper, of Derby, Conn., assigners to the Howe Manufacturing Company, of Derby, Conn., for improved machine for sticking pins.

Joshua K. Ingalls, of Brooklyn, N. Y., assignor to Mathias H. Howell, of New-York, N. Y., for improvement in metal beams.

George Atkins, of Pittsburg, Pa., for improvement in hand corn planters.

Cyrus Avery, of Tunkhannock, Pa., for marble sawing machine.

Alfred Belchambers, of Ripley, Ohio, for im provement in machines for thrashing and win nowing grain.

M. F. Bonzano, of New-Orleans, La , for improvement in machines for counting coin.

Nathan Brand, of Leonardsville, N. Y., for improved machine for bending hay forks.

Lebbeus Brooks, of Great Falls, N. H., for improved saw set.

Robert Cornelius, of Philadelphia, Pa., for improvement in safety valves.

Charles F. Crocker, of Newark, N. J., for improvement in making sheets from curriers' shavings or "buffings."

Charles N. Clow, of Port Byron, N. Y., for improvement in differential governor for marine and other engines.

James Emerson, of Worcester, Mass., for improvement in ships' capstans and windlasses.

Michael Erb and F. C. Griffin, of Newark, N. J., for improvement in locks.

J. B. Fayette and D. Wheeler, of Oswego, N. Y., for improvement in strapping tackle blocks.

John U. Fiester, of Winchester, Ohio, for improved carriage springs.

R. Gleason, jr., of Dorchester, Mass., for improvement in silver plate cake and fruit baskets.

Henry W. Goodrich, of Boston, Mass., for improvement in molasses pitchers.

Valentine Houck, of Buffalo, N. Y., for improvement in certain devices in planing machines.

George Hutton, of New-York, N. Y., for improved mechanism for adjusting circular saws obliquely to their arlors.

Henry S. Houghton, of Blackstone, Mass., for improvement in brushes for cleaning travellers.

Samuel Hickok, of Buffalo, N. Y., for improvement in refrigerators.

Horatio Keyed, of Leominster, Mass., for improvement in machines for paring apples.

John C. King, of Belvidere, N. J., for improved valve for double acting pumps.

Lewis Kirk, of Reading, Pa., for improvement in brick presses.

Christian Knauer, of Birmingham, Pa., assignor to Warwick, Attleburg & Co., of Pittsburg, Pa., for improved door lock.

N. S. Lockwood, and J. D. Wines, of Dayton, Ala., for improvement in ploughs.

L. J. Smallwood, and William S. Baker, of Riceboro', Ga., for improvement in feeders for roller cotton gins.

Samuel Mallet and Augustus B. Smith, of New-Haven, Conn., for improvement in adjustable punches for setting artificial teeth.

Joseph Lloyd Martin, of Baltimore, Md., for improvement in odometers and counting machines.

Edward Maynard, of Washington, D. C., for improvement in cartridges.

David McComb, of Memphis, Tenn., for improvement in non-elastic bands for bales of cotton and other fibrous materials.

Oscar F. Morrill, of Boston, Mass., for improvement in smoothing irons.

Thos. Sedgcock, of the county of Surrey, England, for improvement in reflecting quadrants. Patented in England March 30, 1855.

John T. Noye, of Buffalo, N. Y., for improvement in clutch for flour packer.

J. C. Pluche and J. L. Pluche, of Cape Vincent, N. Y., for improvement in harvesters.

N. C. Sanford, of Meriden, Conn., for improvement in auger handles.

John D. Seagrave, of Worcester, Mass., for improvement in machines for paring apples.

James Shaw, of Providence, R. I., for improved portfolio.

Garrett J. Olendorf, of Middlefield, N. Y., for improvement in revolving harrows.

William S. Tilton, of Boston, Mass., for improvement in corn harvester.

John Tear, of Chicago, Ill., for improved method of operating cutters in their heads for irregular forms.

Joseph Thomas, of Brooklyn, N. Y., for improvement in machines for sizing hat bodies.

Jesse D. Wheelack, of Mayville, Wis., for improvement in coal heating bakers.

Edward Whiteley, of Boston, Mass., for improvement in water heaters surrounding fire pots of cooking apparatus.

Israel P. Wlliams, of Salem, Mass,, for improvement in pre-tanning compositions.

George F. Wilson and George Payne, of Belmont, Vauxhall, England, for improvement in saponifying fats.

Wm. Bertram, of Woolwich, England, assignor to John W. Cochran, of New-York, N. Y., for improvement in welding iron plates. Patented in England Dec. 21, 1854.

Cornelius Aultman and Lewis Miller, of Canton, O., assignor to Ball, Aultman & Co., of Canton aforesaid, for improvement in mowing machines.

Horace Vaughn, of Providence, R. I., for improvement in compositions for working steel.

Asa Arnold, Washington, D. C., improved self-raking saw.

A. Ely Beach, Stratford, Conn., improvement in printing instruments for the blind.

Leander W. Boynton, Worcester, Mass,, improvement in smoothing irons.

R. W. Bowen, Marshall, Mo., improvement in hemp-breakers.

Fordyce Beals, New-Haven, Conn., improvement in fire-arms.

Julius Cone, Yellow Springs, Ohio, improvement in alarm lock.

Wm. Cox, Doylestown, Pa., method of securing shafts to axles,

H. B. Chaffee, New-York city, improved vise.

Wm. Croasdale, Hartsville, Pa., for lime and guano spreaders.

S. E. and H. B. Cleaveland, Buffalo, N. Y., improvement in locomotive lamps.

S. D. Carpenter, Madison, Wis., improvement in rotary pumps.

Owen Dorsey, Triadelphia, Md., improved reaper.

W. M. Davis, Carmel, Me., improved water wheel.

I. A. Dunham, North Bridgewater, Mass., improvement in edge planes.

E. Espenchade, Williamsport, Pa., method of cooling and drawing fluids from casks.

George C. Ehrsam, New-York city, improved saw for felling trees.

F. M. English, Hopkinsville, Ky., method of detaching horses from vehicles.

David Hinman, Berea, Ohio, improvement in hanging grind-stones.

H. J. and Thos. Hawkins, Mobile, Ala., improvement in steam cut-offs.

George Hall, Morgantown, Va., improvement in seed planters.

C. R. Iliff, Falmouth, Ky., improvement in plotting instruments.

G. A. Jenks, Worcester, Mass., improved wrench for gas pipe.

R. T. Knight, Philadelphia, Pa., improved method of making envelopes.

Daniel Large, Philadelphia, Pa., improvement in iceboats.

B. F. Lyon, Pleasantville, Pa., for portable field fence.

Richard Murdoch, Baltimore, improvement in running gear for carriages.

John Mooney, Providence, R. I., improved tool for cutting metals.

H. E. Salisbury, Platea, Pa., improved method of turning tapering forms.

Henry Phelps, White Hall, N, C., improved running gear of vehicles.

Franklin Peal, Philadelphia, Pa., improved tubular elastic valves.

Francis Peabody, Salem, Mass., improved method of operating wind wheels.

S. G. Randall, Rockford, Ill., improved hand-seeding machine.

C. R. Soule, Fairfield, Vt., improved machine for making rake teeth.

C. F. Schlickeysen, Berlin, Prussia, improvement in pug mill. Patented in England, Feb. 24, 1856.

Nicholas Linden, Jersey City, N. J., improved fountain lamp.

V. R. Stewart, Westport, N. Y., improvement in washing machines.

John Taggart, Roxbury, Mass., improvement in tidal alarm buoy.

W. H. Thompson and E. P. Morgan, Biddleford, Me., improvement in car safety hatches.

Wm. Wright, Hartford, Conn., improvement in cut-off valves.

C. B. Wagner, Philadelphia, Pa., improvement in harvesters.

James Warner, Springfield, Mass., improvement in fire-arms.

Walter A. Wood, Hoosick Falls, N. Y., for dividing shoe for mowing machines.

C. B. Wagner, Philadelphia, Pa., improved apparatus for harvesters.

S. E. Winslow, Philadelphia, Pa., improvement in fluid cans.

Wm. Wright, Hartford, Conn., improvement in cut-off valves.

Alvah Foote, Blandford, Mass., assignor to himself, Ira Russell, Dedham, Mass., and A. B. R. Sprague and Henry Phelps, Worcester, Mass., improvement in spring bottoms.

Abraham Fravel, (assignor to himself and T. D. Lemon,) La Porte, improved grain drills.

Remy Henry, Melrose, N. Y., assignor to James Smith, New-York city, method of operating steam valves.

John H. Phillips, (assignor to Leigh R. Holmean,) Washington, D. C., for shield to protect breast pins.

George Taylor, Richmond, Ind., assignor to Harrison Ogborn and George W. Stigleman, Wayne county, Ind., improved farm gate.

Lucius J. Knowles, Warren, Mass., improvement in looms.

Wm. A. Ashe, of New-York, N. Y., for improved mode of securing tire on wheels.

Hazen J. Batchelder, of West Fairlee, Vt., for improvement in dental forceps.

David Bowen, of Wadesville, Va., for improved machine for sawing felloes.

D. Franklin Breed, of Fulton, N. Y., for improved brake wagons.

Jeremiah Carhart, of New-York, N. Y., for improvement in melodeons.

Henry A Chapin, of Springfield, Mass., for improved machine for reaming and tapping gas fittings.

E. S. Clapp, of Montague, Mass., for improved method of framing and straining wood-saws.

Charles N. Clow, of Port Byron, N. Y., for improvement in rotary pumps.

Wm. T. Clough, of Newark, N. J., for improvement in concentrating apparatus for sulphuric acid.

Alphonso Crayteg, of Brooklyn, N. Y., for approved metallic pen.

Cook Darling, of Utica, N. Y., for improvement in machines for cutting and paring apples.

Peter S. Ebbert, of Chicago, Ill., for improvement in the base piece of locomotive smoke stacks.

Samuel B. Fay, of New-York, N. Y., for metallic hook for labels.

Robert H. Fletcher, of Brooklyn, N. Y., for improved method of operating valves of steam pumps.

Arasmus French and Charles Frost, of Waterbury, Conn., for improved method of making boxes of paper pulp.

William S. Gale, of New-York, N. Y., for improvement in steam pressure regulators.

John Grason, of Queenstown, Md., for improved machine for sawing stone.

Franklin H. Hall, of Philadelphia, Pa., for improvement in refrigerating pitchers.

John L. Harvey and C. A. Mills, of Dubuque, Iowa, for improved paper clip.

John Hennon, of Brighton, Pa., for improved method of turning carriage, etc., axle-trees.

M. G. Hubbard, of Penn Yan, N. Y., for improved mode of adjusting carriage springs.

Silas Huddleston, of Cottage Grove, Ind., for improvement in bedsteads.

John C. Heuermann, and Jonathan Reeves of Camden, N. J., for improvement in harvesters.

John C. Hicks, of Rockaway, N. Y., for improvement in raking attachments for reapers.

Lawrence Holmes, of Patterson, N. J., for improved match machine.

Henry Isham, of New Britain, Conn., for improvement in locks.

B. F. Joslyn, of Worcester, Mass., for improvement in breach-loading fire-arms.

Cyrus Kenney and Wm. Gurley, of Troy, N. Y., for improved machine for grinding butt hinges.

Henry Lawrence, of New-York, N. Y., for improved marble sawing machine.

Andrew Lanergan, of Boston, Mass., for improvement in disinfecting pastiles.

John Laurens, of Charleston, S. C., for improved gun carriage.

John C. McMullen, of Baltimore, Md., for improvement in netting machines.

W. K. Miller, of Canton, O., for improvement in steam guages.

O. W. Minard, of Waterbury, Conn., for improved brass kettle machine.

Oren Moses, of Malone, N. Y., for improved machine for mincing meat.

Ansel Moon, of Bristol, Wis., for bedsteads.

M. Painter and C. Painter, of Owings Mills, Md., for improvement in swinging spout for feeding mill stones.

Geo. P. Reed, of Waltham, Mass., for improvement in independent seconds movement for watches.

John Reily, of Heart Prairie, Wis., for improvement in reaping and mowing machines.

D. H. Richards, of Georgetown, Mass., for machine for sweeping streets.

Socrates M. Ridgaway, of St. Michael's, Md., for improvement in machines for making and kneading dough.

Cyrus Roberts, of Bellville, Ill.. for improvement in corn and cob mill.

Daniel Robinson, of Lenoxville, Pa., for improved balance gate for flumes in water power.

William Silver, jr., of Wapwoliopen, Pa., for improvement in blasting powder.

James Stephens, of New-York, N. Y., for improvement in curtain fixtures.

Wm. Mt. Storm, of New-York, N. Y., for improvement in steam pressure indicators and regulators.

J. A. Stewart, of Franklin, Ky., for improvement in cotton and seed planters.

Joseph Thomas, of Brooklyn, N. Y., for improvement in machinery for felting hat bodies.

James N. Ward of the United States army, for improved magazine hammer for fire-arms.

James H. Wright, of New-York, N. Y., for improved filter attachment for faucets.

Walter A. Wood, of Hoasick Falls, N. Y., for improved guard finger for harvesters.

Anson S. Hathaway, of Columbia, Me., assignor to himself and Frederick Ruggles, of same place, for improvement fn machine for mowing grass and cutting grain.

Albert L. Lincoln, of Boston, Mass., assignor to himself and Chas. Foss, of same place, for macaroni server.

Chas. Werner, of New-York, N. Y., and Chas. Dentschman, of Buffalo, N. Y., for improvement in dry lime gas purifyers.

William H. Walton, of Brooklyn, N. Y., assignor to himself and J. E. Winants, of same place, for improved machinery for combing wool.

Oliver D. Stephens, of Cleveland, O., for improvement in machines for hulling and scouring grain, seed, etc.

The Plough, the Loom, and the Anvil.

Vol. IX. SEPTEMBER, 1856. No. 3.

Agricultural.

NATIONAL AGRICULTURAL DEPARTMENT.

In the last number of the *Maine Farmer* we find the following:

We are glad to occasionally hear from different sections of the nation in regard to the necessity of having a department of agriculture connected with our government at Washington. It is a disgrace to us, as a nation, that we have nothing nearer to it than what is appended to the Patent-Office.

At the recent "Guano Convention," held at Washington, various plans were recommended for inducing the Peruvian government to change their system of trade in regard to the article of guano, so that it may be made to come to the consumer. It seems that as at present managed, a few make a monopoly of it, and charge most exorbitantly for it, when delivered in the United States.

In the course of the discussion, which we find reported in the *American Farmer*, Mr. Calvert made the following remarks. They are just, and speak the opinion and sentiments of very many who have considered the necessity of a department of agriculture.

"What we most want," said Mr. C., "is a Cabinet Minister, presiding over a department of agriculture. Nobody had ever attempted to offer any but unconstitutional objections to such a measure, and all such objections he repudiated. Congress ought not to be the sole arbiter of what is and is not constitutional. When Congress wanted to do anything, they never troubled themselves as to whether it was constitutional or not.

"He would like to know where the constitutionality of getting California, Florida, &c., could be found. Then there is Denmark and the Sound dues; nobody rises in Congress to question the constitutionality of coërcion in that case. But the moment agriculture asks anything, there are constitutional scruples in the way; it cannot be done. Now, it is high time that thing be stopped. Congressmen are rightfully not our masters, but our servants, and if farmers choose they can make them so really. We hear now-a-days a great deal about 'platforms;' it is high time to have an agricultural platform. Farmers do not want office for themselves, but they should take care to give no office to politicians until they pledge themselves to give us what we want. Under the combined influence of city life and commercial pursuits, the nation is beginning to wane, and nothing can restore it but a restoration to the agricultural community of its proper weight in the policy and legislation of the country. In the country we have no '*isms*,' no unhealthy agitations, and on the rural population must rest our final hopes of national security. Notwithstanding all this, the interests of every other class are consulted and cared for, and the farmer alone is put off with ' constitutional scruples.'"

We are glad to see that the agricultural papers are taking up this subject. We hope they will discuss it at large. If it is unconstitutional that our government should take thought for the agricultural and mechanical interests of this great nation, let us make it constitutional. But it is not unconstitutional. Mr. Calvert says, "Farmers do not want office for themselves." We incline to the opinion that he is right. The farmers are undoubtedly a very modest class, too much so, we fear, for the true interests of the country. Whether they want offices or not, we cannot see why they should not have them. The public good requires that all classes should be represented in the government. If any class is to be excluded, the farmers are the very last on whom the exclusion should fall, and the mechanics next. Massachusetts, New-York, Virginia, and, perhaps, every State in the Union have farmers of worth, intelligence, high honor, who would grace our halls of legislation, would attend to the nation's wants, and not be spitting froth and cold lead at each other. The farmers do not want office; that is true; but the country wants their service; and when her halls of legislation are filled from all classes, and not from one—when farmers, mechanics, manufacturers, merchants, doctors, teachers, clergymen and lawyers, in due proportion, are sent to make and execute the laws,—then the laws will be better made and better enforced, and we shall at least have more decency in our halls of legislation.

TRANSACTIONS OF THE CONNECTICUT STATE AGRICULTURAL SOCIETY FOR 1855.

We are indebted for this volume to Henry A. Dyer, Esq., Cor. Sec. It is a volume of 350 pages, octavo, abounding in matters of great practical value; and should be found in the families of all farmers in that State, and of all who are not farmers; for the subjects on which it treats are of universal interest; and the information it communicates is such as every one *must have*, or be content to be set down as not *well informed*. To be ignoraut of American Agriculture, is to be ignorant of our own country. The time is at hand, if it has not already come, when those not read up on the farming and mechanical industry of the country, will not pass muster. We warn ladies and gentlemen to look out, lest they find themselves behind the times. The following observations we quote from a very able address, delivered before the State Society, by Henry C. Deming, Esq., on the "Beneficent Agencies of the Useful Arts."

Among the instrumentalities which affect the condition of man, the precedence is quite uniformly, and rightfully given to those which address themselves to his spiritual nature, to Religion, Education, Law and the Fine Arts. But if these agencies were the first in order of time, as they are in rank, to which he is subjected, and after they had done for him their utmost, he should be bereft of others, equally indispensable to his welfare, he would find himself the most miserable and pitiable specimen of the mamalian family.

He might be good, wise, upright, "noble in reason, infinite in faculties, in form and moving express and admirable, in action like an angel, in apprehension like a god," but he would be a naked, thin-skinned, hungry, thirsty, short-winded, shame-faced biped, without hide, fur or feathers. In such a condition the USEFUL ARTS receive the paragon of animals from the hands of his spiritual guardians. They feed, cloth, shelter, cleanse, adorn him. In comparison with other creatures, they find him weak, and endow him with a strength superior to all; defenseless, and equip him with arms that vanquish all; slow, and give him wings that outstrip the eagle; in short, they encircle his perishable with comforts and luxuries worthy of his imperishable nature.

Though the USEFUL ARTS find MAN thus destitute personally, he is no beggar, but the undoubted and rightful heir of a most splendid inheritance,—useless and unavailable, it is true, in its moral condition, but under proper culture and management, an inexhaustible mine of plenty and wealth. It consists of the rough matter which composes the solid earth; of the soil and water which cover it; of the birds of the air, and the beasts of the field and the fishes of the sea. Of this inheritance, the USEFUL ARTS become the most serviceable and trustworthy of stewards. They convert the solid earth into innumerable objects of convenience and value. They open communications, secure the harvests, collect the flocks, cultivate the soil, improve the fisheries; in short, they render the world, over which dominion was given to man, a comfortable, convenient and elegant abode.

God creates matter, but the USEFUL ARTS create its utility, or in the language of Political Economy, they are producers, and production is the sole, the only fountain head, of that enviable stream, the wealth of Nations. Commerce, to be sure, is an important agent in diverting the current and in changing the relative position of wealth, but it adds not one drop to the golden stream, for which countless myriads thirst. Production is its only origin, and every flight of human credulity, every device of human ingenuity, to discover some other source of this pactolus, has signally sailed. The Golden Fleece, the dreams of the Alchemist, the visions of El Dorado, South-Sea Bubbles, tulip-manias, multicaulis-manias, California-fevers, stock-jobbing, and up-town lots, are the weighty authorities and confirmation strong, which successive centuries have brought to the truth, that production is the only real source, of the aggregate wealth of Nations. Many falser images have been used than that which declares, that "Gold, in its last analysis, is the sweat of the poor and the blood of the brave."

It is a liberal estimate, which assigns one-fifth of the human family, in civilized countries, to the non-producing class; the USEFUL ARTS provide for the remaining four-fifths, and thus convert into props, and pillars, and bulwarks, what would otherwise be, intolerable drags and burthens, and nuisances in a state. They give employment, not servile and degrading, but honorable and remunerative employment, to a vast majority of the human family. This consideration alone, if it was all that could be urged, would place them foremost, among the agencies which contribute to the welfare of the race.

But still higher commendation belongs to them. They are the grand instruments by whlch LABOR acts upon the world, and thus the paramount obligations justly due to LABOR, become justly due to the USEFUL ARTS. "In the sweat of thy brow thou shalt eat bread," is a curse which carries a blessing with it. Like Mercy, labor is twice blessed,—

"It blesseth him that gives and him that takes."

That toil to which we are condemned, as the tenure of existence here below, is the training, which invests both body and soul, with the insignia of true and genuine manhood. Effort is the only school for muscles of the frame, and the muscles of the intellect. Where but in that rocky mine which LABOR delves, can be found those priceless gems, will, efficiency, courage, pluck, perseverance, patience, self-confidence, self-reliance, contempt for difficulties? These are the sheet anchors of the heroic character, this is the stuff of which martyrs and heroes are made,—these fashion those souls, that are adamant in a just cause. Goethe gracefully compares the effect, of a strong necessity, imposed upon a mind, habitually untasked, to an oak planted in a China vase; when the branches expand and the roots strike out, the vessel flies to pieces.

Invaluable as is this disciplinary function of LABOR, it is but a pebble picked up on the shore—a drop in the boundless ocean of her beneficence. LABOR is a universal solvent, a philosopher's stone, with transmuting powers, magical and gorgeous beyond the dying alchemist's dream. Entering into all the dead, sluggish, inert matter of the earth, she imparts to all the life-like properties of Utility and Value. There is nothing in the caverns of this round globe, in the depths of the sea, I had almost said in the realm of Air, which LABOR transforms not into a necessity or a luxury. No sweep of ocean, no forbidding desert, no fastnessess of forest or of wilderness, can hide a product useful to man from the omnipresent eye of his great Benefactor. She catches from the passing breeze, the waste white down of the cotton shrub, and lo! bleaching cloth lies in the place of idle litter and the nakedness of man is covered. She stumbles upon a worthless mass of vitrified sand, and behold! window panes for every man's dwelling, cheap drinking cups for every man's table, the mirror, the Portland vase, the prism, the telescope, the microscope, the Crystal Palace. It stretches its hand over the waste places of the earth, and "instead of the thorn, comes up the fig-tree, and instead of the brier, the myrtle-tree." Iron, in its fingers, is as flexible as clay in the potter's, while language struggles in vain to depict the infinite variety of texture and utility, which it imparts to the fleece of an animal, the gum of a tree, and the entrails of a worm. There are no such words as "useless," "worthless" in her vocabulary. Refuse and rubbish are no longer such, when touched by her wand. The dead animal, which was formerly banished to the wilderness as a nuisance, she now transmografies into something useful or ornamental; she even brings life out of death, vitalizing exhausted soils, by the moldering relics of mortality, which she digs from the Blenheims, the Austerlitzes and Waterloos of the world.

The blessings which mankind owes to PRODUCTIVE LABOR, can be vividly realized, by imagining the state of things, if it should be anni hilated. Suppose then, by some all-pervading distemper, or by some fiat of divine displeasure, the arm of universal labor was paralyzed. It would break the main-spring which sets the whole machinery of existence in motion. It would cut off the supply of life at the fountain. The wheel of business, losing its only momentum, would soon cease to revolve. Grass would grow in our most crowded thoroughfares. Those great marts, where traffic now chaffers in its thousand tongues, where cheerful art rings its innumerable sounds, and busy and hurrying myriads proclaim the bright and joyful reign of LABOR, would become noiseless, and blighted, and petrified, like some vast city of the dead. Not the clink of a hammer nor the rattle of a shuttle, nor the whiff of a steam-engine, nor the roll of a wheel, would break the sepulchral stillness of an idle world. The axe, the file and the saw would lie silent where they had dropped from the hand of the yawning artizan; the plough would rust where it had stopped in the furrow. All the products of the now idle weaver, would soon drop piecemeal from the shelves of the merchant, and tattered rags, hanging on a universe of sluggards, would pre-announce man's speedy return to his original Nakedness. Crops would decay in the field. The ungathered fruit would rot upon the ground; the granary would soon surrender its last kernel. Starvation would follow Nakedness. Ships, sailorless, would toss upon the seas, the forest would be burnt for fuel, the mine would no longer send to our wharves the grateful coal, and Frost—a third fury—would follow in the footsteps of Nakedness and Famine. The palaces of the great, the habitation of every family, would be burnt for fire, whole cities would be consumed, and naked and starving man would soon be houseless, shelterless, and gathering round the dying embers of their dwelling, would rake together the feeble sparks, with skeleton fingers. Religion, Education, Law, the Church, the Altar, and the Capitol, would all be whelmed and wrecked in a world-wide maelstrom of wretchedness and despair.

ON THE FERTILIZERS FOR FRUIT TREES.

BY MARSHALL P. WILDER, OF BOSTON, MASS.

IN relation to appropriate fertilizers for trees a diversity of opinion prevails. All agree that certain substances exist in plants and trees, and that these must be contained in the soil to produce growth, elaboration and perfection. To supply these, some advocate the use of what are termed "special manures," others ridicule the idea. I would suggest whether this is not a difference in language, rather than in principle; for in special fertilizers, the first make simply those which correspond with the constituents of the crop; but are not the second careful to select and apply manures which contain those elements?

and do they not, in practice, affix the seal of their approbation to the theory which they oppose? Explode this doctrine, and do you not destroy the principle of manuring and the necessity of a rotation of crops? Trees exhaust the soil of certain ingredients, and, like animals, must have their appropriate food. All know how difficult it is to make a fruit tree flourish on the spot from which an old tree of the same species has been removed.

The great practical question now agitating the community is, How shall we ascertain what fertilizing elements are appropriate to a particular species of vegetation? To this two replies are rendered. Some say, analyze the crop; others, the soil. Each, I think, maintains a truth; and both together, nearly the whole truth. We need the analysis of the crop to teach us its ingredients, and that of the soil to ascertain whether it contains those ingredients; and if it does not, what fertilizer must be applied to supply them. Thus, by analysis, we learn that nearly a quarter part of the constituents of the pear, the grape, and the strawberry consists of potash. This abounds in new soils, and peculiarly adapts them to the production of these fruits, but having been extracted from soils long under cultivation, it is supplied by wood ashes or potash, the value of which has of late greatly increased in the estimation of cultivators.

WHEAT AND ITS ENEMIES.

When the enemies of the wheat crop are so prevalent, with a prospect of increase, let our friends take a few timely hints. There is no known remedy for the depredations of *fly*, *chinch-bug*, *joint-worm*, *&c.;* but we think experience will bear witness that there is a grand preventive in good cultivation. A vigorous and thrifty growth successfully resists, when the most promising appliances are powerless before, their ravages. And not only so, but throughout nature it will be found that where there is least power of resistance, the subtle enemy is most likely to make his attacks. It is not the sound and healthy, those who have enjoyed wholesome atmosphere and good food, who are swept off by epidemics, but those whose constitutions enfeebled by any cause, *predispose* them, as we aptly say, to disease. The sleek and well-kept animal is not troubled with lice, when they swarm upon the ill-fed, "ill-conditioned" beast. And the enemies of plants seek their food upon the poor and sickly, where they find as it were the least resistance against their encroachments. The principle is universal, that "from him that hath not shall be taken away that which he hath."

But however this reasoning may be questioned, the philosophy of a sound, vigorous, healthy constitution for man, beast, or plant, as a safeguard against all natural enemies, no one will question. For the wheat plant, then, begin in time, and make the most thorough preparation for its reception. So get ready the ground, that it may do the very best of which it is capable. To those who plough deep, and aim to deepen their surface soil at every ploughing, we suggest that some judicious farmers, who would plough deep generally, think it not advisable for the wheat crop. We adopt the opinion to this extent, that we do not think a portion of fresh subsoil should be now brought to the surface. The natural range of the roots of wheat is within about three inches of the surface, and for that reason it is desirable to have there the richest portion of the soil.

As to manures, he who properly uses all other means of success, should put on enough to secure him thirty bushels to the acre. The nearer he approximates that point, the less liable is his crop to suffer from its natural foes.

Early seeding is a point of great importance. A good growth of root in the Fall preserves from Winter killing. The plant having well withstood the Winter, is prepared for an early, vigorous start in the Spring. This enables it to resist and outgrow the attack of fly and other insects. And the early ripening is almost an insurance againt *rust*. Where it is practicable, we should sow by the last of September. The only objection to early sowing is, that the crop is more liable to the Fall attack of the fly. This objection seems in practice, to be far outweighed by the advantages on the other side.

Another important point is that of good, plump, well-ripened seed, of a hardy and early ripening variety.—*American Farmer.*

METHOD OF CONVERTING URINE INTO A SOLID PORTABLE MANURE.

BY DR. J. DAVY, PROF. AGRICULTURAL CHEMISTRY, DUBLIN.

THE chief objections to the use of urine are well known to be the large amount of water it contains; the difficulty or expense of its removal, and the offensive odor arising from its decomposition, when kept in its common state for some time. These objections may all, however, be obviated by very simple means. Mix the urine, either fresh or stale or a mixture of both with peat and turf mold, in rather coarse powder, (in the ordinary state of dryness it acquires by simple exposure to the atmosphere,) into a soft solid, which is spread out so as to occupy a large surface in the open air; or under cover if necessary, where there is a free communication, with the air. In a short time its water is removed, (without the aid of artificial heat) merely by spontaneous evaporation, which takes place at all temperatures, and with a rapidity increasing with the warmth, dryness, motion of the air, etc.; then when the soft solid is become dry, a fresh quantity of urine is mixed with it, and the previous process of drying repeated. In this way there can be obtained dry measures in powder, containing one part by weight of peat mold, and the solid matter of from one to sixteen parts by weight of urine, without any offensive odor.

The best mode of making this manure so as to meet the wants of agriculturists, would obviously depend on their peculiar circumstances, and is a mere matter of mechanical arrangement and detail. The simple means here proposed seem to be well adapted to effect the important object stated. *Peat or turf mold*, from its properties, composition and abundance, is admirably adapted as a medium for taking up a large amount of urine, yielding its water to the atmosphere and retaining its solid matter in a state fit to supply nutriment to plants.

Thus, when dry it is light and spongy, being only about one third of the density of our common soils. It also contains, more or less, earthy and alkaline salts; often much gypsum, and likewise a variable quantity of ammonia, derived from organic matter or the atmosphere. It has also similar de-odorizing and disinfecting properties as charcoal, so that it readily neutralizes or destroys the most fœtid odors. It seems calculated to infuse the texture and modify the absorbent powers of the generality of soils, and is everywhere abundant. The application of peat mold to save urine does not supersede its still more important use as a means of de-odorizing mixed excreta, both solid and fluid, and converting it into manure, not inferior to the guanos imported from foreign countries.

The value of those immense accumulations of peat or swamp mud, every where found, is much greater than is generally supposed. We should not think it strange if it should yet be found to be the best of all substances for concentrating the fertilizing portions of excreta from cities and villages, into manures sufficiently portable to be carried considerable distances into the country. The products of the farm go to the nearest market. The farm will be impoverished, unless the elements of these products be returned. The most important question now before the agricultural world, and it is one in which our English brethren are delving more deeply than we are, is, how to restore the elements of fertility brought to the city. And this is not merely a question of agriculture. It is a question of health and of life to the city, as well as of fertility to the country—one with which Boards of health, as well as Boards of agriculture, have to do. The problem is: to *clean* the city and *enrich* the country, to give the citizens *pure air* and the farmers *big crops*, the two parties jointly paying the expense; and we suspect that the very homely article of swamp-mud may have an important part to play in the operation. It is principally for the purpose of inviting thought and investigation that we have re-published the above from the pen of Prof. Davy. But whether the mud of our swamps is ever to be used for the purposes suggested above or not, it should, wherever found, be used abundantly on the farm, as an absorbant, a de-odorizer, a fertilizer. It possesses great value for these home purposes. If dug in the dryest time after harvest, and carted to the barn after lying in the sun, till it becomes light, and then used abundantly through the winter and early spring, about the pens and stalls and manure heaps, it will not fail to more than repay the trouble and expense of thus employing it.

Poisoning by Guano.—Persons having cuts upon the hands should be very careful in handling this manure. *The Phil. U. S. Gazette* mentions the death of a man in a neighboring country from this cause. Decomposed animal matters are especially dangerous.

DROUGHTS—WHITHER ARE WE TENDING ?

The destruction of our forests, a destruction which has been going on now ever since the settlement of the country, and which has been remarkably rapid in the West for the last fifty years, is producing the following results, which must be very obvious to every observant person.

The surface of the earth is more exposed to the drying winds, and to the beams of our summer sun. These causes quicken the drying of the soils.

The sources of many a well and stream are dried by the removal of trees from slopes and hills, from whose bosoms they once drew a permanent supply of water.

Far less rain falls on the soil during the *summer* months than would fall if the earth was more generally shaded with trees. Wide forests attract showers. Many a forest enjoys a generous rain, when the wide, open plain is scorched with drought. Forests act as do streams, to direct the courses of showers, and concentrate them upon their own area. Perhaps as much water falls in a *year* on a prairie or open country, but it comes in great storms, and in the winter, or spring, or autumn. When it is needed most it is most lacking.

Forests serve as pumps to draw up water from deep in the ground. Every one who knows what an amount of water a single large tree will draw from the ground by its roots, and throw into the air from its leaves, can form some idea of the vast quantity of moisture which is exhaled by a wide forest in a single week, or even in a single day. The ordinary vegetation of a farm does this in a far less degree. The removal of the forests, therefore, greatly diminishes the amount of moisture, which, during the summer, is exhaled into the air from the vegetation which covers a given area. Consequently much less exists in the air as the material for showers, than would exist were the forests drawing from the deep earth a more generous supply.

It will be seen from these facts that the destruction of the forests is *one* grand cause for the droughts which have become more frequent and intense for the last several years. Some, if not all, of these results of the removal of our forests have attracted the notice of our farmers, and they have doubtless prepared them to consider somewhat the question what remedy is feasible.

The only remedy possible is simple and plain. It might not cure the evil. But it would doubtless diminish it. It consists of an adherence to the following maxims :—*Save* all the forest trees you can. And *plant* (on the prairies especially) all the trees you can.

Under the head of *saving* trees, the course would be somewhat like this. On the older farms and in the olders districts, *clear no more land.* Select the least valuable wood for fuel. Allow the second growth of timber to have a fair chance. When trees are felled for lumber or building timber, let them be cut so that in falling they shall injure as little as possible the surrounding trees. Then use for fuel all those parts of the felled trees that you cannot use for lumber or timber. If you *must* clear land, clear the lowest ground, leaving the hill-sides and the summits covered with their leafy honors. There are more reasons than one for this advice.

Under the head of planting, we would recommend the following things. We may repeat the same suggestions hereafter. So we will begin now. Plant trees around wells and permanent bodies of water. Plant trees along broken ground on the peaks and sides of rocky ledges. Plant tress to protect houses and barns, and other buildings, from the heats of summer, and from the storms of winter. If your farm is cleared too much, and you decide to *keep* it, devote a portion of the cleared land to the growth of forest trees. Get the best advice you can. Select the ground with the best judgment you can command; fence it up well, and plant a good variety of quick growing trees, mostly indigenous, for the use of your children. If you are not a very old man, you may live to use them yourself, and to learn, by that time, that they render the ground they stand on the most valuable part of your estate.—*O. Farmer.*

MULCHING.

This is a term used by horticulturists for shading the ground around growing trees, shrubs, and plants. There are many plants so delicate in their structure, that they absolutely require mulching the first summer, to insure their roots a firm hold in the ground. But as most of our summers are so dry and hot, there are few plants that are not benefitted by mulching.

If the ground around fruit trees is cleared of the weeds and grass, and mulched with leaves or straw, immediately after a rain, the tree will be invigorated, and a fine crop of fruit will be the reward. Roses that are wilting, and showing a sickly bloom will be revived, and bloom in beauty, by mulching when the ground is moist. The Dahlia, a plant that requires a great deal of moisture, will bloom in perfection until frost, if kept properly mulched throughout the summer. Now, when we recommend mulching, we do not mean a few leaves or straws placed immediately around the plant, but a coating so thick that the sun cannot penetrate through, and placed as far from the plant or tree as the influence of the roots extend. Anything that will shade the ground; rock, brick or plank, will answer to mulch with; but substances that in their decomposition will make a soil, are decidedly preferable. The native forests mulch themselves, and we see how rank and vigorous they grow. We think that, unless the surface be kept constantly stirred around a tree or plant, the rays of the sun should never rest upon it. Those who look upon labor and effort as a great bug-bear, may get along without mulching. But those who mulch properly actually save time and labor, for when it is well done, the labor is done for the year, and the soil is all the time being enriched, as the plant grows and perfects itself. Therefore we say to the orchardist, mulch around your fruit trees; to the vine-grower, mulch around the grape vines; to the gardener, mulch among the vegetables; to our fair lady florists, mulch among the flowers, mulch—mulch—mulch. Never tire of mulching.—*Soil of the South.*

TIME TO DRAIN BOGS.

We generally have a time between the close of the haying season and the "fall rains," when farmers find that the springs and streams are low, and they can operate by ditching and cutting away obstructions, to good advantage, in draining their lowlands. Some farmers neglect to begin this business because they cannot finish it at one job, without hiring more help than they can well afford to. In such cases would it not be advisable to look over the whole ground—ascertain accurately what is required to be done, to effect perfect drainage, or to give you control of the water, and begin upon it, doing a part at a time. In this way, by a little perseverance for a few years, you will ultimately accomplish the undertaking. The profits will then begin to accumulate, and to repay for the labor and cost expended. We know of several instances where individuals have followed such a course, who are now reaping a rich reward for their faith and perseverance.

There are many cases where the lowlands are somewhat extensive, and owned by several individuals; in such cases it would be difficult, and manifestly unjust for one of the proprietors alone, to make all the improvements required. When an advantage or profit is to accrue to all of the proprietors, all should unite and put in according to the amount of their possession in the property, and thus make common cause of it. We have now in our mind's eye a case like the above, in Winthrop. A valuable piece of muck land is owned by several proprietors. It has been partially drained by ditching, which improvement has demonstrated that the land can be made of double, nay, of tenfold more value to its owners, if a thorough drainage and control of the water could be had. To effect this it is necessary that a ledge near the outlet of a sluggish stream should be blasted, and a dam or flume put in, to stop, or to give vent to the waters at pleasure. It would be but a trifling job to the proprietors if they would unite, but rather too heavy for any single one of them to undertake alone. We presume many of our readers know of just such cases in their respective neighborhoods.

There are also many cases like this, viz.: A large tract of valuable grass or meadow land is ruined and rendered of no value to the proprietors, on account of some old mill dam at the outlet of the stream, the owner of which will persist in keeping up, while the hay that would be obtained, if that were away, would be worth more, each year, than a dozen such mills. In such cases, it would be a good investment, if the owner would sell at a reasonable rate, for the meadow proprietors above him to unite and buy him out, and thus be enabled to control the water.

In looking about the State, any one will soon see a vast deal of the kind of lands we are speaking of, that, by draining, would pay great interest on the cost, but which are now wholly worthless, because they are overflowed and saturated with water to such a degree as to render them worthless for any other purpose than a frog or mosquito paradise.—*Maine Farmer.*

VINEYARDS IN THE SOUTH.—MR. AXT'S VIEW OF GRAPE CULTURE, ETC.

It is probably well known to most of our readers, (says the *Southern Cultivator,*) that Mr. Chas. Axt, now of Crawfordville, Ga., has been chiefly instrumental in awakening among us an interest in the culture of the Grape for Wine Making; and that, so far, his efforts in various parts of Georgia and the adjoining States, have been attended with marked success. A brief statement of his views (as set forth by him during a recent conversation with us on this most interesting subject) may not, therefore, be unacceptable to our readers:

MR. AXT ON VINE CULTURE.

Healthfulness of the Grape.—The grape is universally admitted to be one of the healthiest of all fruits, as it is among the most delicious. It was one of the first fruit that claimed the attention of man, and has never failed to return a rich and abundant reward for the care bestowed upon it. The fruit of the vine is cooling and refreshing, and has a very salutary effect upon the system—being both nutritious and medicinal. It attenuates the blood, and gives it a free circulation—delighting the young and renovating the old. Taken freely it is diuretic and gently laxative. It has often proved effectual in severe cases of dissentery, even curing whole armies. In inflammatory diseases it allays thirst and reduces the heat of the system. It is also of the greatest use in phthisical and pulmonary diseases, or where there is any difficulty in breathing. Dried Grapes, or Raisins, are good for the dessert, and in various ways of cooking, and are used extensively throughout the civilized world. There is no reason why they should not be made in vast quantities and in the greatest perfection, in the Southern States.

Natural Wine—its Domestic use—Promotion of Temperance and Sobriety.—Natural wine is the *pure* fermented juice of the Grape, entirely free from any admixture of sugar or alcoholic spirits. Wherever these are added, the result is a "made wine," cordial or syrup—not a pure and true *wine.* Nearly all foreign or imported wines are badly adulterated, and most of them unfit to drink. Many of them, in addition to sugar or spirits, contain decoctions of drugs highly deleterious to health—as any person can determine for himself by the disagreeable after-effects of a free indulgence in them at a dinner-party or over night. *Pure* and *natural wine,* on the contrary, when drank in moderation, produces only a slight exhileration and buoyancy of spirits; it is *tonic* and *strengthening* and is followed by no nausea, headache or confusion of ideas. Where such wine is used habitually in a family and the children have free access to it, they grow up *sober* and *temperate,* as is abundantly proved by the statistics and statements of travelers in all wine-producing countries. Where *pure wine* can be had abundantly and cheaply, there is no taste so depraved as to indulge in fiery alcoholic spirits as a beverage, and therefore *drunkenness,* with all its attendant horrors and crimes, is almost unknown in wine countries. All lovers of temperence, of good morals, of virtue, law and order, should therefore encourage the culture of the grape and the making of a pure and healthy *natural wine.*

Advantages in Vine Culture possessed by the South over all other

Countries.—The South possesses great and decided advantages in Grape growing over either Europe or the Western States. In the latter countries the grape is very fastidious in its choice of soil and exposure—thriving only upon warm, porous, deeply-trenched and well-drained hill-sides, facing the sun. In these countries, the first cost of land suitable for the Grape is often from $100 to $400 per acre. In the South, where the grape flourishes on almost any soil or exposure, land can be bought from $3 to $10 per acre. In Europe and at the West, owing to the defects of climate and cold nature of the soil, the *preparation* of land for vineyards, (such as trenching, teracing, walling, etc.) cost from $50 to $200 per acre; while in the more genial climate of the South, by the use of the sub-soil and deep-turning plough, followed by the spade or shovel, can prepare land for Vineyards at a cost of $40 per acre, or even less.

Early Bearing and Maturity at the South.—At the West, (in Ohio and elsewhere) the Vines only begin to bear a few grapes the *third* year; and if well managed, from the *sixth* year onwards, will average from 300 to 400 gallons of wine per acre. In the South we can easily get *one thousaud* (1000) gallons of wine per acre, the *third* year after planting the cuttings; and, under favorable circumstances, from the fifth year onwards, each acre will average from 2000 to 2500 gallons of pure unadulterated wine. In Ohio, one good vine-dresser can attend to *five* acres; while in the South, from the increased length of the season and additional *time* to do the work, the same hand can easily manage *ten* acres—both, of course, needing much additional help at the gathering time and vintage.

Superior Climate of the South.—Ohio and other Western States are liable to many disasters from the fickleness and variableness of the weather; it being often too cold, too wet, too damp, too foggy, etc., etc., to say nothing of various other mishaps; causing a loss nearly every year of *half the crop.* In fact, a fine, warm, sunny summer is *indispensably necessary*, at the West, to make a good crop of grapes, and a finely-flavored wine. For instance, the year 1853 produced a very superior crop, and the vintage of that season is still deservedly esteemed; but neither at the West or in Europe can they depend on such a season more than once in ten years. In the unfavorable years, the wine is generally too *rough* and *sour* to drink in its *natural* state, and it is, therefore, necessary to add sugar to produce what is known as Champagne or "Sparkling Wine." This popular drink is very pleasant, palateable, and not particularly injurious; but in point of purity or healthfulness it does not rank with the perfectly *pure* "still wines" before alluded to. We, of the South, are exempt from all climate disasters—the only contingency being a frost in May or a hail-storm during the period of fruiting. The summer weather of the South is *always favorable* to the Grape, and we are, therefore, able to make, every year, a full, heavy crop, allowing the bunches to hang on the vines until they are fully matured—an indispensible requisite to the making of good wine. At the West, the vintner is often forced to pick the grapes before they are fully ripe, owing to decay commencing. By allowing our grapes to attain full perfection on the vine, we can produce a wine equal or superior to the very finest imported; and such wine, if "made" into a sparkling Champagne, will be mild, fruity, entirely free from roughness, and altogether unrivalled by any in the world.

General Propositions.—From the facts above stated, any person acquainted, by travel and observation, with the different climates and modes of Grape Culture in this and foreign countries, will readily admit that if the South, with her cheap land and slave labor—her *unrivalled climate*, good soils, wealth, etc., etc., will only enter upon and prosecute vigorously the culture of Grape, and Wine Making, she will in thirty or forty years hence, control the wine markets of the world as she now does the Cotton Market; and that, too without any serious detriment to the production of the latter—for the Grape has been and can be easily and successfully grown upon our exhausted cotton fields and old waste land, by proper *preparation* at first and a slight annual manuring afterwards. Indeed we can afford to make Wine in the South at 50 cents per gallon, and then realize more money than from almost any other Crop. In Ohio, however, owing to the *uncertainty* of the crop and the comparatively *small yield*, such a price would not be sufficiently remunerative to hold out inducements to men of enterprise to engage in the business. (In making the foregoing comparisons between the West and the South, no invidiousness is intended. We cheerfully award the highest credit to the enterprizing and skilful vintners of Ohio and other States, only claiming for our own favored region, those natural advantages which it so obviously possesses.)

Invitation to the Vineyards of Mr. Axt.—Mr. A. states that he has not yet had the good fortune to see in his section a Vineyard well and properly planted, trimmed and managed; especially with reference to the peculiarities of our soils and climate. He is, therefore willing, to throw open to public inspection, the Vineyards now under his direction at various places of the South. In Wilkes Co., Ga., he has one, two and four year old vineyards—the latter in *full bearing* In Whitfield Co., near Dalton, Ga., two and three year old vineyards, the latter in bearing. In Montgomery and Antauga counties, Alabama, two year old vineyards, *bearing finely*—an additional proof that the climate of even the far South is perfectly adapted to the growth and *early productiveness* of the Grape.

All persons who take any interest in the Grape enterprise are cordially invited to visit any or all of these Vineyards in the latter part of August for the present year (1856) to witness the gathering of the Grapes, the making of the Wine, etc. With the Vines and the Grapes before them, Mr. Axt will be better able to give his Visitors satisfactory explanations on the subject, and to remove from their minds all prejudice, doubt and misapprehension. His Grapes being in perfection, he will, he hopes, be enabled to satisfy the palate as well as the eye and the judgment of all who may avail themselves of his invitation. He will also be happy hereafter to answer through the columns of this journal all inquiries on this subject, and solicits the views and opinions of all intelligent and experienced Grape Growers throughout the South.

We consider the cause of temperance as much higher than any matter of Rural economy as the heavens are above the earth. The question with us is: does an abundance of wholesome, slightly-exhilerating beverages pave the way to an excess in strong drinks, by insidiously creating a relish for stimulants, which by-and-by will be satisfied only with the strongest, so that the person who begins with mild wines, will be likely to end with downright fire-water; or does the use of milder beverages tend somewhat to satisfy, and thus to save from the folly and sin and terrible results of beastly intemperance? (The beasts will pardon us.) We incline to the latter opinion —may not be right, but would as soon leave our descendants in a wine-growing-country as in one where no grade of beverage is produced between water and distilled spirits, should expect that in the latter case as many would jump the chasm at a leap, as in the former would go over on the bridge of minor stimulants to self-murder and a drunkard's end. Thus believing that the danger of all ruining intemperance will not be increased, and may possibly be diminished by the production of wine, we are prepared to view the subject simply in an economical light; and viewing it thus, we fully agree with the *Edgefield Advertiser*, that its production among ourselves is a matter of considerable importance. Undoubtedly the South can grow as good wine as any country in the world; and even the extreme North is not as far from the tropic as some of the greatest wine-growing regions in Europe. The North can produce a pretty good wine, if it is desirable it should. We do not advise to the use of wine; nor is it our object now to advise to the contrary. We suppose that, like ourselves, others will do as they please; that some will use it, that consequently there will be a demand for it; and we see no reason why the demand should not be supplied by American industry. We are now shipping a million of coin by nearly every steamer that leaves for Europe. Much of it goes for iron; some for wine. Why should not the former go to the American manufacturer? Why not the latter to the American farmer? Why should not the labor of both be done in this country, and so the demand for American farm produce be increased, by the importation of families to perform the extra labor. We can see no reason.

PULVERIZE THE EARTH.

Jethro Tull, a long time ago, demonstrated the great utility of making the soil as fine as possible, in order to insure luxuriant crops. He became so enthusiastic in regard to this matter that he stated his belief that this was all that was necessary to do, and that manuring was of but little service where pulverizing the earth finely could be done. In the last idea he was wrong, but in the first he was right. We most of us fail in this particular. Why do we plough, harrow, hoe, and stir up the soil at all? In order to make it so fine and so easily penetrated that the roots of plants can be easily spread abroad among it.—Well, if it requires this, can there be any definite limit to the degree of pulverization? If it be of service to pulverize it as much as the plough and harrow can do it, is it of no service to carry this further? It would certainly seem, reasoning theoretically upon the subject, that it would be of service to go on and make it as fine as possible, and every day practice and experience prove that it is.

We would like to see an experiment like this tried: Measure off a certain portion of soil, say ten feet square, and another portion next to it ten feet square. Put no fertilizers upon either so as to keep them naturally as near alike in this respect as possible. Box them both two feet in depth with boards or planks. Spade and rake over No. 1 in the usual way. Spade up No. 2 in the usual way, and pass the whole of it to the depth of a foot through a pretty coarse wire sieve or screen, so as to get it pretty thoroughly pulverized. Then plant upon each the same kind of seed, in the same quantity and at the same time. Hoe No. 1 in the usual way, but use every means to keep No. 2 as finely pulverized as at first, and note the result upon the crop. This would be a comparative experiment, and although once or twice so experimenting would not be decisive, yet in a series of such experiments through a variety of seasons, the facts, whatever they might be, would become pretty well established.—*Maine Farmer.*

There can be no doubt that the more finely any ordinary soil is pulverized, the more it will produce. The practical question is, to what degree of fineness, the increased production will pay for the extra labor, or how far the process of pulverization can be carried with paying results. If this point could be ascertained, we believe it would be much beyond the common practice.

RAISING INDIAN CORN WITHOUT TILLAGE AFTER PLANTING.

Messrs. Editors:—By experiment I have arrived at some conclusions in regard to the culture of Indian corn, which I think of importance to farmers in the Southern States. I communicate them to the use of the public with great hesitation, because they are in direct variance with the received opinions on the subject.

Last spring I planted a small piece of poor ground—first breaking it up well. The rows were made three feet apart, and the stalks left about one foot apart in the drill. The ground had been very foul the previous year with crab grass. The corn was not well up before the grass began to appear. When the corn had about four blades, the young grass completely covered the ground, and the corn was turning yellow. I spread a small quantity of stable manure around the corn, and covered the whole ground three or four inches deep with leaves from the forest, taking care to do this when the ground was wet, and the leaves also, that they might not be blown away, and to leave the tops of the young corn uncovered. In ten days there was not a particle of living grass to be found, and the corn had put on that deep bluish green which always denotes a healthy condition of that plant.

From the day the corn was planted until after the fodder was pulled and the tops cut, nothing more was done with it; and the result is a product at the rate of forty-two bushels to the acre.

I noted in the course of the summer the following facts: First, The corn treated thus was always ahead of some planted alongside of it, and treated in the usual way. Second, It ripened at least ten days sooner than other corn planted at the same time. Third, The hottest and driest days the blades never twisted up, as did other corn in the neighborhood. Fourth, In the driest weather, on removing the leaves, the ground was found to be moist to the surface, and loose as deep as it had been first broken up. Fifth, The heaviest rains had scarcely any effect in washing away the soil or making it hard.—*Tennessee Farmer.*

It would seem quite possible that, in the sunnier South, the mode of cultivation above described might be attended with good results; and, as we believe in progress, not doubting that a great many new truths and wise practices are yet to be discovered, we rejoice in the enterprise that dares to step on untrodden ground—to try experiments and to report progress. It is more than possible that L. T. I., the writer of the above, has started a thought that may prove of great value to corn-growers in his latitude. But in the North this process could hardly succeed. The mulching would prevent the soil from becoming sufficiently warm for Indian corn. The true policy in the North is, to plough deep, pulverize thoroughly, manure highly, cultivate cleanly till about the middle of July (never after) and to get just about twice as much corn to the acre as L. T. I. reports. Here the leaves, instead of being used as a mulching, should be brought to the barn the previous autumn, put under cover, or stacked out, with straw enough to keep them from blowing away, and then used for bedding, before being applied to the corn field. With the exception of plain lands, which may be cultivated cheaply, and from which the cultivator may be contented with a crop of twenty, twenty-five, or thirty bushels to the acre, we should aim at a hundred bushels, and so enrich and cultivate our grounds as not to fall very much short of that. The average yield of corn in New-York and the New-England States, after setting aside the plain lands, which may be cultivated cheaply and for a small crop, ought to be not less than seventy-five bushels an acre; and we are persuaded that a cultivation high enough to bring about this result would give a better profit on the labor and other expenses of corn growing than a lower one.

Ox-Shoeing—We frequently find in agricultural papers some remarks about shoeing horses, but I have never seen anything therein about shoeing oxen. Now, it is true that a horse should be shod in such a manner as to cause him to stand and travel with ease, and the ox should be shod with equal care; but we frequently find oxen, especially large oxen, lamed by shoeing. Now, I find one great error to be in the length and shape of the shoes. If the shoes are long and crooked, they of course cause the weight of the ox to bear on the inner edge of the shoe, or center of the foot, causing the hoofs to cant in an unnatural position. This may do for small, light cattle, but with heavy oxen it is quite different.

In shoeing large oxen there should be one inch of the toe or forward end of the hoof left bare, and be sure that the shoe sets flush with the outside of the hoof. Then the heel of the shoe should not be crooked or turned in too much; but our blacksmiths are apt to be in too great a hurry, and if a shoe comes within hailing distance of a good fit, they must nail it on in preference to selecting a better.

I am not a blacksmith, but I have always been acquainted with oxen having teamed for forty years, and, of course, had many cattle shod. If the above remarks are not correct, I should like to be set right.—*Maine Farmer.*

THE STRAWBERRY.

It is urged by many, and we suspect not without reason, that the consumption of less meat and more fruit would be an improvement in American dietetics. If this view is correct, the cultivation of fruit becomes important as a matter of health as well as of luxury. The strawberry, among other fruits, claims our attention.

Testimonies in its Behalf.—"Ripe, blushing strawberries, eaten from the plant, or served up with sugar and cream, are certainly Arcadian dainties, with a true Paradisiacal flavor, and fortunately they are so easily grown, that the poorest owner of a few feet of ground may have them in abundance."—*A. I. Downing.*

"To grow large, handsome, fine-flavored fruit in abundance, it is not necessary to employ a chemist to furnish us with a long list of specifics, nor even to employ a gardener by profession, who can boast of long years of experience. Any one who can manage a crop of corn or potatoes, can, if he will, grow strawberries."—*P. Barry.*

In addition to the foregoing testimony to the ease with which this delicious fruit may be grown, we quote from R. G. Pardee, the author of a deservedly popular treatise on the strawberry and other small fruits. Mr. Pardee says:—"During many seasons we have had on trial in our garden from twenty to sixty varieties at a time, and although some were comparatively unproductive, yet the average cost of producing them for years has been less than fifty cents per bushel, beside the cost of gathering and value of plants, which were taken from our own garden."

Now, we very much suspect, that Mr. Pardee neglected some of the incidental expenses of cultivation; or he could not have brought the cost to so low a figure. Perhaps he performed the labor as a recreation, and so did not charge it to his strawberry bed. The health and pleasure thereby obtained, may have afforded *him* a satisfactory compensation. The *cultivators* must have something more than *recreation*; they must be *paid;* and we think they could not be at fifty cents a bushel. Yet the foregoing testimonies, conjoined with some experience of our own, satisfy us that strawberries can be grown at such rates that all, in city and country, if not indolent or specially unfortunate, may well afford to enjoy so wholesome a luxury without stint.

"The strawberry," says Downing, "is perhaps the most wholesome of all fruits, being very easy of digestion, and never growing acid by fermentation, as most other fruits do. The oft-quoted instance of the great Linnæus curing himself of the gout by partaking freely of strawberries, a proof of its great wholesomness—is a letter of credit this tempting fruit has long enjoyed, for the consolation of those who are looking for a bitter concealed under every sweet."

Those who contemplate entering largely upon the cultivation of the strawberry, would of course wish to consult such works on the subject as those of Downing, Thomas, Hovey, Barry, Eliott and Pardee. But as it seems desirable that not only all cultivators, but all persons even, who have the control over a patch of land, should do something to make the use of a fruit at once delicious, wholesome, nutritive and easily produced more general, we propose to give some brief directions for its cultivation—such as may at least enable the uninitiated to begin.

Situation.—Thousands who would do well to cultivate a bed of strawberries, have no choice. Their land *is* where it *is;* and it is not convenient for them to remove it; nor can they essentially alter the character of its surroundings. The most they can do is to fence against cold winds and to mitigate the severity of the sun by here and there a shade. But the owner of a mere patch has this consolation, that if he cannot comply with the *rules*, various and contradictory as they are, the strawberry will consent to waive all rules, in adapting itself to his wants. Mr. Peabody, a celebrated and most successful cultivator of this fruit, at Columbus, Ga., a latitude altogether too sunny for the strawberry, as was formerly believed, and as Mr. Downing himself seems once to have thought, says:—"I do not believe there is a plant in nature, that so easily adapts itself to soil, situation and climate as the strawberry." Persons therefore, having little extent of soil need not be discouraged. Those having a larger extent, allowing of some choice in situation, would do well to select warm soil with a southern exposure for early fruit, and a colder soil with a northern exposure for late, unless, as Mr. Peabody and others think, the strawberry can be made ever-bearing.

Soil.—The strawberry is so tenaceous of life, that it will live in almost any soil. A sandy loam is best. A gravelly loam, with abundance of pebbles might possibly mature fruit earlier. But the difficulty of cultivating such a soil would more than balance this advantage. It will never be easy to cover a plot with the strawberry plant so thickly as to insure a liberal yield, and yet keep it as clean of weeds and grass as it ought to be. We would therefore recommend a feasible soil, clear of all obstructions to the hoe and the rake. A substantial loam, neither very light nor very heavy—one that would be regarded as fair corn land—is best; but there is little if any land that will not produce this fruit advantageously, if rightly prepared. Wet land should be drained; if the soil is too sandy, it should receive an admixture of clay; if too clayey, give it an admixture of sand. A single load of clay will go far to render a sandy soil firm; and ten loads of sand will go just about as far to render a clayey soil porous. The labor of course is much greater in the latter case, than in the former; but it is not very great in either, provided the material wanted is near; and a patch for strawberries, by applying the opposite ingredient to that in which it is redundant, can soon be made just what is required—neither too sandy nor too clayey.

Preparation of Soil.—If the subsoil is not decidedly porous, such, that on digging down three or four feet, no water will be seen, not even after the greatest rains, it should by all means be thorough-drained; but if the subsoil is so porous that water will never, under any circumstances, stand in the excavations made for testing it, there is not much benefit in the thorough-draining. If it is said that it admits the air, we reply that the pressure of the atmosphere is upwards of a ton (2160 lbs.) to every square foot of the earth's surface; and that under such a pressure the air will follow of course wherever the water runs freely through the soil. We do not say that in such cases, that is, where stagnant water is never found on or in the soil, there is no benefit in thorough-draining; but we do say, and we are willing to stand by it, that the benefits are not equal nor half equal to the expense; and although the strawberry requires a deep soil inclining to moisture, without the least stagnant water, yet we should regard our directions as faulty, if we indiscriminately recommended underdraining. We would underdrain freely, whenever there is occasion for it, and for no crop sooner than for the strawberry; but there is a great deal of land that does not require underdraining—would not for any crop be sufficiently improved to warrant the expense—and therefore we think it important that the distinction should be kept in view.

As the strawberry is known to throw out a great length of fibrous roots in search of food and moisture, sometimes not less than three or four feet, it is manifest that the ground should be ploughed very deeply, and be made exceedingly mellow. In order to clean cultivation, care should be taken that no weed or grass seeds be present, either in the soil or in the applications made to it.

Manures.—Every one in the least conversant with rural affairs, must have noticed that strawberries, in their wild state, flourish mostly on new land, and generally disappear as the land becomes old. Hence we might infer, that leaf mold, the surface soil of wood land, decomposed turf from newish land, charcoal-dust, soot, wood-ashes, scrapings from old hedge-rows, well-rotted straw, anything which would tend to restore the soil to the condition of new land, would be favorable to the strawberry. Such we believe to be the fact. All green manures should be avoided. The strawberry consists largely of potash, soda and lime. But these ingredients would abound in a compost made up of the substances named above; and such a compost, at the rate of twenty or twenty-five loads to the acre, we believe would be sufficient to secure good crops for a series of years, with proper mulching, and the addition of some liquid manure in bearing time.

Transplanting.—The strawberry does not bear transplanting as well as some plants which seem to be of a less hardy character. With a proper application of shade, mulching and water, they may however be transplanted safely at any time from March to late in October. April is perhaps the best month for spring transplanting, and September for fall. Spring transplanting is more favorable to clean cultivation. Transplanting in the fall gives an earlier return, as in that case a partial crop, say from a third to half a crop, may with good cultivation be expected the first summer. As to the manner of transplanting, if the soil be such by nature or by artificial amendment, as we have recommended, we would prefer the flat cultivation. Let the surface be brought to as exact a level as may be; then mark the rows from twelve to thirty inches apart, the former being enough for small varieties on a limited space, and the latter not too wide for the field culture of large varieties; and set the plants simply from eight to twelve inches apart, taking care to press the soil moderately around the roots. The ground should be moist at the time of transplanting, either from recent rain, or an artificial application of water; and if scorching suns prevail on the succeeding days, the plants should be protected during the hottest portion of the day and watered in the evening.

Mulching.—In order to protect the plants from the sun and to more effectually equalize the moisture about their roots, it is well to spread a mulching of an inch or a little more in thickness over the entire plot. Spent tan-bark it highly recommended by some growers for this purpose; and we do not recollect to have heard of objections to it. Saw dust is said by others to answer equally well. Some, however, believe that it causes mildew. Leaf-mold is good. Straw will answer the purpose, but is apt to prove an obstacle to clear cultivation. If cut fine enough for horse-feed, there could be no objection to it, other than the too great labor of so preparing it.

Watering.—The strawberry, after becoming well established, will bear a pretty severe drouth, provided the ground is so prepared that its roots run deeply. But it loves water; and especially should it be thoroughly watered in bearing time, unless there are frequent falls of rain. A garden engine is very convenient for the purpose. In cultivation, the plants should not be hilled up. The ground near the row should not be varied from the general level. Care should be taken in the cultivation, that the roots be not cut or disturbed very near to the plants. Clean cultivation, without much mutilation of the roots, is essential to success. A winter mulching of straw to be taken off in the spring, and a mulching of tan-bark applied a few weeks before bearing time are a great help to successful cultivation.

Renewal of Beds.—Once in three or four years the bed should be renewed. This may be done by allowing the runners to take root on the central line between the rows, and then taking out the old rows; or better by commencing a new bed in another place, and taking the old one for corn or some other crop favorable to clean cutivation.

It is ascertained that strawberry plants have three, or four, distinct characters. We shall mention three; 1st., the *Staminate*, or *male* plant (fig. 1,) *a* representing the Stamins, *b* the pistils; 2d, the *Hermaphrodite*, or *bisexual* plant (fig. 2); 3d, the *Pistilate*, or female plant (fig. 3.) .The Staminates produce no fruit. The hermaphrodites are producers. The pistilates produce no fruit if planted alone, but are the best producers when planted in near position with the staminates or hermaphrodites; and we believe the best practice is considered to be that of planting one row in eight with some good variety of the hermaphrodiate, and the intervening rows with the best varieties of pistillates; as for instance, Longworth's *Prolific* for the hermaphrodite row, and Hovey's Seedling or McAvey's *Superior* for the pistillate rows. It is not our design to recommend varieties. Indeed there are so many among us who have sore toes on the subject in hand, that we should fear the consequences of making a step in that direction, even if more conscious of being a good judge than we are. On the cultivation we quote from Wm. R. Prince & Co.'s catalogue the following directions, which are unquestionably the result of long experience, and may be regarded, we believe, as good authority:

"The best periods for spring planting are the month of April for this and more northern latitudes, and the months of February and March for the more southern States. And for the plantations after fruiting, we prefer the months of August and September in this latitude and north of it, and the months of September and October for the more southern localities. The early autumnal planting has this superiority—such plants will produce a fair crop the ensuing summer.

"The Pistillate varieties possess the great advantage that they may be allowed to run together in a mass, and will in this mode bear profusely; and this is the most profitable course of culture; whereas the larger Hermaphrodite varieties (with only two or three exceptions) will not produce a fair crop unless they are cultivated as distinct plants, and kept clear of runners. There can be no such result as a failure in the crops of Pistillate varieties (when accompanied by Staminates or Hermaphrodites). *Every Pistillate variety is productive*, varying only in abundance. The Hermaphrodites may all be deemed *moderate bearers*, except where we have denoted otherwise; and the few exceptions mostly produce fruit of but medium or small size. The Primate, and two or three other Hermaphrodites, comprise the only varieties, with large fruit, that produce large crops. In selecting an impregnator to plant among Pistillates, it is the better course to select a productive Hermaphrodite variety, as this will prevent any loss of space.

"The Hermaphrodites or Staminates should be planted in distinct rows or beds, and not among the Pistillates, as the more rapid increase of the former would soon cause the beds to be overrun with them."

With consent of the publishers, C. M. Saxton & Co., we copy the following from the pages of Pardee on the Strawberry and other Small Fruits. It is from the pen of Charles A. Peabody, Esq , horticultural editor of the "Soil of the South," a valuable Journal of Agriculture and Horticulture, published monthly by J. M. and W. H. Chambers, at Columbus, Geo. Mr. Peabody says:

"I plant the pistillate for fruit, and the hermaphrodite for impregnators; and the only two which I have found to bloom and fruit together the whole season are the Hovey Seedling and Large Early Scarlet. Ross Phœnix, Burr's New Pine, and a seedling of my own, not yet fully tested, I have also caused to bear continuously. I plant seven rows of the pistillate, and one row of the hermaphrodite, two feet apart each way. The first season I let the runners fill the ground; in the fall, go through the grounds with hoes, thinning out to eight or ten inches, leaving the vines to decay just where they are cut up. I then cover the whole bed with partially decomposed leaves from the woods or swamps. The winter rains beat down the leaves, the fruit-germ finds its way through them, and the first mild weather of spring the blossoms appear.

"I have before spoken of the volatile nature of the pollen. In very dry weather the particles float off on the winds, and much is lost to the buds below; hence the importance of watering freely when in bloom. Free applications of water will set the whole bed with fruit, which will require continuous watering to swell and ripen it. A strawberry bed may be moist, the plants in fine condition, and yet one good shower will make a difference of one-third in the quantity of fruit picked the day after. Consequently, in dry seasons, artificial watering must be resorted to, and no labor will pay better.

"I never use animal manure of any kind—nothing but the leaf-mold, and an occasional sprinkling of wood-ashes. The leaf-mold keeps the ground cool and moist, as well as the fruit clean, and does not stimulate the vines to runners. The potash and acids contained in it are just what the fruit wants. Should the vines be disposed to spread, keep the runners down by constant pinching off, and clear out the grass and weeds with the hoe. A few years of this culture will check their disposition to run, and encourage them to fruit. The bed, once thus formed and cultivated, will, to my certain knowledge, continue productive twelve years, and, I have reason to believe, as much longer as the culture is continued. Should the vines have taken possession of the ground, in spite of the efforts to keep the runners down, we go through in the fall with the hoe, thinning out the plants to ten or twelve inches, leaving every cut-up vine to decay on the ground where it grew; we then cover with the decaying leaves. When the plants begin to bloom in the spring, a top-dressing of wood-ashes will be found beneficial. I have tried strawberry culture with the plough, which will make a greater quantity of vines, but will give only one crop of fruit. It is generally remarked that the wild strawberry is finer flavored than the cultivated; but with this treatment the latter retains all the original flavor.

"It has been recommended by some cultivators to irrigate the strawberry grounds by letting water on the vines; but the strawberry, cultivated after the manner described, can bear as great a drought as any other plant. It is not the vines and leaves that want the water, but the flowers and fruit; and the water must come in the form of rain, through the clouds, from an engine, or a common watering-pot.

"I have noticed quite a contest going on among horticulturists as to the possibility of strawberries changing their sexual character by cultivation. Without taking part in the controversy, I must state that I would as soon think of high feed turning a cow to a bull, as to change the pistillate character of Hovey's Seedling by any method of cultivation. I have cultivated the strawberry under every aspect; with high manuring, and without manure; in new lands, and on old lands; have had the vines stand from twelve to eighteen inches high, and in meek submission to hug the ground; yet I have never found the least change in the blossom. A perfect pistillate or staminate flower, first blooming so from seed, will never bloom any other way. Cultivators are often deceived about their plants, from the fact that they frequently find varieties in the beds which they did not plant; but these spring from seed. The strawberry springs from seed with astonishing rapidity. Since my beds were started the whole country around me is covered with strawberry plants from the seed dropped by birds. These I find running into all varieties—pistillate, staminate, and hermaphrodite—most of them worthless, but some with good fruit.

"The proper time for transplanting the strawberry at the South is as soon in the fall as the weather is cool and moist enough. Here, this may be continued until spring. Plants are easily transported great distances in the winter. I have sent them 2,000 miles with safety. It will be observed by the diagram that I plant the staminate every eighth row. Some cultivators mix in the rows; but I prefer to keep them separate and distinct, as they are more easily distinguished, and kept better in their places.

"Now, if the cultivator would know the secret of my having strawberries six, eight, and even ten months in the year, in the hot climate of Georgia and Alabama, it is this: proper location, vegetable manures, shade to the ground, without exhaustion, and water to the bloom and fruit.

"One reason why so many fail in garden culture with the strawberry is, that the beds are surrounded by trees and shrubbery, which may produce one crop of fruit in the spring, but rarely more than that, unless it should prove a very wet season. The strawberry-bed, whether in the garden or the field, should have no tree, plant, or shrub near enough to it to take the moisture from the earth. The plants require all the moisture from the atmosphere and the earth around them.

"Whether the strawberry was originally found in cold climates or not, I find they readily adapt themselves to any climate, and very soon become indigenous. I doubt whether there is a State in this Union that cannot produce the strawberry months, instead of weeks, in the year, with proper culture. And when we take into consideration the ease and simplicity of its culture, its continued bearing and productiveness, its exemption from all insect depredations, its delicious flavor and healthy influence upon the system, it ranks first in importance among the fruits of the earth."

THE PLEASURES OF FARMING.

Cicero says most truly and eloquently: "I might expatiate on the beauty of verdant groves and meadows, on the charming aspects of vineyards and olive yards, but to say all in one word, there cannot be a more pleasing or a more profitable scene than that of a well-cultivated farm. In my opinion, indeed, no kind of occupation is more fraught with happiness, not only as the business of husbandry is of singular utility to mankind, but, as I have said, being attended with its own peculiar pleasures. I will add, too, as a further recommendation—and let it restore me the good graces of the voluptuous—that it supplies both the table and the altar with the greatest variety and abundance. Accordingly, the magazines of the skillful and industrious farmer are plentifully stored with wine and oil, with milk, cheese and honey, as his yards abound with poultry, and his fields with flocks and herds of kids, lambs. and porkets. The garden also furnishes him with an additional source of delicacies, in allusion to which the farmers pleasantly call a certain piece of land allotted to that particular use, their *dessert.* I must not omit, likewise, that in the intervals of their more important business, and in order to heighten the relish of the rest, the sports of the field claim a share of their amusement. * * * Of country occupations I profess myself a warm admirer. They are pleasures perfectly consistent with every degree of advanced years, as they approach the nearest of all others to those of the purely philosophical kind. They are derived from observing the nature and properties of their own earth, which yields a ready obedience to the cultivator's industry, and returns with interest what he deposits in her charge."

INSECTS INJURIOUS TO VEGETATION.

DIPTERA, INCLUDING BEES, MUSQUITOES, FLIES, ETC.

We now enter upon another order of insects. Its name imports two wings, and all the insects belonging to it are provided with two small knobbed threads, in the place of the hind wings of other orders, and also with a mouth formed for sucking or lapping. Various kinds of gnats, flies, bees, etc., belong, of course, to this order. We shall here describe several insects that are troublesome to men and animals rather than injurious to vegetation, as musquitoes, midges, and the like.

The proboscis, or sucker, is placed under the head, and may be so drawn up as to be partly or even wholly concealed within the cavity of the mouth. It consists of a "gutter," usually ending with two fleshy lips and enclosing several fine sharp bristles, which are substitutes for the biting organs of other insects, and which are capable of inflicting severe wounds. Musquitoes illustrate this point. The peculiar irritation and inflammation which results is caused by the flowing of the insect's saliva into the wound, a provision designed, no doubt, to give the insect greater facility in obtaining his natural aliment, which is often supplied in the blood of animals. Two small jointed feelers are generally attached to the base of the proboscis. In insects which lap or sip their food, this grooved sheath is comparatively large and fleshy.

Gnats and flies have soft bodies, large heads, which are connected with the thorax by a very slender neck, large eyes, especially in the males, which occupy the whole sides of the head. The antennæ, in gnats and musquitoes, are long and slender, and many-jointed; in flies they are short, consisting of only two or three fleshy joints, the last of which is provided with a little bristle, or delicate feather. The wings are filmy, and many-veined. Just behind the wings are two little winglets, scale-like organs, which open and shut with the wings. Two balancers, or poisers, are fixed on the thorax behind the winglets, which are knobbed at the end. The thorax is the thickest part of the body, and, in the case of many females, is provided with a tube, retractile and tapering, by means of which she deposits her eggs.

Each insect has six legs, and each leg has two claws and little cushions by which, as the metallic plate adheres to the plate of the air pump, the insect can walk upon the ceilings of rooms, and on the smoothest surfaces, and in every position.

Gnats and musquitoes are active both by day and by night; flies, only by day. Their lives last only a few weeks. Several broods are produced in one season.

The larvæ of gnats and flies are fleshy, of a white color, and without wings. They are called maggots. They vary in form, structure, and habit. Usually, their breathing holes are near the extremity of the body. Many aquatic maggots are provided with a tubular tail, which is surrounded with feather-like appendages, through which they breathe. Their larvæ are furnished with small thorns on each end of the body, and smaller prickles on the rings of the back, with which they move about just before they burst their skins and assume a winged state.

Musquitoes, however, are not thus provided, but they tumble about in the water by means of two small fins on their tails. They are the little fish-like animals which abound in stagnant water. They cast their skins, roll up like a ball and float on the surface of the water, breathing through two tunnel-like tubes. If disturbed, they suddenly unroll their bodies, and whirl from one side of the vessel which contains them to the other. In a few days, the next change comes, and the skin splits on the back, between the breathing tubes, and the perfect musquito stands upon the emptied sack till it becomes filled with water and sinks, when the insect spreads its tiny wings and escapes, singing as it goes that monotonous tone which has disturbed so many quiet sleepers, or which warns all who are awake to guard against its troublesome attacks.

In New-England and Canada a small gnat, called *Simulium Molestum*, is seen in swarms, and is very troublesome. Every bite draws blood, and is followed by inflammation, which continues for several days. This insect is small, not more than one tenth of an inch in length; black color, wings transparent, legs short. They appear in May, continue some six weeks, and disappear.

The *Simulium Nocivum* in swarms succeed the *Molestum*. The Indians call them *No-see-em.* They are minute, so small that they would scarcely be perceived but for their wings which are whitish, and mottled with black. Towards evening they come forth, creep under the clothes of the inhabitants, and produce, by their bite, a momentary smarting, not unlike that produced by sparks of fire. They are most troublesome in July and August. These midges, or sandflies, as they are termed, do not draw blood, nor produce any swelling. The insect most troublesome to our domestic animals is the

Tabanus Atratus, of Fabricius, or the *Horse Fly.* It is too common to need a description. It is of a black color, the back being covered with a whitish down. Its length, seven eighths of an inch or more. The

Tabanus Cinctus, or *Orange-belted Horse Fly*, is less common, and rather smaller. It is black, except the first three rings of the hind body, which are orange colored. A species more common than either is the

Tabanus Lincola, of Fabricius, which has a whitish line along the top of its hind-body.

The best preservative against the attacks of these flies, is washing the horse in a strong decoction of oak leaves. We have known this to be quite successful.

Some flies partake of the habits of bees, and are thence called Bee-flies. Their technical name is

Bombyliadæ or Bombilians. They frequent sunny paths in the woods in spring and early summer. They fly with great swiftness and stop suddenly, balancing themselves on their wings like the humming bird. They often hover thus over flowers, sucking their sweets. One species of these, very plainly marked, is the Bombylius Æqualis, of Fabricius, so called because its wings are equally divided, lengthwise, by two colors, the outer part being brownish black, and the inner part colorless or transparent.

Other species of flies, which are quite harmless, resemble more dangerous insects. A species of the *Milesia* resembles a hornet. Some of the Syrphians resemble bees and wasps, and thus many produce needless alarm. The Muscadæ is a group which includes a great many kinds of flies, which belong to numerous subdivisions, such as house flies, flesh flies, dung flies, blow flies, flower flies, fruit flies, cheese flies, two-winged gall flies, etc. Of these flies, some lay their eggs in butcher's meat, and are called Blow flies, and their eggs fly-blows. The eggs hatch in two or three hours, and the maggots come to their growth in three or four days. The House Fly is probably the same as the domestic fly of Europe, which lays its eggs in dung, in which its larvæ live and pass through their successive changes.

DEFENCES AGAINST FLIES, ETC.

Various plans have been recommended, with greater or less success. One mode is, in rooms *which have windows only upon one side*, to guard the windows with coarse netting, the threads being half an inch or more apart. Under such circumstances flies will not enter.

Another mode is to feed them with some destructive food, as poisons, etc. But by such means accidents are liable to happen to other domestic animals, and even to children. Hence it is better to use something like the following, which are equally effective : Lay plates about the room, filled with strong green tea, well sweetened.

We have also just received the following, from a correspondent in Maryland, which we take the liberty of incorporating into this essay. Our friend writes as follows:

"TO KILL FLIES.

"MESSRS. EDITORS:—Please publish the following recipe for the information of those ladies who dislike to use poison to rid themselves of flies. They may rest assured it will answer their highest expectations:

"1 egg well beaten.

"3 table spoonfulls of black pepper, ground.

"A sufficiency of bonny clappor to make up an ordinary batter as for cakes; sweeten well with sugar or molasses.

"To be served up on shallow plates—the flies will partake freely, and soon be on the floor. N.

"COTTAGE, August, 1856."

Sometimes, where facilities for so doing are better than elsewhere, the most effectual and most desirable form of relief is to drive out these swarms bodily, by the broom or by shaking napkins. We have known rooms effectually cleared of these pests in this way, through a whole season. If food is not suffered to stand exposed to their attacks, this process is not so difficult as might be supposed.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

RURAL ARCHITECTURE.

MESSRS. EDITORS:—I am glad you pay some attention to rural architecture. It is a subject of great importance, and seems not to have received the attention that its importance demands. Excellent books have been written on the subject it is true, but books do not find their way to the mass of rural population with the facility of a journal.

The greatest diversity of architecture prevails among the farmhouses of this country. The interior arrangement of many of them was not originally fully decided upon until after the house was raised, and is usually remodelled every time the house changes owner. If the proprietor is so fortunate as to be satisfied with his house he can find no one that it suits in case he wants to sell. The adoption of a better system of architecture by farmers would, no doubt, add much to the convenience and value of their property. A man does not derive so much importance from living in a "great house" as formerly, and consequently well-built houses are more in demand than large ones. As we do not believe that farm matters advance backwards, we set that down as an improvement. The construction of barns has been greatly improved in past years, and new ones are generally constructed with the floor running the same way with the roof.

This style is fast doing away with the village style of barn architecture, for when a man finds himself in want of more barn room he can build an addition to his barn of twenty or forty feet instead of building a new barn, or spoiling the symmetry or convenience of his old one. The old style admits of no additions, and two or three barns, with nearly as many different shed and yards are now frequently seen among our farmers. I trust argument is unnecessary to illustrate the great advantages derived from having a farmer's cattle all under one roof. There is much that goes by the name of economy in the construction of farm buildings, which to say the least has no right to the name.

The possibility of being penny-wise and pound-foolish applies to architecture with as great force as to other farm operations. The man that feels poor when building, generally is poor when the buildings are sold.

BROOKFIELD, Mass. YEOMAN.

EXPERIMENT WITH GUANO AND SULPHURIC ACID.—An intelligent farmer of Prince George was induced last fall, in accordance with the recommendation of Prof. Norton in his lectures on scientific agriculture, to try an experiment with guano and sulphuric acid, in the proportion of 100 lbs. of the former to 15 lbs. of the latter. The combination was effected simply by pouring the acid on the dry guano, and incorporating them together with a wooden implement. A spade or a hoe would be destroyed by the corrosion of the acid. This mixture was applied to an acre of land which was then sowed in wheat, while alongside the guano alone was used, at the same rate. The product at harvest is represented to have been fully twice as much from the mixture as from guano alone. Not anticipating such a result, no memorandum was preserved of the minutia and the progress of the experiment, and it is adverted to now chiefly for the purpose of inducing other farmers to repeat it in a more careful manner. It well deserves to be fairly tested. We have not Prof. Norton's work at hand, but it is understood that the value of the combination consists in the action of the acid on the phosphates of the guano, as in the preparation of bone, thus reducing them to a state immediately available for plant food—while no injury is caused to the ammonia. The acid may also, according to the theory of some gentlemen, supply a deficiency of that property in the soil which has been exhausted by repeated applications of alkalies. However this may be, we would respectfully suggest the propriety of making further experiments.—*Southern Farmer.*

THE Royal Agricultural Society of England, not satisfied with any invention yet brought forward for ploughing by steam, has offered a premium of $2,500 for the best steam plough. Thousands of minds are on the track, and that problem will be solved.

OHIO VALLEY FARMER.

A new paper, with the above title, on a large sheet, beautifully printed and promising well, has reached us from Cincinnati. The following is from its pages.

THE HORSE AND HIS IMPROVEMENT.

It is not possible for any one to describe in advance, the size, form, or particular conformation of parts in the horse, best suited to the fine development of the foal, unless those peculiarities of the mare are carefully considered; and hence the absolute necessity of attention and study on the part of every individual who attempts to breed animals. The experience, suggestions, and practises of the most successful, are not sufficient guides to insure success to those who rely on them alone. "What man has done, man may do," and more; but although in dealing with inorgani : matters—chemistry, for instance—any given experiment may be described, and repeated by others, with almost infinitessimal exactness, there are such a multitude of ever-varying influences modifying all the operations of animal life, that it becomes a necessity to study those influences and their relations, and then to manage them as they occur. And now that the curse of the agricultural community, the prejudice against "book-farming," as it has been contemptuously styled, is rapidly dying out, and those who do not pay for and read at least one periodical, devoted to agricultural improvement, and the dissemination of that knowledge most useful to the farmer, are beginning to wince under the conviction that their reading, and, consequently, more intelligent brethren are leaving them to hug the phantom of their delusion in the dark shades of old fogyism, there are encouraging indications of general improvement of both master and horse. It does not pay to be in the rear of the battle while those in front are gathering both the laurels and the spoils; neither does it pay to be ignorant of facts, of scientific truths, which, when understood, put money in the pocket, and happiness in the heart; and so fast as the clouds of vision are dispelled, and the crusts of bigotry and prejudice broken up, will attention to this, and kindred subjects, secure desirable and profitable results. Ignorance is not bliss; neither is it foolish for even farmers to be wise.

The farmer who has good land, but inferior seed, does not expect the same return as from good seed; and, if the seed be the best, but the soil poor, he does not expect the product of a better soil; neither does he, while depending on his labor on the soil for living and profit, sell the best soil he may possess, and rely upon poor or worn-out lands—unless he have the means to bring that land into a more productive condition—and expect the heavy crops of his rich lands. And, yet, while they do *not* so with their lands, they do it with their horses; and the same policy, that, in reference to land, would be regarded as foolish in the extreme, and suicidal to the best interests, they practise with their stock, and reap the rewards, unfavorable though they be, and unnoticed and disregarded as they have strangely been.

If it is more laborious and difficult to raise a second-rate crop from poor soil than a good yield from rich land, it is equally more unpleasant and expensive, comparatively, in the end, to raise inferior animals than good ones. If a person feels that he is in any way responsible for the kind and condition of the stock he keeps, as all must, to some extent, he cannot but entertain a degree of pride and self-satisfaction in the possession of the best specimens of his own raising, and that feeling is a most potent stimulus to further improvement. But the possession of inferior stock produces quite as marked an influence upon the owner in the opposite direction. Each and every ill-formed or bad-conditioned animal is not only a "standing monument," but a living, moving, telling placard, setting forth his want of knowledge or care, which the most ignorant may read as they run; and a "hard-shell" indeed must he be who is insensible to the effects.

There is one source of disappointment, however, to those having good mares, which is but little understood, and which, so far as I know, has been noticed in agricultural journals only by Professor Cleaveland some time since, in the *American Agriculturist* and *Albany Cultivator.* I allude to the effect of progeny upon the mother. Farmers have frequently taken much pains to secure the services of a blooded horse for a favorite mare, and been disappointed and mortified to find the foal resembling neither sire nor dam in the particular points sought for, but being rather a representative of an inferior horse, who had served previously. Many valuable facts are related in the articles referred to, illustrative of this subject, and showing its existence in the human family, as well as among the lower animals; and the opinion is entertained that inasmuch as the *same blood* must circulate through the veins of both mother and offspring, that the system of the dam becomes *thus* modified, and rendered, to a greater or less degree, similar to her mongrel young. This condition seems to continue, and hence, having her blood contaminated in the first instance, by that of the foal resembling the male parent, and retaining that contamination, thus affects future offsprings—the effect more observable if in the second instance the mare has been served with a horse much unlike the first one.

While there is no question in the minds of the few who have studied this subject, as to the *rationale* of its action, and its general application, it has doubtless been the source of many failures, and discouraged hundreds from further efforts to improve their stock, as well as furnished occasion for unfavorable and injurious reflections upon really excellent animals. It is an important fact, and a very good illustration of the necessity of beginning right, and of the disadvantages of a single misstep; besides, furnishing ample and reasonable evidence of the fact, that he who changes the sire each season, can form no safe opinion as to what the progeny may be, farther than that they may have the general outline of the horse, and certainly be hornless quadrupeds. Those who are known as the most successful stock raisers, have always carefully avoided such changing of sires and confounding of stock.

Not to occupy too much space in a valuable journal, at present, a single remark as to the profits of stock raising, and especially horses, will be added. It will be evident, the writer thinks, to any one who will take the trouble to make careful estimates of the value of land in wheat and corn growing regions, of the expense of raising and getting to market each of those crops, compared with the receipts for them, that much more attention to the raising of horses,—good ones, both for draught and saddle,—would be highly remunerative. And, considering the very great demand for horses, that such demand is not confined to any one locality, but is general, and increasing, there can be little doubt, that present prices will be maintained—at least for several years—and those who go into the business with a will and a *reason*, can scarcely fail to be well rewarded for their pains. Will they not look to it, think of it, act on it? Some who have worn themselves out in the toil and exposure of wheat, corn, and hog raising, and others younger and more active, who see a like fate before them, may take the hint, and profit by it. The same routine of life and labor best and most profitable for our fathers, may not be equally so for their sons, in the changed condition of surrounding circumstances. C. D. L.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

STEAM PLOUGHS.

Messrs. Editors:—This subject has been publicly announced for discussion at the Farmers' Club of the American Institute. I was invited to give my views upon it. Deeming it possible that in the second engineering city of the world, and in the institution which, before all others in the city, is disposed and qualified to promote this invention; and in that branch of the institution which is devoted to agriculture, there might be found liberality to do something more than talk on this subject—I accepted the invitation and attended. Three subjects were advertised, namely: Butter for the city, Bread for the city, and Steam Ploughs. I presumed that equal time would be allotted to each. But when seven-eighths of the time—two hours—had been spent in talk about butter, milk, calves, moss, peaches, preserved salmon, and lightning-rods, and the chairman launched into a speech on the latter subject, instead of keeping everybody to the subject announced, I came away, fully convinced that the less there should be said about steam-ploughs in that debating society, the better would be their chance of attracting the attention of those who might *do* something for them.

In casting about me to find a party or organ that might conveniently and fitly perform the task that this institution should have enjoyed long ago, I recollected the name of your magazine, and thought that if it can be done at all, in this age of dogmatic skepticism, you could do it, if you would take hold with a will to carry it through. A few essays on the subject, however excellent and entertaining, will do no good unless seconded by a collection of money. It is advocacy, and practical business that we want: we want a receiver of funds, an advertising medium, a competent party to call together the mites that men are going to *give* for the public good, or *hazard* in a liberal enterprise; and all these functions you can perform without deviating from the legitimate course of your magazine, or incurring much expense. If, in the end, profit should result, you would be compensated, and so should every one be, who devotes talent or capital in any way to the enterprise.

As the invention now stands, no speculator or machinist can make money by promoting it. There is nothing about it that can be secured by patent, so as to enable those who incur the extraordinary expenses of its introduction to obtain remuneration for their outlay and hazard. Every one may copy the machines as soon as they come into use, and none can obtain more than mere workmen's prices for them. Hence no man of business talent will engage in it, unless he has an order with money partly in advance. To meddle with such work would prove a man to be incapable of success; that is, would prove him very deficient in business talent, unless he did it from a liberal motive, such as that which has induced Mr. Peter Cooper to erect an Institute for the Mechanics. Two or three English gentlemen have engaged in this enterprise from this motive, and have met with such success as warrants further efforts. Their operations will be worthy of publishing, at a future time, if you deem the undertaking within your province.

The money must be *given*, or nearly so; unless Congress can be induced to grant a patent for what is old—which it has done in one case that I know, and which it will probably do in this case, if applied to by a responsible party that has a sufficient fund pledged to the work. If $20,000 can be collected and paid into the hands of proper trustees, to be expended in the introduction of steam ploughs, I have little doubt that Congress will give to the enterprise that encouragement which the patent laws are intended to give, but which, in this case they do not give; owing to the fact that the invention has grown up little by little, and been given to the public. This point is not sufficiently observed. No invention, however sure men may be of its utility, will ever be introduced at great expense, unless there is an assurance of more than mere workmen's profit; for the first machines always cost more than those built after the proportions are determined, and the men trained to the work.

A gentleman out West offers, in a letter to the *Inventor*, to be one of fifty to give $50,000 for a steam-plough that shall work as cheaply and as well as horses. This he offers as a gift, expecting to be benefited to a greater amount by the invention. He, and probably others, would contribute liberally to a fund that proposed to pay a profit in case of success. If such men wished to be public benefactors, and to receive no money in return, they would give to the fund as an encouragement of others to invest—that is, they would diminish the hazard, for the sake of inducing others to incur that hazard. And to make this liberality, and this liberal enterprise available for the purpose which all desire, it is necessary that some party should make the proposal in a business way. And, gentlemen, I know of none who are better entitled to this office than you are, and I respectfully urge you to use your pages and your office as means to collect the necessary funds, to be placed in charge of trustees as soon as it is ascertained that the work can be made to advance.

There is abundance of engineering talent ready to engage in the problem, on condition of being paid cost, in case a patent is obtained or suggested. Even builders may be found who will contribute their profit on this condition—being paid enough for wages and materials. And the various officers and agents necessary for such an enterprise would serve on the same terms, except in cases where they were taken from their usual occupations.

All these things considered, it appears to me that you should invite contributions to a steam plough fund, on condition that it should be managed liberally, and that the profits accruing should be divided justly among those who contributed money or talent or other aid. The plan you proposed some time ago, seems suitable for this case.

Very respectfully, yours J. K. Fisher.

EDITOR'S COMMENT.

This communication of Mr. Fisher opens a wide and rich field for those who would attempt a great boon to the agriculture of this country. We have expressed our opinion in former numbers, that much of the land of New-England and other sections was unsuited to steam ploughing. We think so now. But we are also confident that millions of acres in this country might be thus cultivated to very great advantage. The use of steam in agricultural operations is much more extensive in England than here, while such lands as we have above referred to, ought to be made capable of being cultivated by the same means as in that fertile island. Half a dozen neighbors might use the same steam plough, as, at the North, dozens now use the same threshing machine.

We go heartily for the proposition of Mr. Fisher, and invite correspondence from all agriculturists in relation to it. If they are ready to embark a hundred dollars in such an experiment, one half or even a quarter of that sum, let them signify such a disposition, and if a response is received which permits further action, we will take still further measures, as circumstances may authorize. We would suggest that every contributor of a hundred dollars should be a director, or have the appointment of a director as he should prefer, and that the Board of Directors should have the entire control of the fund.

M. P. P.

Senior Editor's Table.

EDITORIAL CORRESPONDENCE.

Long Island Sound.—How the air over these ever-moving waters contrasts with the fœtid exhalations of a great city, and how we wish all the tired denizens of New-York were here to enjoy it with us! Whatever they may have there in the way of yellow fever, and we suspect they have more in the imaginations of the fearful than other where, there is none here. It astonishes one just from under the city government, to breathe pure air.

Norwich, Conn.—After a good night's sleep, passing New-London, the city of whale oil, in a state of somnolency, we reach the good old city of Norwich, just as the sun first decks the earth with his beams. Breakfast and barber's offices over, we call on J. H. Almy, Esq., wholesale grocer. While here, the father of Mr. Almy, whom we never saw before, insists upon our being an old acquaintance, because his son, then in ill health, had traveled with us in France, and had told him all about us. The acquaintance being accepted, he takes us to a long forenoon's ride about Norwich and its suburbs, giving us a deal of information of its history and present state. It contains 12,000 people. Paper making is a leading branch of manufacture. A more beautiful place we have hardly seen. Its beauty consists not in fine dwellings merely, though these are of a high order, indicating a pure and elevated taste, but in the beautiful cultivated and extensive grounds. Why will Americans be so stingy of their lands as hardly to afford an open square in the city, and but a quarter acre building lot in the village? We know what the answer will be;—business, business—we must be near our business; and so we huddle in, thick as a nest of young porkers in a cold night, that each may be near his store, his office, or his factory. Better go a little farther, and have a place worth going to when you get there. Give your wives and children air, even if you will deprive yourselves of it. These homes in Norwich are scattered about from one to two or three miles from the business centre. Many are built on lots of two, three and five acres. The air can pass between them. There is more beauty in an acre or two of lawn and garden, tastefully laid out, and embowered with shades and fruits, than in the best house that can be built for a hundred thousand; more health, more to please the eye and refine the heart. In New-York there are two or three hundred people to the acre. They see nothing but brick and mortar and filth; breathe nothing pure:—shame! every family, the poorest even, ought to have at least an acre of God's heritage. We have in these United States 76 acres to a person—something like 500 acres to a family—and yet how many rich people, in the scramble for wealth, will not allow themselves the luxury of an acre, and how many poor cannot get a foot, till they get it for burial. We hope none of our readers doubt human depravity. God has given 32 acres to a person all over the globe, more than half of it is yet untouched, and more than half the race are landless. But the people of Norwich take a little land with their dwellings, though it shoves them farther from their business. Nearly all these beautiful residences, we are told, belong to men who have carved their own fortune. It speaks well for their enterprize and well for our institutions. Let us not think lightly of the Union. We doubt whether there is a town within any monarchical government in the world indicating a higher civilization, or more intelligence and comfort, than this same little Norwich. Education without money and without price is the boon of all the children. The school-house of the first district is good enough for the abode of royalty. That of the second was not quite as good, though it wonld seem good enough; but the people of that district have bought a large lot on which to build a better. About equi-distant between the two, is an academy building, nearly completed, the edifice and broad grounds about it enough to tempt Apollo, Minerva and all the Muses to dwell there, if natrual beauty and fitness can tempt them. Here, too, the tuition is to be free. Among the curiosities of Norwich is the sharp, cone-like hill on which stood the church of the Pilgrims. They literally went *up* to the house of God. It was that they might worship God, without giving their savage foe an opportunity to steal upon them or their houses unseen. At this point the sentinel could call them to arms in time to make a vigorous defence. Not far from the foot of this hill is the grave of Uncas, the friend of the white man, over which stands a beautiful monument. Friendship for the whites made Uncas an enemy of Philip. Philip was a patriot, if eloquence, the leading on of the braves, and fighting unto the death for his country entitle him to that appellation. But Uncas was a patriot also. He took a different view from that of Philip. The highest good of his country, he supposed, was to be obtained in friendship with the whites. Philip thought they should be exterminated. Both were kings every whit, and deserve as honorable remembrance as the majority of kings. Posterity should be charged to keep in repair the monuments of both. It was not long since that a touching incident occurred at the tomb of Uncas. His descendants retain a right to be buried by his side to this day. A poor Indian brought his mother there to bury her. The owner of the ground forbade him. He declared that he had a right, as his mother was a descendant of Uncas, and commenced digging the grave. The owner told him that his ground should not be made the burial-place for miserable, drunken Indians. He pleaded with tears in his eyes; but it was of no avail. The owner sent two men with shovels, ordering them not to harm the Indian, but to throw the earth back as fast as he threw it out. The strife went on, the Indian throwing the earth out and the men throwing it back. Discouraged at last, the Indian lay down, declaring that he would die there and be buried with his mother and his ancestor. At this stage, much to the honor of their hearts, the people of Norwich interfered, and persuaded the owner to permit the burial. Sad, indeed, was the fate of these heroes. Philip died in the strife with the white man, and Uncas obtained no enviable boon for his people by saving them alive. Nearly all in that region, in whose veins flowed a drop of Indian blood, are now extinct.

Willimantic.—This is an active little manufacturing village, midway between Norwich and the northern line of Connecticut, at the intersection of the New-London and Palmer with the Hartford and Providence railroad. We cannot but wish that it were possible for a larger portion of our fellow-men to be out in the open air, tilling the ground amid heaven's pure breezes, instead of working among spindles, and inhaling the fumes of fish-oil. But if we are to have clothes as well as bread, somebody must make the machinery and somebody must work it, in spite of soot and fish-oil; and we solace ourselves with the thought, that if all our manufacturing were done in our own country, we should not have the less farmers for it, but more, because of the increased demand for farm produce. Such villages as Willimantic are just what the farmer wants. They make the plough go; and it should be remembered that it could not go long if all were to take hold of it. The industrial arts thrive only by each other's favors. We pass Stafford, with its curative springs, just before reaching the State line, and Monson, with its celebrated academy, just after entering the Bay State. Whether Stafford springs will cure the sick is more than we know; but to reside at the beautiful Spring House, with its extensive grounds, cooling shades, and musical streams, we should think might have a tendency to cure all diseases, mental or physical, moral, political, or any other that flesh is heir to.

Palmer.—It happened to us here to witness a trial of the stump and rock machine, patented by W. W. Willis, Esq., of Orange, Mass.,—a potent engine for lifting from the soil all obstructions to the plough. Some years ago the old Bay State took it into her head to build three alms-houses. One of them is in a corner of Monson, near Palmer village. It cost some sixty thousand dollars, and might have been worth a quarter of the cash when done. But it may be supposed that nothing was lost—that what the State did not get the contractors did. Massachusetts must not be supposed to be alone in being gulled. But why did Massachusetts build a great three-story house, in the form of a hollow square, to shut up her poor in the enclosed space, a little thicker than we, poor creatures, who are jammed into a great city? Why not build them snug little tenements, on both sides of a street, with some space between, for the wind to blow through between the diseased and the sound, and some land to work on, that families might be put together and taught how to live, partly at least, by their own industry, till, as would happen in many cases, they would learn to live entirely by their own efforts, and would pack off and take care of themselves? It would cost but little more to build thus, and the expense of maintenance would perhaps be less. Would the inmates run away if not imprisoned? If they would, we should say let them run. This building soon became a little city, like a suburb of Dublin or Cork. Subsequently, we believe, in view of its fine location, and the superior skill of Dr. Brooks, its superintendent, it was concluded to remove the less hopeful adults to the other alms-houses, to bring all the poor children here, and make this a sort of high school—not very high in the character of the materials to work upon, but high in its aims to make the children good for something, if possible, for themselves and the State. Massachusetts has always been disposed to be a little meddlesome, in a way which, for our life, we hardly know how to find fault with—to assume a sort of parental responsibility for the education of *all* the children in her borders, come from where they may. Whether she thinks schools cheaper than prisons, or learning cheaper than hanging, or that her children will steal her money if she does not educate them, for some reason, she is now indulging her motherly propensity on six or seven hundred of these pauper children. Dr. Brooks, with a good corps of male and female teachers, is making an excellent school, so good that some wealthy parents are a little envious, saying that they cannot afford such advantages for their children. But never mind; give the poor things as much learning as possible; there is little danger that they will rise too high and eclipse all others. Connected with the school is a large farm; and Dr. Brooks is a good farmer as well as teacher of boys and girls. Much of the land being like most of that State, rock-bound and rocky in texture, having boulders for the *warp*, with a little earth for the *filling*, and having many stumps, not likely to *move* till they *are moved*, he had just bought and was bringing home one of Willis's rock and stump machines. The neighbors were gathering from far and near to see it work. Having a liking for that sort of fun, (the improvement of rough lands,) we followed the multitude—once—and went too. The machine worked admirably, as we have seen it before, lifting rocks of ten or twelve tons' weight out of the beds in which they had slept since the drift period, probably not dreaming of ever being disturbed, and tearing out deep-rooted stumps as easily as if they had no objection to making a somerset. This machine is a first-rate harbinger of the plough, and we learn that it is out on its errand of preparation in many parts of our country, and that extensive orders are received for it from other countries. The right to its use has recently been disposed of for Kentucky, as it had before been for most of the northern and western States.

Amherst.—Twenty miles by the Palmer and Belchertown Railroad brings us to Amherst. Three Rivers, Belchertown, Thorndike, and other manufacturing villages, on and near the route, are doing for the farmer what nothing else can do—bringing a market to his very door. Our arrival at this not very ancient, but pretty well grown and efficient seat of learning, was in the midst of its annual festival; but as the festivities of a college Commencement—the kindly greetings of old friends and the renewal of old acquaintances, the sad and joyful reminiscences, the teachings of ripe scholars returning after years of commingling with the world, and the soarings of full (?) fledged graduates—are more easily enjoyed than described, we pass to other topics. The Mount Pleasant Institute in this place is one of the very best schools for boys in the country. Amherst is among the first farming towns in Massachusetts. Unlike most of the State, the land, rising moderately on the eastern slope of the Connecticut valley, is highly feasible. Some portions of it are swampy and require draining. Why did not the fathers reclaim this land? Because they could not sell produce enough from it to warrant the expense. Why do not the present owners under-drain it? Because they retain all the cautiousness of their fathers, without the same occasion to exercise. What their fathers could not prudently do, when there were almost no markets, they are simply foolish for not doing now that there are schools and manufacturing establishments all around and among them. There is little waste land now; but it is high time there was none. The farmers are a little over-cautious in the investment of money in labor and fertilizers. We do not counsel rashness, but we advise, that sometimes more is risked by holding back than by "going ahead." Some of them have experience of this, not having profited much by the high prices of past years, because they found themselves without much to sell. Still the farmers in this region are an elevated class of men. Many are highly intelligent; and some are commendably enterprising, acting as *the present* requires of them, and not as *the past* required of their fathers. Amherst is the center of the Hampshire Agricultural Society, one of the most efficient in the State.

Hadley is a quiet old town, just about two hundred years old; and is next to Amherst, either after or before, in agricultural capabilities. We would as soon cultivate their land as any at the West; but whether we would as soon have it at the price it bears, is another question; for they ask all the way from two to three hundred dollars an acre for it. Hopkins Academy in this place is a flourishing Institution.

Northampton is a fine old town, the cotemporary of Hadley, having the same agricultural capabilities, the land in both being about as good as the best. Rain-Bow Meadow, containing several thousand acres, was once sold for a wheelbarrow. It could not now be bought for much, if any, less than three hundred dollars an acre. The village, in point of intelligence and morals, and in the exhibition of a modest, rural taste, is a model. You would not suspect it, by passing through by steam, nor by a short stay, but if you were to circulate a while among their old elms, pretty abodes, and intelligent people, you would admire Northampton.

At Holyoke, (the new city yet to be built,) midway from Northampton to Springfield, is a triumph in its way;—the Connecticut river, turned by a stupendous dam into a canal, from which it can all be used twice over and much of it three times in turning wheels, before it returns to its original channel. Whether the enterprisers of the project are to profit by it is yet uncertain; that the farmers of the neighboring towns will, there can be no doubt.

Springfield, for nearly two hundred years inferior to Northampton, has of late years grown into a city of some fifteen thousand people. It makes one smile to hear them talk of their old rivals in Northampton, as living "out in the country." The crossing of railroad, the manufacture of fire arms, in connection with the general business energy of the people, have made Springfield what it is. C. W. Chapin Esq., is the wealthiest citizen. We have heard him say that when married, neither he nor his wife could have raised a hundred dollars; and yet we have never seen those who enjoy the results of honorable, business enterprise with a better grace. It is a fact, that our New-England fathers gave their children a "bringing up," as they called it, that was worth half a million a piece. Are we doing as well by our children?

We must hasten on, or we shall never get home. Across the river from Springfield is the staid old town of West Springfield, noted for its good morals and good farming, with plenty of manufacturing villages scattered over it.

Ten miles to the West is Westfield, noted for one of the oldest and the best academies in the State. To be such a farmer, as many who live in beautiful style here, and own the best of land a little out, should satisfy any ordinary ambition. There is an immense establishment here for the manufacture of Havana cigars, (from Connecticut River tobacco?) and another for the manufacture of whips. We do not know why the two should go together, unless those who smoke the cigars ought to feel the whips.

From this town of learning, smoking, flagellation, and good farmers, the road winds up the Westfield River, at a grade which sorely tests the drawing power of the iron horse one way, and his holding power the other, to Washington, and thence down the Housatonic to Pittsfield. The land nearly all the way is such as would make a geologist rejoice and a farmer despair. Manufacturing villages, in Russell, Huntington, Chester, Becket, Hinsdale, Dalton, and other towns (rather townships) are so squeezed in among huge rocks that there is no danger of their ever getting away; and we see not how the people could ever get away if it were not for the Western railroad. All we know is that, somehow or other, they came there before the road was built; for we had an uncle who preached the Gospel in one of those mountain gorges long ago, and we suppose he did not preach it to rocks and waterfalls and trees alone; and certainly any who might have lived there would need comfort. It must have been a heroic age.

Pittsfield, famed for its excellent schools and its general enterprise, is situated in a broad mountain basin, 1200 feet above the Connecticut, having an outline of horizon of surpassing beauty and grandeur, and blessed with a soil the very reverse of that just described. It has quadrupled its inhabitants within a few years; and the people are as ambitious as they are prosperous. Their limestone water and mountain air make them live *fast*. They claim to have the oldest agricultural society in the country, and you frequently hear them talk of annexing New-York State to Berkshire county; but we do not know whether they will succeed. This county is good agriculturally; is rich in iron and marble, and richer in its waterfalls. Men and animals are of a little sturdier growth here than in the river counties in the East. Excellent cattle are raised, and Ex-Governor Briggs, who resides at Pittsfield, claims that Berkshire is the best county in the world for growing men; and he points to facts which give his reasoning at least the color of soundness.

The Savans of the American continent are in session at the State House in Albany, as the "American Association for the Advancement of Science." Whiskered or shaven, they look like men of earnest purpose; and we verily believe they are as hard working men as we have, and that they are making researches and investigations, which will benefit every class of society, and enhance the value of human life. All honor to the Albanians, who are giving a generous entertainment to these men during their protracted session. We have no space to particularize. If possible we will give our readers some fruits from this meeting hereafter.

Europeans have seen greater cathedrals than we, and have traced older and more pretending families; but no European, unless he has been to this country, has seen a quarter as large a river steam-boat, or one fitted up with a tenth part as many comforts, as the New World, which brings us down the Hudson.

Agriculture of Massachusetts.—The Annual Report of the Secretary of the Board of Agriculture, which we have already noticed—and of which the Legislature has ordered the printing of ten thousand copies for general distribution—is more than usually replete with the statistics of the Agriculture of the Commonwealth. From these it appears that there are in the State 80,321 horses, valued at $7,284,889; 77,511 oxen and steers, valued at $3,246,341; 184,010 milch cows and heifers, valued at $4,892,291; yielding 8,116,000 pounds of butter, valued at $1,678,557 83; 5,762,776 pounds of cheese, valued at $464,250 55, and 13,203,665 quarts of milk, valued at $755,887 90. The number of sheep is reported to be 145,215, valued at $309,843, while the value of wool produced is $155,046. The number of swine is 51,113, valued at $581,536 71.

Of the cultivated land in the State there were 91,056 acres in Indian corn, and the value of this is stated to be $2,820,108 97. There were 2600 acres of wheat, valued at $73,928 49, and 42,143 acres of rye, valued at $560,201 53, while the number of acres in barley was 4971, the value of barley being $110,158 45. Oats were more extensively cultivated; there were 37,623 acres, valued at $563,729 24. There were 41,892 acres in potatoes, and the value of potatoes was $2,521,906 42. Of onions, turnips, carrots, beets, and other esculent vegetables, there were 8368 acres cultivated, valued at $937,406 98.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

OKRA PLANT—OKRA COFFEE—GUMBO SOUP.

Tulip Hill, near Iowa City, Iowa, August 15, 1856.

Messrs. Editors:—In the last May number of your valuable Magazine, page 698, I find an article extracted from the *American Agriculturist*, relative to the cultivation of the Okra plant.

The correspondent observes that this plant is not yet extensively cultivated at the North, but that it is deserving of a high popularity, and that it is much cultivated in the Southern and Middle States, *chiefly* as an addition to soups.

It is true, as stated by the writer, that the green pods are used in the preparation of the Gumbo Soup, but they are not the principal ingredients of that famous Southern dish. And nine-tenths of all the Okra raised in the Southern and Middle States, is cooked, seasoned and served for the table as we do Asparagus.

At what period the Okra or *Gumbaud** plant was introduced into North America, I am unable to state from any books in my library. The Encyclopædia Americana has no article upon it, although it has been a common garden vegetable in the Southern and Middle States for more than fifty years.

It was first used as a substitute for coffee, and was called *Okra Coffee.* And, unquestionably, it is the best substitute ever discovered. Some years ago, a writer, I think in the *Prairie Farmer*, pronounced it equal to the finest Mocha; and I can add, that I consider myself a good judge of the genuine article, and I have at least *once*, without detecting it, drank the Okra, with the usual gusto. In fact, as far as I can discover, the taste and odor of the two articles are identical. I should be pleased to see a comparative chemical analysis of the two berries, so dissimilar in every thing save in the taste and smell.

The cultivation of the okra is very simple. The seed should be drilled like garden peas, in a light soil, about the first of May. The plants, to be thrifty, should be at least two feet apart. When the pod is about half grown, it is fit for use. It is then as tender as a young cucumber, and will not burst in the boiling. Take a dozen of these pods, which is a good mess for a family, and boil them thirty minutes in pure water, (using a tin pan, instead of an iron vessel,) then lift them carefully with a spoon into a deep dish, and immediately season with sweet butter, rather copiously. Then salt, and pepper, if preferred.

To make Gumbo soup, cut two or three pods in thin slices, as you would cucumbers, for one gallon of *any* kind of soup. Tomatoes, in large quantities, and green corn, cut from the cob, are the usual admixtures of Gumbo soup. Too much Okra makes the soup insipid. There should be just enough to give it a rich mucilagenous taste.

But the okra is principally valuable for boiling. To relish it, one must use it for a season, and then it must be well cooked. Those who are accustomed to its daily use, from July to October, would not exchange it for any vegetable product whatever.

* Okra is the Spanish name of the plant, and *Gumbaud* the French. Webster's Dic. defines "Gumbo a dish of food made of young capsules of *ocra*, with salt and pepper, stewed and seasoned with butter."

I have cultivated it in Iowa for the last ten years, and it flourishes admirably. It should be in every garden, by the side of the Tomato and the Egg Plant—three invaluable and wholesome vegetables, introduced into this country about the same time. E. M.

THE STATE OF CROPS IN CENTRAL NEW-YORK.

Messrs. Editors:—We hail the appearance of your improved journal with delight. It looks fine, and *is fine.* Meantime we wish to say a few words on the crops, &c., in this part of the country.

First, then, corn looks exceedingly fine in most parts of this State, with, perhaps, the exceptions of the northern part and some of the mountain regions, where it does not look so well. Last season, in the middle of July, corn looked exceedingly slim all over the country, and measured not more than about ten inches high; while this year we see it making its way into the air from *two to three feet.* Quite a change, we reckon. Much of our corn this season, it is true, was planted late; nevertheless it has come rapidly forward, and we see nothing to hinder us from getting a large yield generally in Central New-York.

Besides, other crops look well, though, allow us to say, that there was not as much grain and vegetables put in this spring as there was last season, and the cause may be traced back to low prices. Farmers are willing to act under high or reasonable prices most generally, but corn and some other grains are now so low, that no great effort is being made by them to raise a great amount of the cereals. Yet believe us, an immense amount of grain will be turned off in 1856.

Grain never was so plenty before as it is now in these parts. Haying commenced early, and the yields are fine. The excitement last year in respect to cattle has pretty much subsided. We do not hear much about the purchase of steers, dry cows and heifers, for you know there has been almost a complete change from the extravagant prices of last season. The great fall has operated upon most everything and everybody. No great anxiety is prevalent among the people to buy fat cows, &c., as there was last summer. But we apprehend that a change will ere long take place favorable to the farmer. Corn will doubtless come up in value; potatoes won't be so cheap, nor buckwheat so common. We will see. It is very true, whatever the prices may be, you cannot very well starve out the farmer; he is a little community within himself, and hence you see produces what he desires for his own consumption, save a few groceries, &c.

Let us compare the prices of some articles of food in 1855 with those of 1856. Hay with us in '55 was worth $10 per ton; in '56, or at this time, it is worth about $5 or $6. Corn was worth 75 cents per bushel last season, now it is worth at from 45 to 50 cents per bushel. Wheat has also taken a downward pitch, which tendency no one probably regrets.

On the other hand, wool and sheep are doing amazingly well. Witness the price of wool here; it is worth at from 30 to 35 and 40 cents per pound. Sheep have run up in price almost beyond reason, the cause of which may be followed into our pastures, where feed is very abundant, and to the high price of wool.

We think the present low prices of grain must have something of an effect upon the price of western lands, and we hear that such effect is already to be seen in the "Iowa country." Farmers in Illinois and Iowa cannot raise corn profitably for ten or twelve cents per bushel, for either of those figures will not warrant a man out in husking and handling his corn, let alone the raising of it. But when Western farmers cannot sell their corn in market, they can do "the other thing," turn in their hogs, and let them pick the crop. Such is now being practised, to some extent, in some parts of the West.

As to the prospects of a wheat crop hereabouts, some fields look fine, and again we begin to imagine that perhaps, the insect will not molest us if we attempt to raise the staff of life in this section. Fields of Mediterranean look very promising, and the weevil have, we think, pretty much left this part of the country. This whole region has heretofore been noted for its fine crops of wheat, but for the last ten years we have not been over successful in producing wheat on account of the ravages of divers sorts of insects. It will be pleasing if we can again raise wheat, and not be forced to buy a Western article, inferior in its nature and foul with chess, &c. Much wheat will be sown here this fall, which fact is encouraging, since farmers, in truth, will not be under the necessity of doing all their work in the spring instead of the fall.

Very respectfully, W. Tappan.

Baldwinsville, N. Y., July 13, 1856.

BALTIMORE AND OHIO RAILROAD—MODE OF ASCENDING HIGH GRADES.

We have recently seen, for the first time, a mode of ascending and descending very high grades, which in some circumstances is quite exciting. We have referred to it in our journal of our recent tour; we first saw it in operation at Frostburg, Md., at the mines, and afterwards in crossing the Alleghanies on the Baltimore and Ohio railroad—the long tunnel through the mountain being in possession of some three hundred masons.

The ascent and descent are made by a "Y;" thus,—a grade as steep as is practicable in ascending, or as would be safe in the descent, is chosen, in an oblique direction, say towards the left from the main road. A suitable distance being passed in that direction, and the surface not admitting a curve in the track, a switch is laid, and as soon as this is changed, the train backs on to it at an acute angle towards the right, forming in its progress the second half of the letter V, by which, in traveling a hundred or two of rods obliquely along the mountain, a perpendicular progress of half as many feet is perhaps attained. Going in this direction a proper distance, another switch is laid, and the train, without turning, is switched on to a third track, nearly parallel with the first, as if two printed Vs were laid side by side. This process may be repeated as many times as circumstances may require.

At Frostburg, when near the top, as you look down the steep mountain, you perceive that you are on the *third* story of the railroad, two other tracks being in plain sight below you. In descending, we set off some time after the locomotive, going forward by our own gravity only, and our speed was kept at a safe rate by the careful brakeman. In coming to the more level part of the road, our car was hitched to the freight train, and drawn back to Cumberland. We found that this was the mode first practised in crossing the Alleghany mountains. But the long tunnel, elsewhere described, which was afterwards cut at an enormous expense, allowed the discontinuance of this style of crossing those rugged heights, at so great an elevation, and of course put an end to the necessity of such extreme grades.

MAGNETIC TELEGRAPHS ON RAILROADS.

The experience of the past year or two ought to lead every State Legislature to require that every railroad should set up and use constantly its own telegraph, connecting every station on the route and all with the office of the Superintendent. With reasonable care, collisions would then be impossible. Some roads have proved this.

The Erie Railroad has such a wire, and a thorough system of communication. The arrival of every train at each station is instantly reported, and if behind time, whoever is responsible for it must give his reasons, which are sent to head-quarters instantly, or he will be dismissed. This capital system was put in operation by that model officer, Mr. McCallum, and is worthy of being copied everywhere.

The Baltimore and Ohio Road also has a wire of its own, and a system, the details of which we are not familiar with, but which, no doubt, are very judicious. Travelers ought to show a preference for these roads and others that adopt some such modes of securing the lives and safety of passengers, and all roads neglecting them, after a reasonable time, should be avoided. It is the lack of any such encouragement to special care, on the part of travelers, that permits the laxity of system and the careless observance of general orders, which result in so many collisions, and such frightful loss of life and limb, as are constantly reported in our journals.

New Ears.—We see that some fanciful artist is getting up a new form of ear trumpet, which will be not only perfectly convenient, but highly ornamental. Instead of the awkward trumpet, hitherto required by those whose ears are partially insensible, a graceful ornament, like a large honeysuckle, or a trumpet flower, arranged with all its natural accompaniments, of bud and leaf, is to be laid just within or upon the ear, and, presto, the ears are as good as new. This looks very well on paper, and, if equally successful in practice, ladies who are partially deaf have occasion to be very thankful for so great an improvement in their condition.

WONDERFUL PROGRESS.

Do our readers appreciate the rapid strides we are making in some departments of industry and of science? We are almost frightened when we look in certain directions.

A few years ago, news from Europe was received almost like a new revelation. Men sought after the printed sheet which contained it, as they would after some new and wonderful animal, and with much more interest than they would for a new and useful invention. A voyage across the ocean was an event to be remembered, and the rehearsal of its events to excite wonder in children and grandchildren.

Now we go to Europe as we would to a neighboring State, and the arrival of a foreign steamer, under ordinary circumstances, is chiefly notable for the cries of the news-boys. Such changes are wrought by improvements in steam engines and in shipbuilding, and the credit of those increased facilities for intercontinental communication is due not more to Cunard and Collins than to the unknown workmen in our ship yards and machine shops. Neither those nor these, perhaps, should make an exclusive claim to this honor, for both were essential in this march of nations. The skill would not have dreamed of executing such gigantic machinery, if mercantile energy had not made its demand upon that skill.

Morse's Telegraph was another wonderful leap, which absolutely reduced the breadth of the continent to narrower dimensions for purposes of correspondence than had been measured by the few miles that separated villages in the same township. This invention opens a vast field of thought, limited to no trade, or art, or sect, or school. It is one, too, which in its influence is not limited to this world only, for it gives at least a faint glimpse of the powers of the spirit world, and is full of embryo suggestions, which we can scarcely form into definite shapes, but which will soon be brought out to our view in wonderful grandeur.

What is even now its daily and ordinary history? While sitting at a dinner-table, our thoughts are transmitted by this magic wire to some friend, hundreds of miles from us, and, though no by-stander perceives anything unusual, perhaps that friend's plans and schemes, to which a lifetime had been devoted, are at once utterly overturned. Or his thoughts may be transmitted to us, quietly seated as before, and, while nothing is heard by our companions louder than the tick of a clock, they may either excite our mirth, or open the flood-gates of sorrow, or enkindle our ruder passions. Our whole being is for the time under thecontrol of that simple mechanism.

When a new principle or agency is evolved, who can tell where it will lead us? Who can trace out its minute relations and incidental connections? No sooner is every part of a continent, with its millions of broad acres spreading out in all directions, thus brought into close connection, than another bold genius, seizing this same magic wire, jumps into the sea, and there buffets the winds, and bids defiance to the waves, once undisputed masters of those cheerless wastes, till he has united remote continents. Verily, the angel has already sounded, who declares that, in these respects, time and space "shall be no longer." No, more than this, namely, that while both continue, the one to afford opportunity for the unlimited multiplication of these forms of sentient and rational life, and the other, providing for an indefinite succession of generations, in all of which each is freighted with such immense responsibilities, neither shall be an obstruction to a ready individual intercourse among all these millions.

Among the ordinary and minor incidents that may take place, we in New-York may learn the hourly movements of some friend in London, or Paris, and, if we think he is about to expose himself too much in the evening air, or to remain too late at some brilliant party, we may send a caution to him, with the assurance that the message will be received in season to prevent such exposure, or to secure an early return to his own home. Or, we may sit in the Astor House or the Metropolitan, and receive hourly reports of the progress of an excited election in those cities, and be tolerably prepared to anticipate the result ere the poll is closed.

It is when we reflect upon those new and hitherto unimagined applications of this mighty agent, which seem to be both simple and efficient, that we entertain any question as to the success of that great enterprise,—an instantaneous international communication. Our doubts, if we have any, are founded on a purely moral view of the subject. Can it be that such tremendous agencies are so completely within human control? No difficulty, merely philosophical or scientific in its nature, has been described or hinted at by the denying or the doubting, that science and art and wealth, in their combined effort to carry out the plan to complete success, cannot, in a reasonable time, completely overcome.

American Patents.

Shingle Machine for Splitting and Shaving Shingles. Recently patented by Dr. A. V. B. Orr.—The machine is portable and costs only $100. It can be taken into the woods, and geared to a threshing-machine, and with two horses as motive-power is capable of of splitting and shaving 15,000 shingles in a day of twelve hours, but the ordinary work of a man and two boys would be from 9,000 to 10,000 per day. Shingle can be well and handsomely made with this machine from pine, spruce, chestnut, oak, or any other timber from which they can be made by hand, varying in length from ten inches to two feet.

The log from which the shingles are to be made is cut or sawed into to pieces of the required length, and then split with an axe into blocks or bolts, not exceeding eight inches thick, when, without any further preparation, the "stuff" is ready for the machine. The shingles are split with a knife set in a perpendicular frame attached to a crank shaft, which draws it along the edge of a horizontal platform, upon which the block or bolt is held by hand. In splitting the shingle the knife leaves a smooth surface on the block; one side is thus perfectly finished. The shaving-knife is attached to another crank shaft, and works alternately with the splitting-knife. The piece split off from the block, on falling from the platform, is fed to the shaving-knife, with the smooth side down, when the shaving-knife passes over and shaves it to its proper thickness; the shingle finished falls to the ground and gives place to another, and so on.

This machine is adapted for horse, water, or steam power; and its perfection, simplicity, and cheapness recommend it to lumbering districts.

IMPROVED HAY RAKE.

The engraving above illustrates an ingenious improvement for which a patent was granted to Nathan Martz, of Briar Creek Township, Pa., Feb. 26, 1856.

The rake is applied to a carriage which runs upon two wheels, A A, revolving upon an axletree, B. Near the wheels and on the axletree are two brackets, D D, in which a rocking shaft, E, vibrates upon its trunnions. The shaft, E, which, with its additional contrivances, constitutes the principal feature of the improvement, is made of wrought-iron, and of such a sectional size as to resist any strain to which it is liable.

Each wire-tine, T, of the rake is separately and firmly fastened to the rocking shaft, E, by suitable means, such as by welding for instance. Between the last two tines and near the extremity of the shaft, a coil spring, S, is applied, which, being fastened at one extremity to the shaft, E, and at the other to the axletree, B, has a tendency to keep the rake down upon the ground, and affording facilities for its adaptation to the inequalities of the ground. On the right hand side, (facing the horse,) and near to the coil spring, is a hand lever, H, operating the shaft, E, by the right hand of the driver seated on the seat, G.

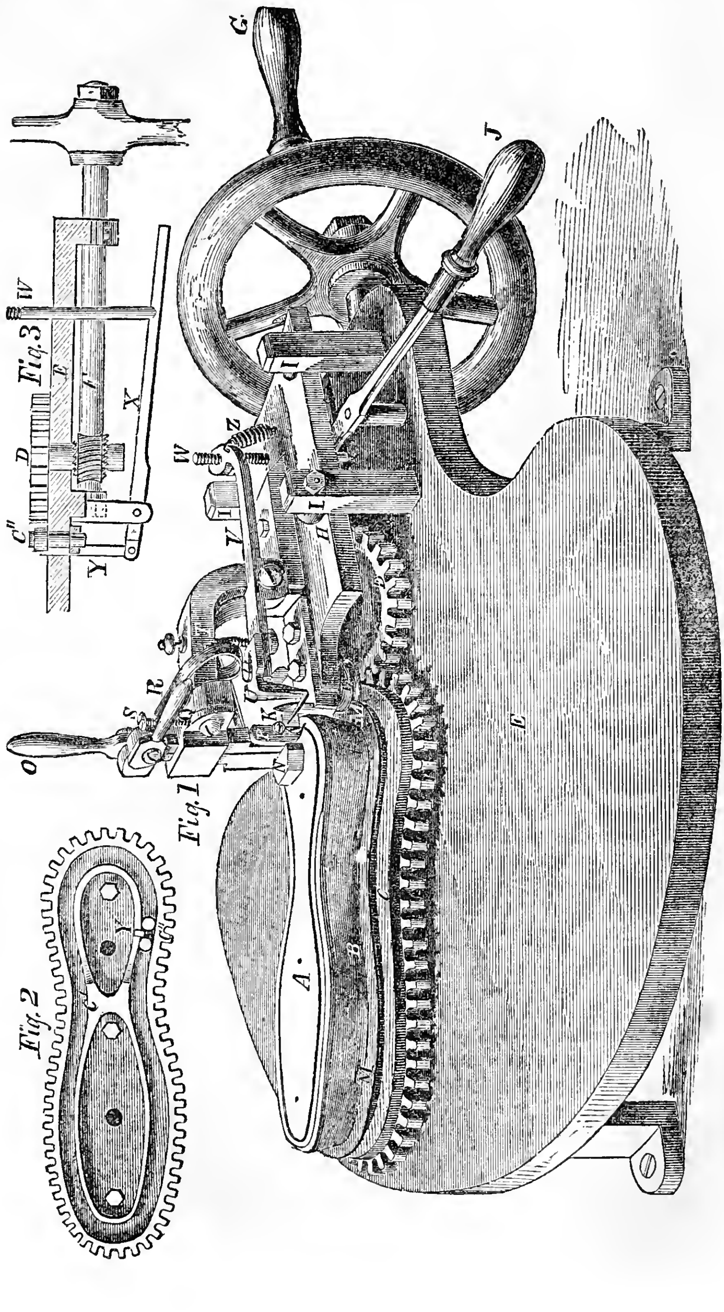
By the above-described arrangement, the management of the rake is very easy, and a very slight lifting power applied to the handle H, will raise it from the ground, and disencumber it of the hay or stubble it may have gathered. Under the seat, G, of the carriage, at M, is a lever which is attached to the shaft, E, by a chain, and which rests upon a supporting pin at O. The foot being placed on this lever (imperfectly represented at L) gives a firmness and steadiness to the shaft, while it does not prevent the necessary motion upon its pivot.

J. A. Knight & Co., 334 Broadway, are agents for this invention.

Tidal Flood Gates. By George W. Flanders, of Lynn, Mass.—On many parts of the seacoast the rise and fall of tide water is employed to drive grist and other mills. For this purpose a dam is generally thrown across a creek, a sluice way being left in the middle. The sluice is furnished inside the dam with a hinged gate, so when the tide rises it pushes up the gate and rushes into the enclosure formed by the dam. When the tide begins to fall and the current changes the water closes the gate; the fall thus obtained is employed to turn a wheel until the tide rises again. The gate is generally hinged at the top and passes across the top of the sluice, so that navigation is wholly cut off. The p resent improvement consists in hinging the gate at the bottom, so that it may be made to turn down level with the ground either by force or by the incoming of the tide, thus leaving the sluice open for vessels to pass through.

Universal Lathe Chuck. By Michael Neckerman, of Pittsburg, Pa.—The design of the inventor of this improvement is to permit the centreing of an object in lathe either on its centre or eccentrically, as may be desired, without inconvenience. Most chucks are so arranged that the article cannot be centred eccentrically without taking the chuck apart to alter the position of the jaws; after use the chuck must again be taken to pieces to restore the parts. In the present invention there is an ingenious arrangement, whereby the chuck may be instantly altered to hold the object eccentrically or otherwise, at pleasure.

MACHINE FOR CUTTING OUT BOOT AND SHOE SOLES.



MACHINE FOR CUTTING OUT BOOT AND SHOE SOLES.

It has been a slow and tedious process, hitherto, to cut out soles for boots and shoes. The material is hard, and the work is otherwise awkward and inconvenient. We exhibit to our readers a new machine for this work, which will be regarded by the craft as offering them a great benefit. One boy will do as much with it as ten men can do without it. The following description will be easily understood in connection with the engraving:

The leather, A, previously cut out into the usual rough form, is laid upon the block, B, which rests upon the cogged sole carriage, C. D is a driving pinion, which gears with C, and causes it to move around on the surface of the table, E, bringing the leather in contact with knives, to be presently described. Pinion, D, is put in motion by means of a worm wheel and screw, below the table, E, on the fly wheel shaft, F; the power is applied to the crank G. The sectional view, fig. 3, shows the manner in which the pinion D receives motion.

The cutting knives are all attached to a sliding bed plate, H, which is moved up so that the cutters will act on the leather, or back out of the way, by means of the lever, J. I are the guide posts of the bed plate, H. K is an upright knife attached to the front end of bed plate H. This knife cuts out the sole. When the bed plate, H, is moved up towards B, the friction wheel, L, which is attached to the lower side of H, meets the edge of a thin pattern, M, which is placed between B and C. The hand presses on lever J, and the friction wheel, is thus kept constantly against the pattern, M; the knife, K, is, in this manner caused to follow the peculiar form of pattern. When a different formed or sized sole is required, a corresponding pattern, M, will be necessary.

N is a pressure pad, which presses lightly upon the leather, so as to keep it smooth while it is being cut. It is raised and lowered by means of the lever eccentric, O. P is a small cutter which does the channeling. It cuts on the top of the leather, and is attached to a plunger which is raised and lowered by the eccentric lever, Q. R is a spring that presses the cutter P down, and S is a set screw, by which the depth to which the cutter P enters the leather is regulated. T is an arm attached to H, which supports the levers and cutters described.

U is the skiving knife, and as the heel part of the sole must not be skived, it is necessary that the skiving knife should lift at the proper moment, so as not to cut the heel. This movement can be understood when we explain the construction of the sole carriage, C. Figure 2 shows the under side of this device; it contains a path, C′, into which two guide pins, C′′,fit. These pins are attached to the table E, (see fig. 3,) and serve as the fulcrum for C, when it moves about on the table. The heel edge of path C′, observe, is not quite as high as the front end.

We now return to the skiver, U, and its movements. It is attached to the front end of a lever, V, which is pivoted to an arm, T. The back end of the lever V connects with a rod, W, which unites, below the table, with lever X, (fig. 3,) and the forward end is joined to a rod, Y, which projects above the table, and touches the edge of the follower path, C′. The heel part of the path edge is depressed, as shown, so that when Y reaches that depression it rises, and the skiver knife, U, is thus raised from the leather, leaving the heel part unskived. Z is a spring which pulls down the lever V. Immediately below the end of V, where it unites with W, is a screw nut, by which the depth of the bevel which the skiver cuts, may be conveniently regulated. The various cutters may be readily adjusted so as to suit different kinds and styles of soles, sewed or pegged work.

This machine operates not only with great rapidity, but does the work with unerring certainty, and imparts a handsome finish. It surpasses hand-work in every respect. It is strong and substantial ; none of its parts are complicated or liable to get out of order. Single machines are sold at $25 and $30, leaving a large profit to the manufacturer. J. A. Knight & Co., 334 Broadway, N. Y., are agents, from whom further information can be had. Patented March 11, 1856.

Hub Mortising Machine.—By Thomas R. Bailey, of Lockport, N. Y.—This consists in the employment of a rotating and vibrating mandrel, to which the cutter is attached, this mandrel being arranged and operated in such a manner as to enter the shaft and cut laterally. By this means the mortices are made in dovetail form and cut with great rapidity, while the dovetail shape permits the spokes to be wedged in very firmly.

Improved Cotton Seed Planter.—A patent has recently been secured for a new cotton seed planter which is said to operate very successfully. The following description may be intelligible without a diagram:—The seed is contained in a hollow drum, the sides of which are zigzag in form, like a succession of the capital letters A and V. This is placed between a pair of wheels, and revolves with them. At each angle on the face of the drum are apertures or slots, through which the seed falls into the furrow. The furrow is opened by means of a knife attached to the front of the frame, while a board across its hinder part serves to cover the seed. A few harrow teeth in this board tend to pulverize the soil, and assist in properly covering the seed. The machine is supplied with seed through a hinged opening on one of its faces. It might be used for other kinds of seeds. It is cheap and simple.

English Patents.

Improvements in the Purification of Coal-gas, and for obtaining a residuum therefrom. By William Basford of Penclawd, Glamorganshire.—In carrying out the objects of this invention, coal-gas is passed from the retorts through vessels or apparatus charged with any of the various charcoals, and heated; but charcoal made from wood, and immersed in a strong solution of lime water, for a period of not less than fifteen minutes, is preferred.

The proportion of the lime to the water is about 1 cwt. of lime to one hundred gallons of water, or such proportion as is known to chemists under the term of "saturation." The prepared charcoal, placed in the vessel or apparatus hereinafter described, is heated to a temperature between a dull and a bright red.

The vessel for containing the charcoal is made of cast-iron, with a round bottom and perforated top, having partitions to divide the same into separate compartments. These partitions are alternately fixed and loose, the fixed partitions having a hole or space at the bottom, and the loose partitions fitted close to the bottom of the apparatus, but having a space open at the top, so that the gas can be made to pass up and down the several chambers in the apparatus, alternately over the loose partitions and under the fixed partitions; the perforations made at the top are large enough to allow the loose partitions to be drawn out when the vessel or apparatus is required to be emptied, or for filling the vessel with charcoal after the loose partitions are replaced when wanted for use. At one end of the vessel is attached a short D-shaped flanged pipe with a mouthpiece, into which the pipe leading from the retorts are fixed, either vertically or horizontally, as may be required; there is also a short D-shaped flanged pipe at the other end of the vessel or apparatus, to which is attached the outlet pipe leading from thence, by the hydraulic main, to the gas holder.

The vessel or apparatus being filled with prepared charcoal, all the apertures are sealed down, and the apparatus is then ready for use. The gas is now passed from the retort into the vessel or apparatus, heated as before described, when a chemical action takes place, by which the gas is freed from impurities, and a residuum is obtained. The gas thus purified then passes into the hydraulic main, and from thence into the gas holder.

When the vessel or apparatus is required to be emptied, the covers are removed, the sliding partitions drawn out, and the contents raked out through the mouth-piece, to which a door or cover is fixed when the vessel is in use. The residuum obtained from the gas may be used as a pigment or color. The result of the process herein described is found to be, that the gas has become more purified, and contains more illuminating power, than gas made in the ordinary manner.

The patentee claims, "First—the separation of the impurities from gas made from coal by passing the gas through charcoal saturated in lime water, and heated as hereinbefore described. And, Secondly—the formation or deposit of a residuum derived from the gas, as hereinbefore described, that may be used as a pigment or color."

Improvements in Silvering, Gilding, and Platinizing Glass. By Tony Petitjean, of Tottenham-Court-road.—This invention consists in coating glass with solutions or products obtained by combining vegetable acids or hydracids (or these combined with chlorine, iodine, or bromine) with metallic salts of silver, gold, or platinum, the bases of which are combined with mineral acids or hydracids. (An alkali must be mixed with the metallic salt or with the vegetable acid.)

The following are examples of the manner of carrying the invention into effect:

TO SILVER GLASS.

In order to silver glass two solutions of silver are first prepared.

Solution No. 1 is formed by combining four chemical equivalents of ammoniacal nitrate of silver with one equivalent of tartaric acid and a suitable quantity of distilled water. To ten and a half ounces of nitrate of silver, six and a half ounces of liquid ammonia are added. The ammonia being poured upon the nitrate of silver, the combination of the two takes place with a disengagement of heat. The mixture is stirred until the combination of the two is complete, and when left to stand for several hours, crystals of ammoniacal nitrate of silver are formed. To this solution two pints and a half of distilled water are added, and the whole is well stirred to assist the crystals to dissolve. The solution is then filtered to separate from it a small quantity of black powder which is formed during the combination of the nitrate of silver and the ammonia, and to the filtered liquid is added one and one-sixth ounces of tartaric acid, dissolved in four times that weight of distilled water. Subsequently six quarts of distilled water are added and stirred well, and the mixture is then to stand for decanting. Upon the precipitate of tartrate of silver, which is left after the decanting has taken place, from seven to eight quarts of distilled water are poured, in order to dissolve as much as possible of it. The solution is stirred and left to stand for a sufficient time, after which the liquor is decanted and mixed with the first solution. About fifteen quarts of a solution of silver is thus obtained, to which two quarts of distilled water are added, in order to make it perfectly limpid. The solution is then quite ready for use. What remains of the precipitate of tartrate of silver, after the liquid is the second time decanted from it, is dissolved by means of a few drops of nitric acid, and laid aside.

Solution No. 2 is formed by combining two chemical equivalents of ammoniacal nitrate of silver with one equivalent of tartaric acid and a suitable quantity of distilled water. All the manipulations gone through in the preparation of this solution are the same as in the case of solution No. 1; the only difference between the two solutions being that the quantity of tartaric acid in No. 2 is double that in No. 1. These solutions should be prepared for one day's use only.

The glass to be silvered should be well cleaned before it is operated upon. For this purpose, a little of the solution of No. 1 is used to moisten a piece of cotton, to which a little putty powder is applied, and with this the surface of the glass is carefully rubbed; after which it is allowed to dry. The rubbing is then repeated with a little dry putty powder, and when the glass is perfectly clean, is face is damped with a roller covered with india-rubber, which is wetted with No. 1 solution. The glass is then laid upon a suitable apparatus, heated to about 150 Fahrenheit, and upon it No. 1 solution is poured, until the surface of the glass is covered with the liquid. In about fifteen or twenty minutes a thin coating of silver is seen to be deposited all over the surface of the glass, and then as much of No. 2 solution as the surface can retain is poured thereon. The surface will retain about half a pint of the liquid on each square foot of it.) In about fifteen minutes, (or twenty minutes at most,) the coating of silver is so much increased in thickness by a deposit from the second solution that it becomes opaque. (One pennyweight of silver is thus deposited upon every square foot of the surface of the glass.) After removing from the glass the excess of the solution, the coating of silver is washed with warm water to cleanse the surface from any remain of the solution. It is then dried and coated with quickly-drying oil color or brown varnish. In this manner a looking-glass is obtained incomparably finer, lighter, and more solidly coated than those made by the common process, and that too without in any way injuring the health of the operator.

Glasses which are of such shapes that the cannot be cleaned by the process hereinbefore described, such as smelling-bottles, for example, are first plunged into a strong solution of hyposulphite of soda, and left to lie in it for ten or twelve hours. They are then washed several times, and filled with solutions No. 1 and No. 2 successively.

It is not absolutely necessary to heat the glass, as the deposition from the solutions takes place at either high or low temperatures, but the action is quickened with an increase of heat, and *vice versa*.

TO GILD AND PLATINIZE GLASS.

The operations hereinbefore described, in reference to the silvering of glass, are repeated in the gilding and platinizing of glass, with no other alteration except that a change is made in the solutions employed—the solutions of silver being replaced by solutions of gold and platinum respectively, and that one solution of gold and one of platinum only are needed.

Solution of gold.—This solution is formed by combining two chemical equivalents of per-chloride of gold with one equivalent of citrate of ammonia. In a quart of distilled water, one ounce of chloride of gold is dissolved, and the mixture filtered; to this a added a mixture of ten and a half drachms of citric acid previously dissolved in four or five times its weight of distilled water, with five and a half drachms of liquid ammonia. This solution of gold should not be prepared until it is required for use.

Solution of platinum.—This solution is formed by combining one chemical equivalent of per-chloride of platinum with one equivalent of bitartrate of soda. In a quart of distilled water dissolve one ounce of chloride of platinum, and filter the mixture; then add to it thirteen drachms of bitartrate of soda previously dissolved in eight or nine times its weight of distilled water, and after well stirring the whole, the solution is ready for use.

The patentee claims, "First—coating glass with solutions or products obtained by combining vegetable acids or hydracids (or these combined with chlorine, iodine, or bromine,) with metallic salts of silver, gold, or platinum, the bases of which are combined with mineral acids or hydracids, an alkali being combined with the metallic salt or with the vegetable acid. Second—the several processes hereinbefore described."

Improvement in the Process of Manufacturing Cast Steel. By Franz Uchatius, of Vienna.—The object of this invention is to reduce the cost of manufacturing cast steel be economizing the labor of the process. To this end, the inventor takes pig iron of the purest quality, and melts it in a suitable furnace, and while in a molten state he runs the metal into cold water, and thereby reduces it to granulated iron. It is now in a suitable condition to undergo the process which will convert it into cast steel. This process is founded on the well-known fact, that cast iron enwrapped or surrounded by any oxygenized materials, and subjected to a cementing heat for a given time, will yield up a portion of its carbon, which will combine with the oxygen driven off from the surrounding materials, and form carbonic oxide or carbonic acid gas. If this process is interrupted before the completion of the process, a partially decarbonized iron will result, the surface of which will have been converted into a pure iron, while the interior parts remain unchanged; or, in other words, the progress of the decarbonizing action will depend on the amount of metallic surface brought into contact with the oxygen-yielding material with which the iron is surrounded. In order, therefore, to expedite this operation, the pig iron is reduced, as before mentioned, to a granulated state; and further, to economize fuel and labor, the heat required for effecting the decarbonization of the iron is employed to reduce the metal, when sufficiently decarbonized, to a molten state, and thus by one and the same heating it is converted into cast steel, which only needs to be forged to prepare it for the market. The granulated iron is mixed with about twenty per cent. of roasted pulverized sparry iron ore, and four per cent. of fire clay, and then placed in fire clay crucibles, and subjected to heat in a cast steel blast furnace, of an ordinary construction. By thus subjecting the granules of iron in presence of the sparry iron ore to a melting heat, the enwrapping oxides will first effect a partial decarbonization of the granulated iron, which decarbonization will be limited in amount according to the size of the granules operated upon; and, by reason of the continued application of heat, the iron will melt and separate (with the assistance of the melting residues of sparry iron ore) from the impurities with which it was mixed, and also bring down with it a portion of the iron contained in the sparry iron ore—thereby increasing the yield of cast steel by about six per cent.

The quality of the steel is capable of being by this process considerably modified. Thus, the finer the pig iron is granulated, the softer will be the steel made therefrom. The softer sorts of welding cast steel may be obtained by an addition of good wrought iron in small pieces, and the harder qualities by adding charcoal in various proportions to the before-mentioned mixture.

The patentee claims, "The conversion of pig iron into steel by subjecting the same, when reduced to a granulated state in crucibles, to the combined action of oxygen heat and fluxes, whereby I am enabled to manufacture cast steel of a determinate quality, and obtain it at one melting, as above described."

Miscellaneous.

JOURNEY OF THE JUNIOR EDITOR.

We have recently taken a tour of observation, in a region of country too little known here at "the East," and too beautiful to be neglected anywhere.

We left New-York by the Camden and Amboy railroad, which passes through the best scenery the State of New-Jersey can furnish. The sail through the New-York Bay to South Amboy need not be described. It is surpassed only by a sail outside of Staten Island, and sometimes the railroad boat takes that route. Or if the traveler prefer the route through Jersey City to Taconey, after passing through several of the most important cities and villages of the State, he may have a beautiful sail from Taconey down the Delaware to Philadelphia, along one of the most delightful portions of that river, presenting views of beautiful mansions and extensive mechanic and manufacturing establishments. At Philadelphia, the lions, of course, are too numerous even to be named. But we must stop, in this, our pen and ink progress, long enough to urge every traveler who has not seen Fairmount and Laurel Hill cemetery, to neglect no longer two of the most beautiful spots to be found in this section of country.

Proceeding in the cars of the Phil., Wilmington and Baltimore railroad, which, in all its departments, exhibits the energy of its efficient President, S. M. Felton. Esq., in due time you reach the "Monumental City." If you demand a residence of more quiet elegance, while just beyond your hearing thousands and hundreds of thousands of dollars are passing da ly from hand to hand, enriching, as a general rule, the occupants of those busy streets, you are more difficult to suit than ourselves. Baltimore is distinguished for its numerous literary institutions. One of them, for young ladies, conducted by Mr. Archer, has just been removed from Lexington street to Ellicott's Mills, this large establishment being united with that other not less eminent, hitherto sustained in the latter place by Mrs. Lincoln.

This announcement (not official) fairly sets us again in motion westward, for entering the cars of the Baltimore and Ohio railroad, and passing that favorite resort, the Relay House, the first object of special interest is that same thriving village of Ellicott's Mills, fifteen miles from Baltimore. The Potapsco river, all along the way, is lined with factories, presenting a view not unlike that to be seen on many a New-England river, only that the dwellings of the operatives are inferior to most of those further east. As we leave the village, directly over your head, on a lofty rock, whose height in feet must be counted by hundreds, stands the far-famed seminary to which we have just referred. Thousands have, and will ever have, associations connected with that spot, of especial interest. Long may it flourish under the supervision of its accomplished principal and his numerous and efficient assistants.

The views are pleasant but not of special interest, all along this region. Near Mt. Airy, forty-two miles from Baltimore, we have a beautiful view of distant scenery, and at Monocacy, fifty-eight miles, is a bridge worthy of careful notice. At the "Point of Rocks," sixty-nine miles on our way from Baltimore, is a junction of the river, a canal, the railroad, and a turnpike. One without a definite object in view, might well be at a loss which to patronize. But we were to pass the night at that far-famed place, "Harper's Ferry." Jefferson had not seen all the world when he wrote his "Notes," but he was correct in describing that as a beautiful spot. It is secluded, wild, and still rich, and contains some of the highest proofs of modern refinement and "advanced civilization;" for you find here an extensive armory, carried on by the national government. Our attentive landlord, who omitted nothing that he could do to increase our gratification, escorted us through all these long rows of shops, and the obliging workmen afforded us all possible means for examining their different operations. Ten thousand muskets are annually manufactured here, and some eighty thousand are stored there. We also find here several flouring mills. The village stands directly upon the river, at the confluence of the Potomac and the Shenandoah, which runs through the gap scooped out for it or by it, separating the Blue Ridge from "the North Mountain." "Jefferson's Rock" affords a splendid view, and we were assured by our host that the scenery seen from the top of the North Mountain is much finer. We left that, however, for some other opportunity. The Cheasapeake and Ohio canal passes along on the opposite side of the river, and the Winchester railroad branches off towards the South, and runs through a region said to be very beautiful.

Martinsburg, which we passed early the next morning, is one of the largest towns on that road. It is the county seat of Berkeley county. It possesses abundant water power, and has an active trade. It contains several flour mills, iron foundries, etc., and a machine shop which belongs to the railroad company. Soon after leaving the next station, which is called "North Mountain," there may be seen at some distance on your right, the remains of the old Fort Frederick, presenting the appearance of huge masonry, of a circular form, if our recollection is correct, and which would easily escape the notice of a stranger. The gentlemanly conductor pointed it out to us, at our request.

We would here state, emphatically, and may repeat it again, that we have never seen conductors so uniformly courteous and attentive, without one exception, while we changed our trains once or twice each day for an entire week or more, and through a route of more than three hundred miles, as on the Baltimore and Ohio railroad. They took constant care, sometimes to their inconvenience, knowing our desires, to gratify them in the fullest possible manner.

Hancock is another important station—a large town, and the depot where the traveler from the East, who designs to visit Berkeley Springs—a most charming spot, to which we shall refer presently—changes from the car to a stage. He will ride five miles, and then arrive at a retreat which, if there is a spark of taste in his entire composition, he will regret to leave. But just now we continue in our place, and go on to Cumberland.

We have been crossing more than once the line separating Maryland and Virginia, but we stop here for the night, within the borders of the former State, and under the care of a good and accommodating host, whom we found also a very courteous gentleman, Mr. Treiber, of the Revere House. This is a very handsome little city, in spite of the coal dust, and exhibits more marks of good taste than most towns of that size with which we are acquainted. Here we meet with the national road, and are shown also the spot, near or under the Episcopal Church—a fine edifice, where Fort Cumberland stood. Here, too, branches off the railroad which carried us up to the *mines*, from which comes the famous Cumberland coal. But we must take another opportunity, in a separate article, to describe those curious retreats. Suffice it to say that we went for more than half a mile, a lantern in the hand of each one of our party, away from the light of the sun, and found ourselves with some five hundred feet of earth over our heads. The workmen, busy there, were as merry as larks, and save their eyes which were full of good nature, and their teeth which were like ivory, though Saxon or Celtic blood run in their veins, they seemed almost as black as the ace of spades. One shaft has been cut quite through the mountain, emerging on the other side, and quite undermining the village of Frostburg with numerous passages and large openings like immense halls. Here, at Cumberland, the passenger who would visit the Bedford Springs, so widely known, leaves the railroad for a ride in the stage-coach of some thirty miles. We did not try that route, but on the following day continued our course towards the stupendous scenery among the Alleghanies, over which the railroad passes. Nothing we have ever seen in our previous travels, except upon a portion of the Erie road, will match this. The style of its grandeur is so vast? The road ascends for seventeen miles among ravines, around huge piles of rock, high up above valleys. Long vistas constantly opening and closing excite your attention to the very top. At Oakland, near the summit, is a good house, the resort of many in the hot season who select this, which is called the "cool region," for their Nahant and Newport.

"The Cheat River Region"—where we were told we should see the climax of American scenery—comes next in course as we go down the descending grade. It is chiefly worthy of note from Rowlesburg to Newburg. Here is "Kingwood tunnel," seven-eighths of a mile long, into which you plunge till fifteen hundred feet of mountain lie over your head. What bold head first dreamed of building a railway across such a country? Tell us. It should be cut by giants wielding sledge-hammers in the very substance of the mountain. During the daytime some hundreds of men are still at work within this tunnel, lining it with bricks. The rock is a species of limestone, which is decomposed by exposure to the atmosphere. Hence, on our return, as it was the forenoon, (we passed through it after sunset in going West,) and these masons had possession, we were pushed up the old track, as originally laid, over the mountain above the tunnel. This was done by a huge, puffing monster, characteristic of the place, which shoved us from behind, while our own engine did what it could in advance of the train. We did not need much steam in coming down. But the process of descent, here as at the mines, we will describe hereafter. We must first finish this journey. Beyond the tunnel is a bridge, the situation of which, its structure, and all its features combine to render it perhaps the most remarkable structure on the continent. At, so far as we know, an unmeasured depth below, run the quiet waters of the Cheat River. From the shore ascends the precipitous and almost perpendicular side of a high mountain. Into this mountain the floods of ages have washed huge chasms of unequal depth. A long succession of iron arches, and one iron story of arches above another have been erected across two of these chasms, and on these arches lie the rails of the Baltimore and Ohio railroad! We look at each piece of hammered iron, and the hand of an ingenious man is seen to have been at work. As one and another holds its place in the huge tressel work, we begin to admire the deep science which could thus plan and execute. When, standing on the platform of the rear car, we look through the open gates, and see the grand whole in its combination, and note its surroundings, we are amazed and almost awed at the sight. But those terrific abysses, those huge mountains, those huge giant ribs which span the arches in the structure of this huge world—whose hand wrought these? What thought designed, and what power executed these lofty mountains, with their rivers and lakes, and sparkling, foaming, thundering waterfalls?

But our thoughts (not our fancies) need to be curbed, for eyes now rest on these pages which have not recently, if ever, looked up and down those ways where God walks, and where, especially at the setting of the sun, he is most clearly seen,—the huge depths below being veiled in darkness, while above, the fleecy clouds are radiant of light and beauty and glory. Lo! these are PARTS of His ways, but the thunder of his power—who can understand!

BERKELEY SPRINGS.—On our return we stopped at Sir John's Run, and mounting a covered wagon, and riding two and a half miles, we reached this quiet and beautiful retreat. This is the exact contrast of what we have just described. In a little nook under the mountain, the sides of which are traversed by numerous foot-paths among the native trees which cover it, is the beautiful house kept by our friend, Col. Strother. It forms three sides of a square, with its long corridors and balconies, on the outer and inner sides of the building. It is enveloped in quiet shade, the work partly of nature and partly of art. It is described and very accurately represented on the 316th page of Harper's last magazine, that is, his number for August, 1856. But the shade trees are too sparse in the picture; they being thus represented, no doubt, for the purpose of giving a better view of the building. The pools for bathing are superb. One, sixty feet by twenty, affords a capital swim. The waters are as clear as crystal, and at a temperature of 74° Fahrenheit. Smaller and more private baths are numerous. Ladies are also furnished with both the large and the small baths. These waters are very efficient in the cure of rheumatic diseases. We have seen several persons who suffered very severely from such attacks, so as to be almost helpless, who were quite relieved by them.

The company here is also as delightful as the waters. It is chiefly from Maryland and Virginia, with a sprinkling from all parts of the country. There is here a freedom of intercourse among all who bear the signs of respectability, and this includes about the whole, though they may be entire strangers. This affords a truly refreshing contrast to the vulgar ostentation and offensive assumption of superiority so common at Saratoga and other places we might name, and which is based only on real or pretended wealth, and is almost universally accompanied with a great lack of general information, and an absence of all true refinement. Nothing of this is seen at Berkeley Springs. All try to enjoy themselves, and do not ignore the fact that we are a social race, and cannot be happy in being isolated from others. We left there with unmingled regret, and with a full intention to make our friendly host there and his pleasant guests another visit. The price of board at these springs is essentially more moderate than at almost any of our fashionable resorts in this section of country, and for invalids especially this is by far the most comfortable watering-place we have ever visited.

But the length of our manuscript warns us to terminate this repetition of our journey, and we omit further statements for another opportunity. Elsewhere, several allusions will be seen to the incidents of this tour.

Resolution.—There is nothing in man so potential for weal or woe as firmness of purpose. Resolution is almost omnipotent. Sheridan was at first timid, and obliged to sit down in the midst of a speech. Convinced of and mortified at the cause of his failure, he said one day to a friend, "It is in me, and it shall come out." From that moment he rose, and shone and triumphed in a consummate eloquence. Here was true moral courage. And it was well observed by a heathen moralist that it is not because things are difficult that we dare not undertake them. Be then bold in spirit. Indulge no doubts, for doubts are traitors. In the practical pursuit of our high aim, let us never lose sight of it in the slightest instance; for it is more by a disregard of small things than by open and flagrant offenses that men come short of excellence. There is always a right and a wrong; and if you ever doubt, be sure you take not the wrong. Observe this rule, and every experience will be to you a means of advancement.

AGRICULTURAL FAIRS.

Agricultural Fairs.—The fourth annual exhibition of the United States Agricultural Society will be held at Powelton, Philadelphia, on Tuesday, Wednesday, Thursday, Friday and Saturday, October 7th, 8th, 9th and 10th, 1856. Premiums are offered, varying from $25 to $200, amounting in the aggregate to $12,000. For premium list, application may be made to Wm. S. King, Secretary, Boston, or to John McGowen, Assistant Secretary, 160 Chestnut street, Philadelphia.

The Brookfield Agriculural Society will hold their Seventh Annual Fair and Cattle Show at Clarkville, on the 8th and 9th of October. Herman A. Hull, President, and A. L. Saunders, Secretary.

Alabama, at Montgomery,	Nov.	11, 12, 13, 14
American Institute, at the Crystal Palace, New-York,	Sept.	23 to Oct. 25
American Pomological Society, at Rochester,	Sept.	24
California, at San Jose,	Oct.	7, 8, 9, 10
Canada East, at Three Rivers,	Sept.	16, 17, 18
Canada West, at Kingston,	Sept.	23, 24, 25, 26
Connecticut, at New-Haven,	Oct.	7, 8, 9, 10
Georgia, at Atlanta,	Oct.	20, 22, 23
Illinois,	Sept.	30, & Oct. 1, 2, 3
Indiana, at Indianapolis,	Oct.	20, 21, 22, 23, 24, 25
Iowa, at Muscatine,	Oct.	8, 9, 10
Kentucky, Agricultural and Mechanical, Lexington,	Sept.	9, 12
Maine,	Oct.	28, 29, 30, 31
Michigan, at Detroit,	Sept.	30, & Oct. 1, 2, 3
New-Hampshire,	Oct.	8, 9, 10
New-Jersey, at Newark,	Sept.	10, 11, 12
New-York, at Watertown,	Sept.	30, & Oct. 1, 2, 3
North Carolina, at Raleigh,	Oct.	14, 15, 16, 17
Ohio, at Cleveland,	Sept.	23, 24, 25, 26
Pennsylvania, at Pittsburgh,	Sept.	30, & Oct. 1, 2, 3
South Carolina, at Columbia,	Nov.	11, 12, 13, 14
United States Agricultural Society, at Philadelphia,	Oct.	7, 8, 9, 10
Vermont, at Burlington,	Sept.	9, 10, 11, 12
Virginia, at Wheeling Island,	Sept.	17, 18, 19
Wisconsin, at Milwaukie,	Oct.	8, 9, 10

American Institute Fair.—The Twenty-eighth Annual Fair of the American Institute will be held at the Crystal Palace, beginning Sept. 22, and continuing till Oct. 25. New dies have been procured for the gold, silver, and bronze medals. The gold medal will be double the present size, and will be awarded only to the best machinery and other articles of high merit. The silver medal will also be enlarged. The bronze medal is a new feature. The new dies will be ready for exhibition during the fair. A list of premiums is announced for grain, flour, fruits, flowers, vegetables and dairy productions. Quack medicines to be expelled ignominiously, as last year.

Book Notices, Etc.

THREE GOLD DOLLARS. Harper & Brothers. This is a tale for children, by JACOB ABBOTT, and is good of course.

SCHEDULE OF PREMIUMS OF THE FIRST EXHIBITION OF THE FARMERS' AND MECHANICS' INSTITUTE, OF NORTHAMPTON COUNTY, PENN., TO BE HELD SEPT. 23 TO 26, 1856.

Female riding and driving are to be encouraged by suitable premiums; but we see that the ladies are cautioned against being too *fast.* The schedule states that the committee are instructed not to consider extreme speed on this occasion as allowable in either good riding or driving. This is all very well, and *perhaps* necessary, though our friends, the Fowlers, say that ladies are apt to have the bump of caution tolerably well developed.

THE EXECUTIVE ACTS OF EX-PRESIDENT FILLMORE; with Reasons for his Election, etc.

A very handsomely-executed pamphlet of 48 pages has been laid on our table. It is well got up in matter and manner. Price 25 cents. Edward Walker, Fulton street, publisher.

VICTORIA; or, The World Overcome. By CAROLINE CHEESBORO. New-York: Derby & Jackson.

An interesting story, powerfully written, which will add to the reputation of the talented author.

A SAMPLE OF HOW THE EARLY METHODISTS PREACHED. From Fowler's American Pulpit, recently published by J. M. Fairchild & Co., 109 Nassau st., New-York.

"Brother Craven was once preaching in the heart of Virginia, and spoke as follows: 'Here are a great many professors of religion to-day. You are sleek, fat, good-looking, yet something is the matter with you. Now you have seen wheat, which was plump, round and good-looking to the eye; but when you weighed it, you found it only came to forty-five pounds, or perhaps forty-eight, to the bushel, when it should be sixty or sixty-three pounds. Take a kernel of that wheat between your thumb and finger, hold it up and sqeeze it, and—pop goes the weevil. Now you good-looking professors of religion, you are plump and round, but you only weigh some forty-five or forty-eight pounds to the bushel. What is the matter? Ah! when you are taken between the thumb of the law and the finger of the Gospel, held up to the light and squeezed, out pops the wooly head and the whiskey bottle.'"

THIS number of *The Plough, the Loom, and the Anvil* will be mailed, as our last was, to a few non-subscribers, with a view of giving them an opportunity to examine it; and we again invite the attention of gentlemen connected with Agricultural Societies to our offer of this publication for distribution in the way of premiums and gratuities. It will be furnished for such purposes at two dollars a year, and one-fourth of the money returned in agricultural books, to be added to the Society's library, or to be distributed as premiums. Will officers of Agricultural Societies let us hear from them?

List of Patents.

FROM TERMINATION OF PREVIOUS LIST TO AUG. 5.

Solomon Andrews, of Perth Amboy, N. J., for m proved padlock.

Robert B. Armitage, of Philadelphia, Pa., for improved method of extinguishing fires.

Henry Barringer, of Barry, Ill., for improved machine for upsetting fires.

H. H. Barber, of Scott, N. J., for improved method of drawing water from wells.

James A. Bazin, of Canton, Mass., for improvement in rotary pumps.

Horace Billings, of Beardsdown, Ill., for improvement in roofing cement.

E. Braman & R. Peterson, of Green Castle, Ind., for improvement in brick machines.

Hiram B. Brown, of Yellow Springs, O., for improved vise.

Wm. M. Booth & James H. Mills, of Buffalo, N. Y., for improvement in dies for stamping or pressing sheet metal.

Edward S. Boynton, of East Hartford, Conn., for apparatus for hitching horses, clothes lines, &c.

C. N. Clow, of Port Byron, N. J., for improvement in rotary pumps.

James M. Colman & Thomas Turton, of Milwaukie, Wis., for improvement in rotary steam engines.

John E. Coffin, of Westbrook, Me., for improvment in machine for rounding and backing books.

Edwin Crawley, of Cincinnati, O., for tool for index lettering.

R. M. Dempsey, of Indianapolis, Ind., for improvement in smut machines.

J. K. Derby, of Jamestown, N. Y., for improved stave jointer.

Chas. Dickinson and Wm. Bellamy, of Newark, N.J., for improvement in securing pearl ornaments in handles of cast metal.

Chas. R. Edwards, of Niagara city, N. Y., for improved shutter operator.

Francis J. Flowers, of Brooklyn, N. Y., for improved mode of attaching shafts to vehicles.

Chas. Frost and A. W. Webster, of Waterbury, Conn., for improved machine for quarrying and cutting stone.

Wm. Fuzzard, of Cambridgeport, Mass., for improvement in machinery for felting hat bodies.

John Goulding, of Worcester, Ms., for improvement in jacquard looms—English patent, Nov. 22, 1854.

James Edwin Halsey, of New-York, N. Y., for improvement in fire-arms.

James A. Hamer, of Reading, Pa., for improvement in brick machines.

Asahel A. Hotchkiss and Andrew Hotchkiss, of Sharon, Conn., for improvement in curry-combs.

Wm. J. Hortman, of Philadelphia, Pa., for improvement in looms.

Philip H. Kells, of Hudson, N. Y., for improvement in reversible horse power.

Alexander B. Latta, of Cincinnati, O., for improved wheel for steam carriage.

James Minifie, of Baltimore, Md., for improved arrangement of means for balancing and propelling life and property-saving vessels.

C. A. Mills, of Dubuque, Iowa, for improved stone sawing mill.

Ephraim Morris, of Bergen, N. J., for improved apparatus for raising and dumping coal.

Lysander A. Orcutt, of Albany, N. Y., for improved dove-tailing machine.

Adrain V. B. Orr, of Lancaster, Pa., for improved shingle machine.

Samuel W. Pingree, of Methuen, Mass., for improvement in tanning hides.

Orrin Rice, of Cincinnati, Ohio, for improved method of guiding circular and other saws.

Frederick J. Seymour, Waterbury, Conn., for improvement in locomotive reflector lamps.

Sewell Short, of New-London, Conn., for improved horse-shoe.

Wm. Mont Storm, of New-York, for improvement in breech-loading fire-arms.

Samuel Taylor, of Cambridge, Mass., for imment in brushes for dressing warps.

John Tyler, of West Lebanon, N. H., for improved water wheel.

Elbridge Webber, of Gardiner, Me., for improved turning machine.

C. Wheeler, jr., of Poplar Ridge, N. Y., for improvement in raking attachment for harvesters.

Daniel K. Winder, of Cincinnati, O., for improved hand printing-press.

Horace Woodman, of Biddleford, Me., for improvement in machinery for cleaning the top flats of carding engines.

James B. Aiken and Walter Aiken, of Franklin, N. H., assignor to Herrick Aiken and Jonas B. Aiken, of same place, for improved knitting machines.

Chas. E. Barnes, of Lowell, Mass., assignor to Moses W. Oliver, of Manchester, N. H., and Chas. E. Barnes, aforesaid, for improved automatic cannon.

Riley Burditt, of Brattleboro', Vt., assignor to Jacob Estey and Hatsel P. Green, of same place, for improved base damper for melodeons, &c.

Waldo P. Craig, of Newport, Ky., assignor to himself and W. K. Righter, of same place, for improved mode of constructing dams.

Henry S. George, of Syracuse, N. Y., assignor to himself and George Gratton, of same place, for improvement in cooking stoves.

John Guest, of the United States Navy, for improvement in sounding guards for vessels.

Warren S. Bartle and Ebenezer Vaughan, of Newark, N. Y., for straw cutter.

Alvin Barton, of Syracuse, N. Y., for improvement in ploughs.

Moses Bemiss, of Lyme, Ohio, for improvement in corn planters.

Arthur Barbarin and B. F. Simms, of New-Orleans, La., for electro-magnetic fog bills. Patented in England, August 17, 1855.

Benjamin F. Bee, of Wareham, Mass., for improvement in means for controlling feed-water apparatus of steam boilers.

George Blanchard, of New-York, N. Y., for improvement in nutmeg graters.

Thomas G. Boone, of Brooklyn, N. Y., for improvement in rope machines.

P. C. Cambridge, jr., of North Enfield, N. H., for improved method of turning ornamental forms.

Ira Carter, of Malone, N. Y., for improved marble-sawing machine.

Marines P. Crape, of Humboldt co., Cal., for improved machine for striking unburnt brick.

Joel Dawson, of Barnesville, O., for improved self-setting tail-block for sawing mills.

S. M. Echolo, of Lafayette, Ind., for improvement in fire-backs of fire-places.

Henry H. Elwell, of Meriden, Conn., for improved door-knob.

Cotton Foss, of Painesville, O., for straw cutter.

Chas. W. Glover, of Roxbury, Conn., for improved cutting device for harvesters.

A. M. George, of New-York, N. Y., for improved stone-dressing machine.

Victor M. Griswold, of Lancaster, O., for improved collodion for photographic pictures.

Thomas J. Godman, of Madison, Ind., for apparatus for slaughtering hogs.

Moses G. Hubbard, of Penn Yann, N. Y., for improvement in the frames of mowing and reaping machines.

A. C. Ketchum, of New York, N. Y., for improvement in railroad car wheels.

Julius J. Koenig, of Chicago, Ill., for machine for composing and distributing type.

Giles Langdall and Marcus A. Root, of Philadelphia, Pa., for mode for tinting photographic pictures.

Oren Moses, of Malone, N. Y., for straw cutter.

Lucius Paige, of Cavendish, Vt., for improved sash lock.

John Rich, of Kingsbury, N. Y., for improvement in ploughs.

Cyrus W. Saladee, of Columbus, O., for improved three-wheeled pleasure carriages.

J. G. Siemers, of St. Louis, Mo., for improvement in the adjustment of mill stones.

Geo. H. Soule, of Jersey City, N. Y., for improvement in fire-arms.

John J. Speed, jr., and John A. Bailey, of Detroit, Mich., for improvement in making seamless metal tubes.

Geo. W. Swift, of Oxford, Ill., for improvement in machines for threshing and cleaning grain in the field.

Hiram Tarbox, 2d, of Tremont, N. Y., for improved cattle stall.

Peter Teal, of Philadelphia, Pa., for improvement in detachable shaft coupling.

Hiram Thompson and Rich. Q. Tuson, of Lebanon, N. H., for improvement in mop heads.

N. H. Forrey, of Buffalo Grove, Ill., for washing machine.

John. W. Thompson, of Greenfield, Mass., for improvement in mowing machines.

John B. Witherle, of Upton, Mass., for improvement in car coupling.

J. C. Briggs, of Concord, N. H., for improvement in regulating the conical pendulum of time-keepers.

Josiah Dodge, of Dummerston, Vt., for improved mode of charging cannon.

Oliver F. Grover, of Middletown, Conn., for printer's composing stick.

Wilderick Joseph Von Kammerhueler, for improvement in centrolineado.

W. F. Shaw, of Boston, Mass., for improved machine for heating or cooking by gas.

Freidrich Emil Schmidt, of New-York, N. Y., for improvement in preparing vegetable dye stuff.

John W. Truslow, of Lewisburg, Va., for improvement in fenders for fire-places.

Wm. Wickersham, of Boston, Mass., for improved filtering medium.

Jeremiah S. Senseny, of Chambersburg, Pa., assignor to himself and Geo. H. Merklein, of same place, for improvement in lard lamps.

A. Munroe, of Worcester, Mass., for improved re-acting water-wheel.

James P. S. Otterson, of Nashua, N. H., for improved method of tapping fluids under pressure.

Edward Pelouze, Jr., of Philadelphia, Pa., for improved valve for type casting machines.

Silas G. Randall, of Rockford, Ill., for improved self-raker for harvesters.

C. S. Pettengill, of New-Haven, Conn., for improvement in repeating fire-arms.

Samuel Richards, of Philadelphia, Pa., for improvement in glass furnaces.

J. W. Rodefer, of Abingdon, Va,. for improved scaffold for shingling roofs.

John C. F. Saloman and George E. Cooper, of Baltimore, Md, for improvement in riding saddles.

John C. F. Saloman, of Baltimore, Md., for liquids used as a motive power.

Calvin D. Smith and Horace Patterson, of Baldwinville, Mass., for improved friction-match machine.

J. Stever, of Bristol, Conn., for improved arrangement of means in pendulum pumps in ships.

Alfred Swingle, of Boston, Mass., assignor to Elmer Townsend of same place, for improvement in sewing machines.

Bernard H. Westerhood, of Philadelphia, Pa., for improved trigger protector for fire-arms.

Henry White, of Oneida Castle, N. Y., for improved method of riving equal pieces from a block.

J. O. Woodward, of Taunton, Mass., for improved method of sawing coopers' hoops.

H. R. Worthington, of Brooklyn, N. Y., for improvement in relieving steam slide valves from pressure.

Chas. Mority Zimmerman, of Philadelphia, Pa., for improvement in the valves of accordeons.

B. C. Boyes, of Philadelphia, Pa., assignor to B. C. Boyes and Herman Dercum, of same place, for improvement in folding guides for sewing machines.

Asahel Lockwood, of Chicago, Ill., assignor to Lucien B. Flanders, of Cleveland, O., for improved planing machine.

E. S. Woodford, of Winchester, Conn., assignor to James R. Keeler, of New-York, N. Y., for machine for sowing pins on paper or any other material.

James Fernald of Boston, Mass., for improvement in door knobs.

Lewis M. Berry, of Boston, Mass., for improved cutter heads for planing machines.

Abner G. Bevin, of Chatham, Conn., for improved mode of attaching sleigh bells to straps.

Jeremy W. Bliss, of Hartford, Conn., for improvement in door knobs.

John Broughton, of Chicago, Ill., for improved method of driving circular saws.

George Buckel and Edward Dorch, of Monroe, Mich., for improvement in fixed cartridges.

James Chattaway, of Springfield, Mass., for improvement in percussion tape primers.

William Darker, jr., of West Philadelphia, Pa., for improvement in vibrating engines.

John S. Drake, of Boston, Mass., for improvement in artificial hands and arms.

Moses G. Farmer, of Salem, Mass., for improvement in self-acting electric telegraphs.

Ambrose Foster, of New-York, N. Y., and G. M. Foster, of Fair Haven, Conn., for improved machine for moulding and pressing building blocks from clay, &c.

Lansing E. Hopkins, of Brooklyn, N. Y., for improvement in machine for felting hat bodies.

James Humphrey, of Boston, Mass., for improvement in making gas stop-cocks.

Stephen R. Hunter, of Cortlandt, N. J., for improvement in harvesters.

Joseph Hyter, of Kent, Ind., for fly-trap.

Joshua Mason, of Paterson, N. J., for improved cutter stock for metal planers.

Matthew J. McBird, of Logansport, Ind., for improved machine for sawing stone or marble.

James B. Miles, of Chicot, Ark., for improvement in cotton gins.

John Moore, of Gardiner, Me., for improved polishing machine.

John M. Mott, jr., of Lansingburg, N. Y., for improved marble sawing machine.

Alfred Bailey, of Amesbury, Mass., for improvement in pegging jacks.

C. D. Barnitz, of Baltimore Md., for improvement in portable folding tables.

John W. Batson, of Triadelphia, Md., assignor to himself and Martin H. Batson, of Md., for improvement in raking apparatus of corn and cane harvesters.

Henry J. Behrens, of New-York, N. Y., for improvement in sawing stone in taper form.

John F. Doynton, of Syracuse, N. Y., for improvement in apparatus for solar salt evaporation.

Wm. H. Burnham and B. Hibbard, of Cortland Village, N. Y., for improvement in churns.

E. C. Cleveland, of Worcester, Mass., for improvement in metal planers.

A. S. T. Copeland, of Pittsburg, Pa., for improvement in sawing machinery.

Algernon L. Cole, of Windham, Me., for improvement in harness for weaving seamless bags.

James R. Creighton, of Boston, Mass., for improved shutter operator.

Austin G. Day, of Seymour Conn., for improved fountain pen.

Samuel Downer and Joshua Merrill, of Boston, Mass., for improvement in pyrogenous lubricating oils.

Lewis S. Fisher, of Waynesboro', Pa., for improvement in machines for sawing marble.

Geo. W. Gerau, of Brooklyn, N. Y., for improvement in fore and aft rig of vessels.

Samuel H. Gilman, of New-Orleans, La., for improvement in sugar evaporators.

John P. Hays, of Philadelphia, Pa., for improvement in bake ovens.

Charles Hoyt, of West Aurora, Ill., for improved devices in stave machinery.

E. T. Ingalls, of Haverfield, Mass., for improvement in steam boiler furnace.

Ralph Henry Isham, of Greenwich, Conn., for improved mode of "patching" rifle shot.

James D. Jeffers, Joseph Sparks, and John H. Jeffers, of Philadelphia, Pa., for improvement in corn planters.

F. R. Langwith, of New-York, N. Y., for improved clamp for plumbers.

Samuel W. Lowe, of Philadelphia, Pa., for portable printing press.

Jonn McMurty, of Fayette Co., Ky., for improved stave machine.

Patrick Mihan, of Boston, Mass., for improved method of inserting faucets into fluids under pressure.

A. C. Miller, of Morgantown, Va., for improvement in hand seed-planters.

Campbell Morfit, of Baltimore, Md., for improvement in soap boiling apparatus.

John Moore, of Quincy Point, Mass., for improvement in potatoe planters.

James Myers, jr., of New-York, N. Y., for improvement in coal scuttles.

John Nesmith, of Lowell, Mass., for impovement in knitting machines.

Washington F. Pagett, of Stone Bridge, Va., for improvement in machines for binding grain, &c.

Thomas Parkes and Alfred Parkes, of Brooklyn, N. Y., for improved printing press.

T. T. Prosser, of Oconomowock, Wis., for improvement in gutta percha apparatus for covering wire.

Solomon W. Ruggles, of Fitchburg, Mass., for pickpocket detector.

Nelson Ruger, of West Farms, N. Y., for improved devices in carving wood.

G. H. Starbuck & L. D. Gilman, of Troy, N. Y., for improvement in smut machines.

Alva B. Taylor, of Newark, N. J., for improvement in machinery for forming hat bodies.

Miron Smith, of Sandisfield, Mass., for improvement in ox yokes.

G. W. Walton & H. Edgarton, of Wilmington, Del., for improved method in turning ellipsoidal forms.

Augustin D. Waymouth, of Titchburg, Mass., for improved machine for manufacturing spools.

Cromwell P. Weaver, of Philadelphia, Pa., for improved mode of hanging window sash.

Joseph Wharton, of Philadelphia, Pa., for improvement in apparatus for purifying white oxide of zinc.

C. B. Wheeler & Austin Bascom, of Steuben, O., for improvement in clover seed harvesters.

Benjamin F. Wheelock, of Maryville, Wis., for improvement in sad iron heaters.

James Wilder, of Boston, Mass., for improvement in machines for cutting out soles of boots and shoes.

John Wright, of Wilmington, Del., for improvement in apparatus for smoking meats.

Jacob Zimerman, of Oswego, Ill., for improvement in cultivators.

Ethan Allen, of Worcester. Mass., for improvement in moulds for hollow projectiles.

S. C. Mendenhall & J. Conner, of Richmond, Ind., for improvement in flour bolts.

Thomas B. Atterbury and Wm. Warwick, of Pittsburg, Pa., assignor to Warwick, Atterbury & Co., of same place, for improved face plate for locks.

J. S. Brown, of Washington, D. C., assignor to Joseph Kent, of Baltimore, Md., for improvement in bee hives.

Theodore F. Engelbrecht, of New-York, N. Y., assignor to himself and Thomas C. Nye, of same place, for improvement in chimney dampers.

Joseph Goodridge, of Boston, Mass., assignor to Boston Faucet Co., of same place, for improved faucet.

Geo. Kenny, of Milford, N. H., assignor to Geo Kenny and George N. Davis, of Boston, Mass. for improvement in whiffle trees.

Alfred Swingle, of Boston, Mass., assignor to Elmer Townsend, of same place, for improvement in pegging jacks.

John C. Shorey, of Rochester, N. H., assignor to Augustin J. Webster, of same place, for improved method of operating gates for water wheels.

The Plough, the Loom, and the Anvil.

Vol. IX. OCTOBER, 1856. No. 4.

Agricultural.

THE INDUSTRIAL CLASSES.

Who are they, and what are their rights? These are questions which concern every citizen, and we intend to make them the foundation of a few remarks now, and of more hereafter.

If productive Industry—an employment of the personal abilities in something useful—be the characteristic of the Industrial Classes, as we think it is, then all, who are not idlers, or mischief-makers, or doers of what is no benefit to themselves or others, belong to those classes. By a sort of slang phrase, too common among us, the honor of belonging to the great brotherhood of Industries would seem to be limited to the production of the material necessities of life, as if man could live by food and clothes alone, as if all who were not employed about these and like things were but drones in the hive of humanity. Those who use language thus seem not to have reflected that in society there are other things to be done, and that they are to be done, if for no higher reasons, that the supply of material wants may become more certain and more economical; as otherwise famine might, as frequently as in former periods, decimate the human race, and the labor of providing material supplies would be as disadvantageously done as when corn was planted with a clam-shell, and cotton was wove in a hand-loom. It is as necessary that some should work the mind, as that others should work the hand.

A high Christian civilization cannot be maintained without a great variety of employments. We grant that the more the cultivated mind and the laboring hand center in the same person, the better. But distinctions must exist. The cultivator of the ground never will be the best religious teacher, nor the worker in iron the best teacher of science, nor the philosopher the best cotton-spinner. And yet all of these are essential to the best interests of the whole. We want the cultivator and the mechanic, and we must have the scholar, or we can have none of the others in their perfection. To attempt to get on without him, would be a step towards making such cultivators as planted Cape Cod three hundred years ago, and such spinners as now twist cotton with their fingers in India. But for the patient investigations of the scholar, and the brain-turning efforts of the inventor, we should now be sending our mails on the head of a runner, as they do in Yucatan; and earning our bread by slower, harder, more uncertain processes, than a kind Providence desires we should. The man who grows corn and cotton with a crooked stick is a producer unquestionably. So is he, indirectly, who devises a better way of doing these things. The magnetic telegraph was the result of at least a million experiments on electricity, foolish as they might seem to many—fit only for idlers. But the result was the taming of the lightning—making it do our errands somewhat more expeditiously than the Indian runner of Central America can do them. The thousands of experimenters, all over the civilized world, contributed to this result. They were then producers—they produced that which quickens all other productions and enhances their value. So it is with all, who, by research and experiment, always laborious and often expensive, are extending the boundaries of human knowledge; and so it is with those who, taking up what the pioneers in science have discovered, diffuse it among the masses. All who are busily doing anything which the good of mankind requires to be done, whether it minister to our physical wants or to the higher wants of our spiritual nature, may be considered as belonging to the Industrial Classes. The clergyman —not as a matter of course, not by virtue of his office, but by the exertion of talents suitable to his calling—contributes as much to the world's *wealth*, saying nothing of its weightier interests, as any other; for if he promotes true *religion*—not *religionism*—if the result of his labor is to lead men to *deal justly*, *to love mercy*, *and to walk humbly with God*, he cannot fail to render them more efficient, more trustworthy, and if not more enterprising, yet more likely to turn their enterprise into a wise direction. The teacher, whether of the young pupil in the primary school, or of the more advanced in the university lecture-room, contributes his full share to the world's most valued resources. The lawyer does well so long as he transacts our legal business for a fair compensation, and defends our character and property. If he sometimes deals with us more rascally than others would, the fault is his and not of his profession. We do not need that he should do *all* our legislation. That may better be done by all classes, in about just proportions. But as an interpreter of law, a counsellor in our troubles, a defender of the right, he may be eminently useful, and contribute largely to the general prosperity. The physician who performs his duty faithfully, adds immensely to the common security and welfare. The merchant is wanted as a carrier between the producer and the consumer; and so long as he pursues his business on fair and open principles, is eminently useful. Of those employed in literature and the fine arts, we have only to say that their vocation is far more useful than is generally supposed. What would a nation be without its history, its oratory, its poetry, its architecture, its statues and paintings, its music and its songs? If we have yet given but little attention to these things, it was only because the time had not come—we had enough to do that was more immediately pressing. A great many are well employed, who are neither working the ground nor its raw productions. It is desirable that a great many should be employed in other callings, as otherwise the farmer could not find a market for his produce, nor the mechanic for his handiwork.

The true policy is, that all branches of industry, all employments suitable for rational beings to be engaged in, should go on hand in hand, as nearly in juxtaposition as soil, climate, and the distribution of mineral wealth permit, and then that commerce should come in to regulate the necessary exchanges. So far as regards those employments not usually denominated industrial, which after all seem to have about as good a right to be so denominated as any other, it is undoubtedly the duty of the State to look after them.

There are minds to be educated, and no State should suffer a child to grow up in ignorance within its borders; there is religion to be sustained, since, beyond all question, the more *religion* there is the less superstition there will be, and without dictating what every man shall believe and how he shall act *religiously*—with the largest toleration—the State has here a duty which no other power can perform; there are mines to work, and the State should never permit these to become oppressive monopolies; there are laws to interpret, and its interpreters, quite as often as any others, require the restraints of law; there is commerce to be regulated, and the merchant is a little more apt to be too sharp for his customer than the reverse. But when we come to the farmer, the mechanic, the laborer, who are *directly* employed in developing the physical resources of the country, while others are only doing this indirectly, the government has peculiarly a duty to perform. Theirs are the sinews both of war and peace. They are the only *direct* producers of necessaries, luxuries, and wealth. But for the annual result of their labors we should have neither, but starvation instead. They practice exhausting labor; they exercise a large amount of intelligence; and they are preëminently virtuous, patriotic, order-loving. Such are their numbers and energy that they could easily overthrow any government, that would not do them justice; yet they are always conservative, oftener at their home work than seeking combinations, even for mutual protection. That the laboring classes should ever combine for a bad purpose, we hold to be an absolute impossibilty. Just look at it; the farmers of this country have been denied their rights, more or less, all the time, for two hundred years. Who will say, that so long as the British rule lasted, American farmers were not shamefully abused? Where was their market? Perhaps you will say, all over the world. But for heavy produce what is a market all over the world good for? Why put the producer and the consumer far apart, with a dozen sharpers between? The farmer wants a market near at hand where he can meet the consumer face to face, make his own bargain, take his money in full, and not sacrifice a large per cent. for transportation, and a larger for profits to the between man. The teacher, the clergyman, the doctor, the lawyer, the scholar, the editor, the inventor, the machinist, men of all handicrafts, and above all the manufacturer, must be at hand to consume his produce, at a fair price, and that price not much more than he gets for growing it.

A few years ago we bought all our nails of Great Britain. They were poor things—made *to sell.* We paid seventeen cents a pound. A slight protection—whether a "Revenue tariff" for protection, or a protective tariff for revenue, matters little—enabled American enterprise to make better nails at four cents a pound. That the price might have fallen from other causes is nothing to the purpose. It could not have fallen lower than it did, consequently no one has been injured, while many have been benefitted; the machinist found employment, the manufacturer made a small profit, notwithstanding the lowness of the price occasioned by home competition, and the farmer has ever since sold more produce, and at a little higher price, than if the nails had been made in England. It is so with the other branches of manufacture. Americans, if enabled to begin—helped over the bar, or in other words, protected against pauper wages abroad—will run such a competition as will insure reasonable prices, and contribute immeasureably to make us truly independent—creators of our own necessaries, masters of our own resources, dependent for our supplies on none but ourselves. Protection is not necessarily partial. That on nails benefitted the nail maker no more than it did the machinist who constructed his works, nor either more than the farmer who furnished bread and meat to both.

Protection for other articles has operated in precisely the same way—always increasing the demand for farm produce. Under British oppression, the farmers were the bravest to endure, as they were the bravest to fight, when endurance ceased to be a virtue. Under our own government they have fared better—have not been compelled to buy pot-metal nails at 17 cts. a pound, and pay for them in veal at 2 cts., or beef at 3 cts., or cheese at 4 cts. a pound, nor to exchange these products at such prices for flimsy India cotton at 50 cts. a yard—have some incentives to action, to enterprise, to rouse up and secure a competency before the last day of life—but yet the full measure of justice has not been measured out to the farmers of this country. In England the farmer who puts the same energy and intelligence to the business of the farm as the enterprising merchant does to that of the counting-room, makes a competency in a few years, and retires, if he chooses, to a quieter life. One reason of this is, that the English spinner, weaver, and a score more, do our work for us, and the English farmer has the profit of feeding them the while. Few American farmers are able to cease from the cares and toils of the farm till very late in life. We do not want they should cease from them. It is not for their happiness to do so. Employment, activity, usefulness, are the comfort of life with them, as with every body else. But we do want that they should be able to let go of the plough, and to rest from severe labor, when old age creeps upon them. We want they should be able to educate their children as well as any other class, for woe to us when we have no more farmers' sons to stand, among others, in the high places of the nation. We want they should be able to dress their daughters, not in fini-finery, but as well as is desirable; so becomingly that they shall not suffer in comparison with the daughters of the merchant and the lawyer. Our farmers, after pursuing their business twenty or thirty years, ought to be able to relax their exertions somewhat, and yet to live in a style of rural elegance and comfort the rest of their lives. Why are they not? There is more than one reason. The great reason, the one always staring us in the face, one that has borne down the American farmer two hundred years, not always equally, not as severely now as under British rule, but severely yet, is that the makers of his coat, his cravat, his vest, his pants, his wife's dress, his daughter's outfit, and above all, of his crowbar, his drag-teeth and his log-chain, are in Europe, eating other men's produce, not his, except as a little is lugged to them three or four thousand miles, not enough to say boo about, compared with the capabilities of this vast country. Some farmers are *shiftless* (that's just the word we can't help using). They never would get ahead any where, nor live (stay) except by depriving their families of the comforts of life. Book-knowledge is a stumbling-block to them, and they have no other. But this is not the general character of American farmers. They are enterprising, inquiring, intelligent. They ought to be well to do by middle life, to be rich at fifty, to pursue their calling leisurely at sixty, rather from the honorable desire of being useful up to the gaol of life, than from any fear of want for themselves, or of not making a reasonable provision for their families. And they would have been —farmers of past generations would long ago have been just what we have described—if manufactures had gone hand in hand with agriculture from the first; that is, if Great Britain, instead of forbidding, had encouraged American handicraft industry, and then if our own government had kept a guardian watchfulness over the Industrial interests of the country, causing each article of our wants to be manufactured among us a *little before* that point in a nation's progress when it can be produced here as cheaply as otherwhere. We hold it to be a self-evident truth, that the time when a nation should begin to produce, or to manufacture any given article, is not the point when it can produce it as cheaply as it can be imported. It is a point a little before this; it is when it can produce it nearly as cheaply; and then is the point at which protection can be introduced advantageously to the producer, injurious to none, and consequently beneficial to all; for whatever benefits a part of the citizens benefits the whole, unless it at the same time injures others, and that on the acknowledged principle that—"If one member rejoice, all the members rejoice with it." For instance, if the duty on sugar gives prosperity to the Louisiana planter, does not the Massachusetts farmer rejoice in that prosperity, provided he, in the long run, pays no higher for his sugar; and would he not rejoice in the welfare of his co-laborer at the other end of the Union, even if he should temporarily pay a fraction higher? So, if the Massachusetts manufacturer prospers, in consequence of protection on cotton cloth, does not the Louisiana planter rejoice at his prosperity, provided he, in the long run, pays no more for his cotton goods, especially when he considers that this cotton-spinning makes an ever-present market for his brother farmer in the other end of the Union, and would he not be willing even to pay a trifle more for his cotton goods, if such should be the temporary effect of a duty on the foreign articles? And so again, if a little extra protection of iron would bring great prosperity to the States of Pennsylvania and Missouri, would not the whole Union rejoice in it, provided all the Union could get its iron rails, its ploughs, and its log chains quite as cheaply in proportion to their goodness? And yet such would undoubtedly be the result of a little stiffer protection of iron—immigration would be quickened, there would be an increased demand for farm produce, and every consumer of iron would get the article as well as now, price and quality considered. Protection on any article whatever, is protection to the farmer, provided it does not much enhance the price. We wish our farmers would think of these things. It may become necessary for them to go to Congress before all will be righted. As stated in our last, we like that modesty which makes them say, "We do not want office for ourselves." But let them consider whether the good of the country does not require that they should have it? The lawyers are good in their place. They have often done us good service, and we do not remember that one of them has ever injured us. But as legislators, we think it would be well to have a heavy spicing of farmers and mechanics with them, or if they claim to be the more spicy, let the solid material be made up from the Industrial Classes, and let a few of them come in as the spicing. N.

MUNN'S PRACTICAL LAND-DRAINER.

A Treatise on Draining Land, in which the most Approved Systems of Drainage, and the Scientific Principles on which they depend, are explained, and their comparative merits discussed; with full Directions for Cutting and Making Drains, and Remarks upon the various Materials of which they may be constructed. C. M. Saxton & Co., New-York, 1856. *Pp.* 190 *Price,* 50 *cts.*

THIS work has been for some time before the public. Many of our readers, we presume, are already acquainted with it, and not a few, we hope, are putting its recommendations and its sound instructions into practice, in the improvement of their wet lands. The book, we believe, is all that its title-page and preface claim for it—a candid discussion of the benefits of draining, and of the various modes employed. If it has faults—we do not say it has—they consist of a want of clearness in the expression of philosophical principles, and, perhaps, of a degree of obscurity in the practical directions. The work is nevertheless highly instructive. We advise all who have cold, wet lands, to possess themselves of it.

But it is not our purpose to review Mr. Munn's book; we wish rather to condense into a brief space some of our own views on the same subject—views acquired partly from reading, more from extensive observation, and, in part, from the best of all teachers—experience. We begin by assuring our readers that all lands containing stagnant water, either *on* or *under* the surface—even if far under ground—will be rendered much warmer, earlier, and more productive, by removing it. Some have insisted that all land should be under-drained. We have before written, and we do not change our opinion, that if land is dry enough—that is, if the water sinks through it, not stopping on the soil to render the surface unsound, nor in the subsoil, so as to form pools if excavated—it does not need draining, or, at least, would not be improved half enough to balance the expense.

But when land is of such a nature that its surface becomes unsound —soft, oozy, so as to tread up—after great rains, or if the water will stand for any considerable time in excavations of four or five feet, there is but one opinion in the minds of men who have investigated the subject—*it should be drained.* So well is this principle settled in England, that capitalists are perfectly willing to advance the money to drain it, and take no other security than the increased value of the land. Thus: a farm is appraised at £3000; £2000 are required to drain it; the capitalist advances the money, and takes a mortgage on the land, conditioned that it shall in no case take effect on the original £3000, but only on the increased value above—£3000—so that the owner does not peril a dollar's worth of the original value of his farm. Not as large a portion of land here needs draining as there. Climate and geological formation have something to do with this. But where our lands do require draining, the principle is the same, and the demand is as imperative here as there. The increased productiveness is as sure with us as with them. We admit that the increased profit may not be as great, because here wages are higher and produce is generally lower; but that the increase of profit here is sure, and is very considerable, is among the settled points in our agriculture. The farmer, therefore, who keeps on cultivating water-logged lands, having the money to drain them, or if he could borrow at a reasonable rate of interest, stands in his own light, if he has learned the truth on this subject, and if he has not, he stands in his own darkness.

On the causes of wetness in lands, we could weave long, fine-spun, philosophical niceties, abounding in technical terms and hair-breadth distinctions; but we shall *try*, succeed or not, to dress the subject in the language of common life, to make it intelligible to farmers, whom, by the way, we regard as the most *thinking* men in the world, but yet, from the very nature of their employment, not much inclined to patient, consecutive, long-continued thought on any one subject—fond rather of *digging* after good crops than of that sort of digging which characterizes the scholar in his search after truth; but, like the scholar in this respect, at least, that both, if they dig at the right time, in the right place, and in the right manner, will find hard work, and both will find a rich reward. But to the causes of wetness in land: If you apply water to any part of a sponge, it will pervade the whole, passing downward, laterally, or upward, as the case may require. The same is true of a snow-ball, a clump of peat, a rich vegetable mold, and, to some extent, of common soil. The tendency of a body to draw water into every part of it, to equalize it throughout, irrespective of gravitation, is called *capillary attraction.* By this process water is raised a few hair's breadths above its level in large pores, and many feet in small ones—the height being proportioned to the smallness of the pores. If you place pebbles in a tumbler having a little water at the bottom, the water will rise a trifle higher around the pebbles than its general level. If you fill it with fine gravel, the water will rise more; if with sand, still more; and if with loam, higher still. There is another principle that comes in here. Some substances seize upon water with more avidity than others, and hold it more tenaciously—are *hygroscopic.* Now, between these two principles—*capillary attraction* and the *hygroscopic* nature of certain soils—it will be evident that land may suffer from water and yet no standing water appear on its surface, nor for a considerable distance below. This would be a rare case, but, nevertheless, possible; and it may form an exception to the rule we have before laid down, that, if no standing water shows itself upon excavating four or five feet, the land would not be improved by draining sufficiently to warrant the expense.

The principal causes of wetness in lands are these: First, where the close texture of the surface-soil prevents the rains passing through, and the water becomes stagnant on the surface. Surface-draining—the cutting of open ditches—applies in this case, if in any. It is a slovenly and very imperfect way of remedying the evil. As we have seen it done, in some cases, with no exercise of good taste or sound judgment, the remedy is little better than the disease. But if done with good judgment and taste; if the sides of the ditches are left so sloping inwards as to keep their place and grass over; if the matter taken out be carried to the uplands where it belongs; if the whole be so done as to leave the surface gently rolling, retaining nature's beautiful forms, with no sharp cuts or hideous distortions of what God made beautiful, it is better than nothing, and may, in some fields, become a tolerable substitute for a more thorough procedure. Second, where, owing to an impervious subsoil, the water is carried along a slope, parallel with the surface, but below it, sometimes oozing out in springs, at others creeping on, just below the surface, till it reaches a brook or an open ditch, or till it comes to a porous subsoil, and sinks into the ground—in either case, about ruining the land. Here again, open ditches are better than none. If the owner has no perception of the beautiful; if he thinks he has a right over the portion of God's heritage entrusted to him to make it look ugly enough to extort a shriek from the man of taste who passes by; and if he will do nothing better, we advise him to cut open ditches—first, along the lowest ground, if there is no natural run low enough to take off the water from the other points; then around the higher parts, to cut off the springs; and then here and there—as a common-sense view of the grounds requires. Be it understood that we do not advise to such draining, but upon the above conditions, nor with them, but with some misgiving; for we confess that we are not theologian enough to know exactly what is the penalty for making a piece of land look as ugly as this process certainly will. In lieu of a better course, *it will pay;* and that is about all we want to say about it. Third, where the subsoil is impervious over a large tract, with no outlet, and so the water accumulates, forming a water-level more or less below the surface. This condition could always be detected by excavating or boring down. Here, surface-draining would be of little use.

The owner of land should look for the cause of the water which troubles him, whether it is mere surface-water, kept from sinking by a compact, tenacious surface-soil, or sub-surface-water, not entirely stagnant, but moving slowly, and frequently forming springs, or completely stagnant water, confined by barriers, having its level below ground, and motionless as the water of a pond or lake. He can generally form a correct opinion by observing the character of the soil and subsoil, and the shape of the ground. As there are three principal causes of mischief from water, so there are three prominent modes of draining—*deep* draining, *thorough* draining, and *surface* draining. By the first, we understand the laying down of a few covered drains, very deep, say five or six feet; the second implies many covered drains, placed at short distances, but not as deep, say from two to three and a half feet; the third is sufficiently indicated by its name. We have expressed a pretty thorough contempt for it, and yet there are, undoubtedly, lands, especially those to be used for grass, to which the application of it is wise. We have seen jobs of this kind (in England; we hardly recollect to have seen one in this country) which could be heartily approved—no huge piles of earth along the line of the ditch; no abrupt shoulder to cave in: the sides so descending, by a gently curved slope, that the grass grows to the very water's edge, and even beyond, leaving the field so pleasing to the eye, that you would think man had conspired with the Creator to make it beautiful. The labor was somewhat increased, because more earth than was absolutely necessary was removed; but there was no loss in this—the material being at least worth the expense of removal for composting, or for direct application to sandy or gravelly soils.

For disposing of water below the surface, whether of the springy or the more stagnant kind, either *deep draining*, laying a few very deep drains far apart, or *thorough draining*, laying shallower drains near each other, is the best policy. Which of these should have the preference in any given case, it is impossible to decide without surveying the ground. The farmer who has any considerable job of the kind in contemplation would do well, unless thoroughly versed in the business, to consult some one who has made it a study, or has experience in it. With only the knowledge on the subject, generally possessed by farmers of this country, we would as soon neglect to consult our lawyer when going to law, or our doctor when sick, as to commence an expensive job of draining without getting the best advice in the matter that could be had.

Of the different modes of constructing under-drains, materials for their construction, and other topics connected with the subject, we must defer to speak for the present, as this article is already too long.

N.

FACTS, FANCIES, (?) AND A MORAL.

Every one in the least observant of rural affairs, knows, that the rearing of inferior animals generally meets but a sorry return, whether in meats, wool, dairy products, or labor, or in that legitimate gratification which the owner may well feel when driving a beautiful span of horses, or working a good pair of oxen, or showing his herds and flocks to a friend. The growers of high-bred animals, with tolerable management, are sure to be better paid; and they are approaching a result, which, however favorable it may be to themselves, will benefit the country still more. That generous rivalry existing between the farmers of Ohio and Kentucky, as to who shall have the best stock, will be worth more millions to the country than they have yet bred fine animals. And every successful breeder may well enjoy the reflection that he is benefitting his own region more than himself. To gain wealth by impoverishing others might satisfy baser minds: to gain it in a way that is conducive to the general wealth, would better satisfy a liberal mind; and this, we undertake to say, every honorable and successful breeder of improved stock is doing. If he is doing well for himself, he is doing better for the community; and every generous man will wish him success. These are *facts.*

It is now pretty generally believed, that by selecting pure-bloods for parents, by pairing them judiciously, and by attending rationally to the natural wants of the parents and their young, you may succeed to a degree that in other times would have been deemed miraculous, in rearing fine animals, making them perfect in form, moderate in their consumption of food, mild in disposition, docile, intelligent, (?) almost human. Some have supposed that if the human race were guided more by reason, and less by passion—that if they were to exercise about half as much discretion for a similar object, as the skilful breeder of cattle exercises in his vocation, there would be a wonderful improvement—that symmetry, beauty, perfection of form, and the corresponding intellectual qualities would be more common, and that man would more readily comprehend and seek the true end of his being—would become more prudent, wiser, more elevated in his aspirations—almost divine. Set these *notions* down for no more than they are worth, if they are *fancies.*

But who would not regret that the race should deteriorate for the lack of a moiety of that good sense employed by the cattle grower, in training the young to a sound and healthy physical condition, by suitable modes of dress, by food convenient to the age, by plenty of romping recreations, by work suitable to both sexes, by riding horseback, and by out-door employments, or out-door amusements? We have been led to these remarks, so far as they relate to the human species, by an eloquent passage from Dr. Oville Dewey, which we give below, and in which the attentive reader will find our *moral.*

"I must add a word upon our modes of dress. With a climate twice as trying as that of England, we are, on this point, twice as negligent. Whether there is actual violence done to the form in the absurd attempt to make it genteel, I will not undertake to decide; but certainly the bust of an English woman shows that it never was, and never could have been, subjected to those awful processes of girting, which must have been applied in many cases to produce what we see among us. At any rate, the fearful prevalen e of consumption in our country is an admonition of our duty on this subject of dress, that ought not to be disregarded. And especially in a country where no limits are set to fashionable imitation—where a man is very liable to mistake upon the door-step his domestic for his wife or daughter—this is a subject that comes home to every family, whether low or high, and comes, too, in the most palpable forms of interest—in the suffering and expense of sickness, and in the bitterness of bereavement.

"But consumption and death are not the only alarming forms in which the subject of female health presents itself. Let any one look at the women of America, and, with all their far-famed delicacy and beauty, let him tell me what he thinks of them, as the mothers of future generations. What are the prospects of the national constitution and health, as they are to be read in the thousands of pale faces and slender forms, unfit for the duties of maternity, which we see around us? Let any one go with this question to their nurseries, and he will see the beginning of things to come. Let him go to the schools, and he will turn over another leaf in the book of prophecy. Oh! for a sight, at home, of the beautiful groups of children that are constantly seen in England, with their rosy cheeks and robust frames!" N.

VEGETABLE PHYSIOLOGY.

The Germination of Seeds.—The well matured seed contains in itself the *embryo* of a new plant, together with sufficient food for it to feed upon, till it shall have had time to push its roots into the soil, and its leaves into the air, to draw thence nourishment for itself.

The *embryo* exhibits, through a good microscopo, the perfect form of the future plant, whether tree, shrub or vine. It has but to enlarge itself in the directions already commenced in the parent seed, to become a full grown plant. It consists of a *plumule* and a *radicle.* In whatever position the seed be placed in the soil, the radicle shoots downward, to form the future root; and the *plumule* springs upward, enlarging itself into the stem and branches.

Seeds, if kept cool and away from air and moisture, will preserve their vitality for thousands of years; and then, if thrown into favorable circumstances, will germinate and send up vigorous plants. Some have disputed this, but facts show it beyond a doubt. It should be considered here that the food, on which the embryo is to grow into a young plant, and on which it depends entirely in the first stage of its growth, is contained in the parent seed, and consists of starch, gluten and albumen.

Moisture, warmth, air and a partial absence of light are essential to germination. When these conditions are supplied, the first change observed is a swelling, an enlargement of the seed. There is also formed early, within the seed, a minute portion of vinegar. As cider by fermentation, tends to become vinegar, and actually becomes such, if the fermentation be continued sufficiently long; so some portion of the seed is transformed into vinegar, or acetic acid. The object of this pretty clearly is, that the vinegar—acetic acid—may combine with bases immediately around and below the seed and form acetates, which we know to be very soluble, and may be regarded as a sort of pap for the infant plant, while yet it can neither reach after, nor could digest stronger food.

About the same time with the formation of vinegar, another substance is formed in the seed, called *diastase*. This substance, diastase, is known to have the power of transforming starch into sugar. That this is the object of its formation, there can be no doubt, for it actually performs this office. In a dry kernel of wheat there is no sugar. There is starch, a substance with which all are acquainted; there is gluten, a tough, stringy substance, which remains about one's teeth after chewing wheat a long time; and there is albumen, a liquid substance, similar to the white of an egg; but there is no sugar. If you taste a grain of wheat before it is put into the ground, you perceive no sweetness; but if you taste it after germination has commenced, you find it sensibly sweet. Diastase has then been formed; and it has done its office; it has transformed the starch into sugar. But why? The answer is plain. Starch, as every housekeeper knows, is insoluble in cold water; and only partially soluble in hot, forming with it, not a limpid solution, but only a thick, semi-transparent jelly. Sugar, on the other hand, dissolves perfectly in either cold or warm water, and forms with it a limpid solution, just adapted to the tender organs of the infant plant, when first it puts forth its rootlets to feel after food. It is manifest, therefore, that the formation of vinegar and diastase in the germinating seed is a provision of that Being, who is wonderful in working, for the express purpose of furnishing nutriment to the plant, at a period when it could not otherwise obtain suitable food. If the husbandman will show a like care to give his young plants a vigorous start into life, he will prove himself a co-worker with the great Architect of all things. His plants will take care of themselves bye-and-bye. By a prudent forecast, in preparing the soil and selecting the time, he should take care for their infancy. More than is generally considered depends upon the setting out of a plant on its summer's career;—not that, by due care of its infancy, it can be made so powerful that it will contend successfully with poke and pig-weed for the food of the soil; or that it will resist the encroachments of horned-cattle and swine; but if well started, it will draw for its productiveness, more largely than it otherwise would, from the soil and the air.

A portion of that which makes our crops grow is at our own disposal. Another portion is in common stock, blown about by the winds of heaven. Now if we use well that which is at our own disposal, we get more from the common stock, for we make our plants more vigorous and far reaching in their efforts to take care of themselves. This is one of the many ways in which Divine Providence rewards the diligent husbandman. He, for instance, scrapes up a load of manure, after his less diligent neighbors thinks he had got all. He puts it on his corn-field; he not only has a return for what he puts on but his applying it enables his young plants to gather as much more from the soil and the passing breezes.

There is another fact worthy of notice. It has been proved by the most accurate experiments that seeds, during their germination, and up to the time when the first leaves shoot forth, absorb oxygen and give off carbonic acid, directly the reverse of what takes place subsequently. Now why is this? Probably that the young plant may have plenty of carbon in solution about its roots, and may receive through those organs temporarily that which it is destined to receive from the air through its leaves as soon as they shall have been formed. It seems very much like a special provision for the plant, while in transition from the soil below to the atmosphere above. When the plant is fairly above ground, and has put forth its first leaves, it then draws its carbon, which makes not less than half of its solid matter, principally from the air, taking it in through its leaves; while it derives nearly all the other substances of which it is composed from the soil, taking them in through its roots.

Seeds then may be regarded as packages done up for the purpose of perpetuating the species to which they belong. Each package contains one or more embryo plants, so developed as to appear, under the microscope, almost precisely like the parent plant. Together with the embryo, and generally packed closely around it, is enough, and in most cases, especially if the seed be perfect, much more than enough, of food to nourish the embryo plant, till such time as its roots can take nourishment from the soil and its leaves from the air. The embryo lies dormant till the circumstances required to arouse it to action are supplied. In a chestnut, for instance, there is a chestnut tree, not more perhaps than a thousandth of an inch in length, yet strongly resembling the full grown tree in all its parts. This becomes no larger till warmth, moisture, air and a partial exclusion of light are supplied. When these are furnished, it begins to enlarge itself, taking its food, first from within its own shell and then from the earth and air. Its enlargement, while feeding on the food specially laid in for it, is called the germination of the seed; its enlargement from that time onward, the growth of the plant. On this latter we shall have something to say in a future number, which may not be only interesting to the young, but useful in its application to practical agriculture. N.

FARMING—ITS RELATIONS TO SOILS, ETC.

If we look at the history of farming in this country, we shall find that it has been a very general practice, particularly in the Eastern States, to cultivate farms with an almost sole reference to the wants of the farmer's family. As many as possible of these wants were to be supplied from the farm; and then a surplus of a few articles, as a little butter, a few eggs, a cheese or two, occasionally a fatted calf, a farrow cow, a steer or two, a colt, a yoke of oxen, a few pounds of lard, a little pork from the barrel, anything that could be spared, was to supply the rest.

It was natural that this state of things should obtain in the early settlement of the country. It could not well have been otherwise. Luxuries were then unknown. Plain food and coarse clothes were all that were desired; and those were to be drawn from the soil, and elaborated by domestic industry. The farmer's family must live from the farm. The minister, the doctor, the merchant, the blacksmith, and the carpenter must be paid in kind, or not paid at all, for there was then no money, or next to none, in the country. The farmer had to ask, not what his farm would produce most advantageously, but what he must have; and this point being settled, he could generally accomplish his object, because a virgin soil possesses a wide range of capabilities. It could produce bread and meat, flax for summer wear, wool for winter, hemp for hanging rogues, heretics and witches, and whatever else was essential to *staying* in the world, or being *hurried* out of it.

It is not wonderful, therefore, that the practice of raising whatever the family needed, whether the soil were adapted to it or not, and of raising little else, except what could be disposed of in the immediate neighborhood, should have obtained a strong foothold among the early settlers of this country. A want of roads suitable for the transportation of heavy produce may serve as an apology for the intermediate generations between them and us. It is not so much our business to blame the past as to retify the present. We would not too much blame our forefathers even for the free use they made of hemp, especially since all civilized nations of that age did the same to a tenfold greater extent; and we certainly should not blame them for farming in a way that would be unwise in our greatly altered circumstances. We may better inquire, how far we are blindly following their practices—practices which were in adaptation to their circumstances, but which are ill adapted to ours?

A farmer in Massachusetts, by the name of *Marble*, was asked to what market he sent his produce. His answer was, that he sent it to *Marblehead*, meaning that it was consumed at home. His farm, from the nature of its soil and its location, was at that time capable of producing a staple, which would have enabled him to purchase all else that was wanted by his family and to become rich in a few years. But he kept on growing a little wool, a little flax, a little corn, a little of everything that had been grown by his ancestors, but no considerable surplus of any thing. The consequence was, that he became a very poor man. His returns from *Marblehead* did not give him the money wherewith to pay his store bills, his taxes, etc. It is a question worth answering, whether many farmers are not traveling in the same direction—cultivating a farm with their own hands, raising a little of everything, sending it to *Marblehead*, or some other *head*, and getting nothing in return, which will enable them to educate their children, extend the comforts of their families, and be generous men in society? Another important question is, whether their farms, many of them at least, are not such, by nature and location, that, if they would addict themselves mainly to some one or two branches of farming, they might, in this age of railroads and steam and good markets, advance in wealth and happiness and usefulness.

A farmer at no great distance from where we write, is trying an experiment. It has now been in progress some half a dozen years, and its object is to show whether or not three acres of medium land can be so cultivated, that after paying for all the labor and all the fertilizers, and for taxes and the interest on the original value of the land, they will give a net profit equal to that of the average of farms of a hundred acres each, in the same country. So far as the experiment has yet gone, it is entirely satisfactory. He can show a balance for profit far beyond what would be claimed by most farmers of a hundred acres in that country. And this result has not been reached by the growing of some fortunate crops which happened to bring a great price just at the time he wished to dispose of them. He has grown only such crops as are always wanted in the markets of this State, and has sold them at no higher prices than they have borne in these markets, time out of mind. Whatever may be the final result of this experiment, there can be no doubt that the profits of many farms could be greatly increased by a more through cultivation than they now receive. An unwillingness to pay for a sufficient amount of labor is among the greatest obstacles to profitable farming in this country. High farming is shunned, because costly, instead of being courted because profitable.

But we were to speak of farming in its relations to soils, location, the taste of the cultivator, etc. That sort of *omnibus* farming, before spoken of, where the farmer grows all sorts of products, rears all kinds of animals, and deals in horse flesh, beef, cheese, butter, lard, pork, mutton, wool, turkeys, geese, chickens, eggs and feathers, having a little of some of these to spare after supplying his own family, is well enough in its place, because there are farms adapted to it, and there are tastes which could hardly be satisfied without it—farms, that are divided by nature's bounds into mowing, plowing and pasture, and men who would sooner be dabbling into everything, than doing anything efficiently. But it is evident that such kind of farming is not the best adapted to promote individual or national wealth. If it is in some cases necessary, in order to conform to the requirements of nature, and if it is desired in others, in order to gratify a craving for variety; it certainly is not desirable as a whole nor generally. True, it affords a variety of employment; but each branch must necessarily be on a small scale; and the whole tendency will be to belittle the farmer, both in mind and in wealth. He almost necessarily becomes a sort of "Jack at all trades and good for none." Such at least is the tendency of one man's pursuing all the various branches of farming, and all, of course, on a petty way.

We would by no means advise to violent changes. Let every owner of a farm carry it on as he has done heretofore, or, if he pleases, as his fathers have done, till he can clearly see a better way. But we would advise a young man, or any other, who is about to purchase a farm, to look out for one, which will admit of one or two branches being conducted on a liberal scale. Let him select such a farm as will favor that branch, or those branches of farming for which he has a relish. In this way he will be likely to become an adept in his business. But most farmers, if we may use a Yankeeism, are already *fixed.* They own a farm; its location cannot be changed; and they do not wish to leave it. Still there is even here great room for the exercise of choice, for many farms are equally adapted to several branches of production. Of four men, it might happen, that while all would rely upon the general operations of the farm for a living, one might choose to look to the rearing of horses, as affording the main hope of accumulation, another to the products of the dairy, another to the sale of grass-fed, and another to that of stall-fed beef; and it might be that the same farm would answer well for either of these courses. There is, therefore, some room for choice on the part of farmers already located, as well as much on the part of those whose field of industry is yet to be chosen; and there cannot be the least doubt, that it contributes as well to national as to individual prosperity, that each man should pursue a branch of industry for which he has a fondness, because in that he will be likely to excel.

Next to the importance of each farmer being suited with his employment, is that of each farm being put to its best use. or, if it admits of several uses, then to that use for which it is as valuable as for any other; and we would have every farmer in the land ask himself, not what he would undertake to produce if he were on some other farm; nor what his farm might best produce if some other man were on it, but what is the best use that can be made of that very farm, such in soil and surface and location as it is, himself being on it, with all his tastes and predilections, the circumstances and wants of his family being taken into the account? An intelligent settlement of the question, what is best to be done with each farm, and each part of it, located as it is, rich or poor in soil as it may be, rough or smooth, rocky or feasible, well watered or otherwise, with due regard to the feelings and circumstances of those who occupy it, would be worth millions upon millions to the agricultural interests of our country; and yet none but the farmer, in each case, can settle this question, because many of the circumstances, which would bear upon the case and modify the conclusion, are known only to himself.

We would not ask the farmer to concede that his former course has been wrong. It may have been right in its relations to the past; and yet a different course might be better suited to the altered condition of the present and the future. We are suspicious that some modes, which have served well enough to get through life with heretofore, will afford but a poor bridge to go over on hereafter; and while we would counsel no violent changes, we do wish that all farmers would lay themselves open to the questions we have suggested. We believe that it would lead in some cases at least to the adoption of a less belittleing variety of petty employment, and to a more manly, vigorous and successful production of one or two of the great staples of life, such in each case as the farm is best adapted to produce.

So much we have said, mainly with reference to Eastern farming, with acre patches, fences innumerable, and too many briar hedges, in our mind's eye. Whether our Southern and Western brethren are running into an opposite extreme—having two broad fields devoted to a single staple, with not sufficient regard to the supply of home consumption—is more than we know. We conceive that error in this direction would be possible, but not half as likely to happen as in the other. It takes 52 rods of fence to inclose a square field of one acre, whereas 8 rods to the acre will inclose one of 40 acres; and it is pretty much so with the other expenses of small fields, as compared with large ones. N.

ENTOMOLOGY.

We invite the attention of farmers, especially of young farmers, and of farmers' children, the girls as well as the boys, while yet at an age for keen observation, to the articles appearing in our Journal, on those insects at once so insignificant and yet so fearful, that they sometimes desolate whole countries, constituting the subject of entomology. Let no one think the science insignificent because it treats of life in a small way. Those insects which can, and often do, baffle all the efforts of man, are not too insignificant to deserve our attention. In confirmation of our views of the importance of this subject, we quote from T. Glover, Esq., the distinguished entomologist, connected with the Agricultural Bureau of the United States Patent Office. Let us invite all our readers, and above all the boys and the young men, to what he says about the birds as *destroyers of insects.* The birds are our best friends. *Don't kill the birds.* Mr. Glover says:

"A close study of the habits and transformations of any one of the pernicious insects, (ball worm, wheat midge, caterpillar, &c.,) by the practical and intelligent farmer, would prove not only a source of great pleasure, as leading him to a keener sense of the beauteous and wonderful works of nature, as exemplified in the singular transformations insects undergo before they assume the perfect or fly-state, but also a source of great profit, as by experimenting upon them in all the stages of their existence, he might perchance discover some practical method by which their extermination could be effected. Indeed, it is absolutely necessary that a farmer should be able to recognize the insects that destroy his crops, in all their various and wonderful transformations, before any effectual remedy can be applied; as in one stage of their life they may be suffered to live and enjoy themselves; nay, even sometimes be protected, while in another stage we persecute and destroy them by every means in our power. For example, the beautiful butterly of the *papelio asterias.* Any humane and kind-hearted farmer, unversed in entomology, who should see his children chasing and killing the beautiful black and yellow spotted butterfly that was flitting joyously over his vegetable garden, in the spring or early summer, apparently leading a life of mere harmless pleasure, would, no doubt, reprove them for wantonly destroying such a pretty, harmless insect; and yet, if the truth was known, this pretty and much-to-be-pitied insect is the parent of all those nauseous-smelling green and black spotted worms that later in the season destroy his parsley, celery, parsnips and carrots. Yet by merely crushing the parent fly at one blow early in the season, before it has deposited its eggs, he would be spared the vexation of either seeing his plants devoured and seed destroyed, or having the disagreeable task of picking off, one by one, some hundreds of caterpillars later in the season. This fact will be more apparent when I state how incredibly fast some insects multiply, especially in the warmer climate of the South, where there is little frost to destroy vegetable life, and there are several generations in one season. Dr. John Gamble, of Tallahasse, Fla., assisted by myself, dissected a female ball-worm moth or miller, (an insect which, in the caterpillar state, is most destructive to cotton,) and we discovered a mass of eggs, which, when counted, amounted, at the least calculation, to five hundred, duly hatched, for the first generation, say one-half males, the rest females; the second generation, if undisturbed, would amount to 125,000, and the third be almost incalculable.

"Now, these mother-flies are not very numerous early in the season, owing to the birds devouring them, the rigor of winter, and various other accidental causes, and if practical means were found to destroy them as early in the spring as possible, the immense ravages of the second and third generations might be prevented. In one female (œceticus) case or hangworm, so destructive to the shade trees, I counted nearly eight hundred eggs, although the specimen was but small. Now, were all these cases taken from every infected tree in the winter, when they can most easily be seen, owing to the fall of the leaf, and then immediately burned, the trees would be comparatively free the next season; and by following this plan for one or two years more, the work growing gradually less and less, the insect might finally be exterminated, inasmuch as the female never leaves her case, but forms her nest of eggs inside; and yet these noxious pests are suffered, year by year to increase, when so little trouble would destroy them. Other insects again have other habits, which, if fully known, would likewise lead to their destruction."

AGRICULTURAL PAPERS.

As many of our readers may wish to take more than one, and as now is a good time to subscribe for them, and leisure time for reading them is at hand, they may expect some hints from us, as to which would best meet their wants.

Of the *New-England Farmer*, Boston, Joel Nourse, publisher, Simon Brown, editor, we have already spoken in terms of high praise. Of the *Country Gentleman*, Albany, Luther Tucker, Esq., editor and publisher, we say, that in our opinion, a better agricultural and family newspaper can not be found. The *American Agriculturist* is an excellent agricultural monthly, by Orange Judd, Esq., of New-York. *The Homestead*, at Hartford, Ct., Rev. Wm. Clift and others, editors, is an excellent journal. Mapes' *Working Farmer* contains more labored articles of great length and solid merit, exceedingly instructive to the reader, than almost any other. The *Boston Cultivator*, Sanford Howard, Esq., editor, is full of sound instruction on all questions pertaining to stock, and is a good family paper, of an agreeable variety, and of an excellent moral tone. The *Pennsylvania Farm Journal* is first class in appearance, and in amount and value of matter. The *Genesee Farmer* is one of the oldest, the cheapest, and, in our view, one of the *best* monthlies. Such being the good qualities of the foregoing journals, we care not to speak of faults, if they have them. The West is full of good agricultural papers: as the *Rural New-Yorker*, the *Ohio Farmer*, the *Ohio Cultivator*, the *Michigan Farmer*, the *Prairie Farmer*, the *Wisconsin Farmer*, the *Valley Farmer*, at St. Louis the *Ohio Valley Farmer*, at Cincinnati, the *Western Farm Journal*, at Louisville, and several other valuable papers in Kentucky, Tennessee, and California.

The South, too, is well supplied with this species of literature, in the *Southern Planter*, at Richmond, Va., the *Carolina Cultivator*, at Raleigh, N. C., the *Southern Cultivator*, at Augusta, Ga., the *American Cotton Planter*, at Montgomery, Ala., the *South Carolina Agriculturist*, at Columbia, S. C , the *Soil of the South*, at Columbus, Ga.,—all good, besides many others; and last in our order, not in merit—the oldest, and if not the best, as good as the best—the *American Farmer*, at Baltimore, Md., founded, we believe, and long conducted by the same worthy gentleman, who was the founder, and for some time the conductor of our own Journal—the late Col. Skinner.

Our opinion is, that every farmer should have at least two agricultural papers, one in his own region, and one more distant and general. Intelligence is immensely important to agriculture. A farmer, who is feeble in body, cannot do hard work, will hereafter get on better, if read up on his business, than one strong as Sampson, without that advantage.

If, in commending the wares of others, we seem to thwart our own interest, be it so. We rejoice in the well-doing of our co-laborers, and try to do as well as they. And to the farmer who would take a local agricultural paper in his own region, and one of a more general character, emanating from this commercial metropolis, we commend *The Plough, the Loom, and the Anvil.* N.

INSECTS INJURIOUS TO VEGETATION.

DIPTERA, CONTINUED.

We vainly thought we had so treated of musquitoes *et id omne genus*, that we need take no further notice of them, but have since been more tormented with them than before, as if from spite, and are safe from them only when beneath the folds of a well-arranged net. Then, their music is not so unpleasant. But we hope soon to break up all connection with them; meanwhile, proceed with the order already commenced. There is a group called

Anthomyiadæ, or Anthomyians, or Flower flies. They are of a grayish-black or ash color, hairy, with large copper-colored eyes, surrounded by a narrow white line. They measure a fourth of an inch in length. The larvæ of these insects are often found in the roots of vegetables, as radishes, turnips, etc. They finish their transformations, and appear above ground late in June.

One species of these flies is the Anthomyia Ceparum, or Onion-Fly, which, in its maggot state, is very destructive among onion-plants, both in Europe and in this country. They lay their eggs upon the leaves of the plant, close to the earth, and when hatched, the insect makes its way directly to the heart of the onion. In about two weeks, the maggots come to their growth, turn to pupæ, and come out as flies a fortnight afterwards. This fly is seen on our windows in the spring. It is ash-colored, sparingly covered with black hairs, has a forked, rust-colored spot on its head, and three lines of a rust-red on the thorax. Near the shoulders, the wings are tipped with yellow. The only effectual treatment of this insect is, as soon as the plants are affected by them, to pull them up and burn them.

The Ortolididæ. Some flies of this group deposit their eggs in the stems, buds, and leaves of plants, and thus produce tumors, or *galls*, within which is the young insect. Others lay their eggs in the pulp of fruits, as whortleberries, raspberries, cherries, etc., which furnishes appropriate food for the young insect. They are named thus from their habit of keeping their wings in almost constant motion, jerking them up and down, and in various directions, so that their thick edges often come together. Some, suddenly raising their wings perpendicularly, run along with them spread somewhat in the form of the tail of a peacock.

Their winglets are very small, or even entirely wanting, and their power of flight is very feeble. They prefer damp and shady places rather than those that are bright and sunny. Their wings are often beautifully variegated, or striped, or spotted with brown or black. The body of the female generally terminates with a pointed tube, with which her eggs are deposited.

The spongy swellings often seen in the stems of the aster or starwort are produced by a species of insects belonging to this group, which are termed *Tephritis Asteris*. It is about one-fifth of an inch in length, light yellowish-brown, with paler legs, wings broad, round at the tip, and clouded with spots, forming three wide but irregular bands across them.

The *Tiophila Casei* is the cheese-maggot, about three-twentieths of an inch in length, black, middle and hinder legs yellowish, and wings transparent.

Various species of insects have been found in grains when the plant is in flower, but they have not been sufficiently examined and described to determine accurately their name or place in a scientific treatise. But we refer to them here for the purpose of saying that they are often mistaken for the Hessian Fly or Wheat Fly, hereafter to be described.

BOT-FLIES belong to this order, and belong to the family OESTRIDÆ. They seem to have no mouth or proboscis, so small are these organs. They resemble the Syrphians in form and color. The maggots are thick, fleshy, and white, without feet, tapering towards the head, which is generally armed with two hooks. The rings of the body are also provided with small hooks or prickles. There are many different kinds of Bot-Flies, three of which attack the horse. According to Dr. Harris, one, the *Gasterophilus Equi*, lays her eggs about the knees of the animal. It has spotted wings. A small red-tailed species, the *G. Nœmorrhoidalis*, deposits them about his lips; and the *G. Veterinus*, the brown farrier bot-fly, deposits them under his throat. But we have often seen the same insect, when driven from one part of the animal, deposit her eggs on different parts of the horse, as on his legs, under his throat, etc.

The Oestrus Bovis, or Ox Bot-Fly, lives in large open boils, called wormals, (worm-holes,) on the backs of cattle. It is smaller than the Horse Bot-Fly.

The Cephalemia, or Sheep Bot-Fly, deposits its eggs in the nostrils of the sheep, and the maggots crawl thence into the hollows on the bones of the forehead.

The Flea is a wingless fly. Its technical name is *Pulex*. Its proboscis is between that of flies and of bugs in form, and its transformations resemble those of Flies.

We leave these, and various tribes or genera kindred to them, to make some suggestions in relation to a very destructive family, termed

CECIDOMYIADÆ, or GALL-GNATS. The small but destructive Gnats known as the Hessian Fly and the Wheat Fly belong to this group. The Hessian Fly, as is well known, was named from its supposed introduction into this country by the Hessian soldiers in the British army. They first made their appearance in Orange County, N. Y., soon after the British had passed through. This origin is not, however, clearly proved. Some other insect similar in habit may have been mistaken for this. Such a mistake would not be strange, since the same is often made even now by those not very familiar with the various species.

Mr. Herrick, who is the highest authority on this doubtful point, gives the following as the peculiar marks of this insect: Head and thorax black; hind body tawny and covered with fine grayish hairs; wings blackish, but tinged with yellow at the base, which is narrow, fringed with short hairs, and rounded at the end; body one-tenth of an inch in length; wings expand one-fourth of an inch, or more. Mr. Say calls it *Cecidomyia Destructor.* It lays its eggs both on the young plants and on the grain in the ear. In this work, they are occupied several weeks. In Queen Anne County, Maryland, Mr. Edward Tilghman discovered them on his grain, in the second week of October. Placing himself in a quiet, reclining posture, in a furrow, he soon perceived a number of small, black flies alighting upon the wheat-plants. One was very near him, and she deposited eight or ten eggs in the longitudinal cavities between the ridges of the blade, when he caught her and secured her in a wrapper of paper. The eggs had the appearance of minute reddish specks. These eggs were kept in a tumbler, containing a little earth, with water, and covered with perforated paper. On the fifteenth day, a small maggot, of a reddish color, was discovered, which made its way down the blade, and disappeared in the earth. The examination was then interrupted. This mother-fly was pronounced by Col. Skinner, our honored and beloved predecessor, to be the true Hessian Fly. It now seems to be well established that such are the habits of this insect; but whether the eggs are ever laid upon the young grains is not quite so certain. They remain in the stalk near but below the surface of the ground, where they go through all their transformations, and without injury to the substance of the stalk, but sucking the sap, their only nourishment. After five or six weeks, they come to maturity, and are about three-twentieths of an inch in length. As they lie upon the tender stalk, and acquire size and firmness, their bodies become imbedded in the plant; and if more than one are thus fixed upon the same stem, the plant is weakened, so that it withers and perishes. Their skin gradually hardens, becomes first brownish, and afterwards a bright chestnut color, which happens early in December. It is then in the pupæ state, is long, egg-shaped, smooth, marked with eleven transverse lines, and is one-eighth of an inch in length.

It would occupy too much space here to give all the supposed details of the changes of this insect, for which we refer the reader to the elaborate treatises which have appeared in various journals of scientific associations, and in volumes of Natural History. It may suffice, for the present, to add, that soon after the flies come forth in the spring, they are prepared to lay their eggs upon the tender blades of the wheat sown the preceding autumn, and also upon the spring-sown wheat, as it first appears above ground. For about three weeks, they are occupied in laying their eggs, and then they disappear from the fields. Turning to pupæ in June and July, and adhering to the stems of the plant when the grain is gathered, they remain unchanged in the stubble till spring. A small portion of them, however, are carried away with the straw.

In the winged state, this fly is active. Their principal migrations take place in August and September, in the Middle States, and there they also go through their transformatious earlier than in New-England and New-York.

No efficient means have yet been discovered for preventing the ravages of these insects. Among those tending to this important result are the following:

Select the stouter varieties of seed. Miss Morris advises a selection of seed from localities where the insect has not appeared. The land should be kept in good condition. The seed may be steeped in plaster or lime. Sowing ashes both in autumn and spring is useful. If cattle graze among the stubble, they will destroy many of the eggs. Burning the stubble will have a similar effect, especially if the land is also ploughed and harrowed. Feeding the crop, with cattle, in the autumn, is also useful.

There are, also, certain natural enemies of the Hessian Fly, by which a large proportion of the eggs, larvæ, etc., of this fly are destroyed. One of these is the *Eurytoma Destructor*, which is the *Ceraphron Destructor* of Say. It is a shining, black, four-winged fly, about one-tenth of an inch long, and is often mistaken for the Hessian Fly. A species of the Platygaster is another enemy of this pest, and is abundant in the autumn, laying its eggs in those of the Hessian Fly. Some of the four-winged Ichneumon Flies, which are also parasitic, are natural enemies to this insect. P.

LICE UPON CATTLE AND VEGETABLES.

Since the foregoing was in type, we have received a letter from a friend and correspondent in Louisiana, in which occurs the following paragraph:

"Please inform me, through your valuable book, how to kill or destroy lice upon cattle; also, a kind of insect resembling a good deal in its movements a flea, but a little larger, and with white wings. It has destroyed every thing in our garden for the last five or six months, particularly the young cabbage plants."

Reply.—1st, *Lice upon Cattle.*—These insects are always disagreeable, and uncomfortable to the animals they infest, and when they abound for a long time, produce the disease called *Phthiriasis.* When dust and dirt are allowed to accumulate upon the hide, or when the animal is kept in unwholesome stables, this disease is liable to appear. So, too, it may be communicated by contact. Under ordinary circumstances, lice cause animals to lose flesh, and they often wound themselves by gnawing the parts thus irritated, or by rubbing against trees, etc. The lice also produce wounds, and cause the skin to become hard and tight, and the hair rough and thin. Bad or insufficient food prepares the way for these insects. If they become weak from any cause, they are peculiarly exposed to such attacks.

This enumeration of causes suggests the most important means of cure. Thorough and frequent cleaning and currying (two or three times a day), good and abundant food in good air, and a clean stall, are essential parts of any treatment. Washing the animal in a decoction of tobacco leaves, in a strong lye, is a common treatment, though it may be carried to excess. For sheep, blow tobacco smoke through bellows (so fitted as to burn the leaf in a side opening) among the roots of the fleece—the fibres of the wool being separated for this purpose. Two or three persons will be required to perform this service properly. For the ox-louse, a decoction of the dried flowers of Labrador tea (*Ledum palustre*) is often applied. A brush should be used, and the hide and hair thoroughly wet with it. Ashes may then be sprinkled upon it, or rubbed in. Repeat this the next day; and on the third day, wash with a weak lather of soap. Flowers of brimstone may be given internally.

2d. *Insects infesting garden plants.*—The insects referred to by our friend may be some of the flea-beetles, or *Halticæ*, which term is applied to a group of several species of small insects, one or two lines in length. These insects are described on pages 141 and 142 of the last volume (Sept. 1855), with the remedies in best repute. We add to the suggestions there made, that shade, coolness, and rainy weather are unfavorable to their increase. The plants, when set out, may be dipt in a solution of wormwood, and afterwards occasionally sprinkled with the same kind of solution, till they are too hardy and vigorous to be seriously injured by the insect. Or, after a heavy dew, sift fine dust over the leaves. A plat of grass, separating these seed-beds from all places infested by such insects, is a pretty effective security, as the grass interferes with their leaping. A good soil and careful culture are also important, as the plants will sooner be beyond the reach of such attacks.

If this description of the *Halticæ* does not suit the insect which so annoys our friend, it may belong to the genus *Psylla*, of the order *Hemiptera*, being one of the many kinds of plant-lice. They, too, have the power of leaping, and have large and transparent wings. They are described in pages 333 and 334 (Dec. 1855) of the last volume. Soap suds, tobacco water, etc., may be applied, or tobacco smoke. If they have descended below the surface of the ground, salt water may be applied; but this should be done with care, as it is liable to destroy tender plants.

If neither of these suit the case which prompts these suggestions, we should be glad of a more particular description, and a few specimens in a small box, by mail. P.

NEW-JERSEY MARLS.

For fifty years past, these marls have been used in New-Jersey to a very limited extent, and not at all without the limits of the State. It is only within the last twenty years that they have been used freely in the vicinity of the localities where they are readily accessible. They occupy a large area, but are overlaid with a stratum of clay, and with drift of reddish sand, gravel, etc., so that the favorable exposures for export are rare. In the interior, the exposures occur along the streams, and are sufficiently frequent to furnish supplies for the region through which the formation extends.

These marls contain the essential earthy constituents of vegetation, namely, silica in combination with potash and soda, forming the soluble silicates; together with lime, phosphoric acid, protoxide of iron, alumina, etc., and some organic matter. They are evidently of marine origin, for they abound in marine fossils. The organic remains of myriads of generations of denizens of the deep, belonging to remote ages, lie buried in thick layers, and have in latter times been lifted, in some instances, as much as one hundred and twenty feet above the present water level; and thus form an immense storehouse of the means of fertility for the present generations of men.

They are called marls because they contain considerable portions of carbonate of lime; but the formation is distinguished among geologists by the name, "green sand marl," from the fact that it is known in this country, and in France, as the "green sand formation," corresponding nearly, in place and age, with the chalk beds of England. This name is derived from the distinguishing feature of the formation, which is the powder-like grains, of a green color, containing the elements of value in agriculture, and constituting the principal bulk of the beds.

It is but recently that phosphoric acid has been found in the marl. Professor Cook, however, determined this element to be quite a constant constituent. Other chemists have demonstrated the same fact. But with our present knowledge of the composition of the marl, and after allowing all that may be claimed for the action of the soluble silicates, phosphates, and the carbonate of lime, in promoting the growth of vegetation, there are still results to be accounted for, arising from its application, that are considered due to other agencies than the earthy constituents.

It is not uncommon for sand fields of native sterility—the almost exclusive produce of which had previously been Indian grass, or sand bur—to be made permanently productive of corn, potatoes, the grasses, and cereals, in ordinary rotation, by the application of the green sand marl alone; and, to account for such results, Professor Cook and other geologists favor the view that, in the chemical transformations of the iron (its absorption of additional equivalents of oxygen), ammonia is taken up by it, and again given out to the growing plants coming in contact with it. It seems difficult to account, on other grounds, for all the effects resulting from the application of this remarkable fertilizer.

Whatever causes may be assigned for its activity in promoting the growth of vegetation, we know it to be an admirable means of improving lands, of which New-Jersey has hitherto enjoyed the monopoly. Thousands of acres of poor, unproductive land in that State, formerly considered worth next to nothing, are now producing heavy crops, and are held at high prices, solely by the influence of these marls.

In connection with this subject, we call attention to the notice of "The New-Jersey Fertilizer Company," in our advertizing sheet; having fully satisfied ourselves of the value of these marls, and of the fact that, owing to its location by the seaboard, they will be able to furnish it on favorable terms. N.

WE perceive that Messrs. Halladay, McCray, & Co., of Ellington, Conn., are the manufacturers of Halladay's self-regulating wind engine, an ingenious machine for the purpose of drawing water, churning, sawing wood, cutting straw, turning grindstone, and various other farm work. Those who are wanting a labor-saving power on their premises—one which will work well in a gentle breeze, and not too violently in a tempest—might do well to communicate with the above-named gentlemen. Their prices we perceive vary, according to the size of the mill, and the amount of machinery connected with it, from $50 to $250. N.

CHLORIDE OF LIME.

THIS compound may be formed from lime and salt. Salt, being composed of chlorine and sodium, will give up its chlorine to lime, if the two be mixed under favorable circumstances—making a compound, or rather, a *mixture*, in which chloride of lime will be a prominent part, but will be mixed with some quick lime, considerable caustic, soda, and perhaps a little hyperchlorite of lime. This com pound or mixture is of a rather caustic nature, and should not be applied, in an undivided state, to the roots of plants; but we have long believed, that if reduced by a proper diviser, as swamp mud, leaf mould, or rich loom—or if mixed with barn manure at the time of its application, or while it is accumulating—or even if thoroughly incorporated with soil, without other division—it would be an excellent manure for worn soils, well worth the attention of farmers, at least in those parts of the country where the ingredients, lime and salt, can be obtained at a small price. Our only hesitation has arisen from the few favorable reports we have heard of it from practical farmers. Others may suggest ways and means of increasing the productiveness of land, but the farmer is the ultimate judge in these matters, and we have no respect for any prescription which does not, after mature trial, obtain his approbation. Hence, having seldom heard favorable reports of chloride of lime, we had fallen into a suspicion that it might not be all that we had once believed. But we see, in the *Germantown Telegraph*, an article over the signature B, which professes to give practical results; and though it does not smack as strongly as we could wish of the farmer's style, telling us what they have done and seen with their own hands and eyes, we publish it:

A FACT FOR AGRICULTURISTS.

MR. FREAS:—It is not, perhaps, so generally known as it deserves to be, that chloride of lime is one of the most valuable articles available for top-dressing grass lands. This substance is commonly purchased at the shops, and often at a much greater cost than the cheapness of the materials entering into its composition legitimately sanction. Any farmer may make it. To do this, it is only necessary to slack one barrel of good lime with water, allowing a little more water than will dry slack it, and reduce it to a thick paste. Then dissolve one bushel of common salt, using no more water for the purpose than will just take up the mineral. This may either be used in slacking the lime, or applied after the water used in effecting that process has been evaporated by exposure. Chloride of lime is a perfect deodorizer, and should always be kept on hand for use when wanted. Made in this way, it will be found to possess all the virtues of the best article from the laboratory of the chemist, and cost less than one-twentieth the price. After being made it should be kept moist. Grass lands, top-dressed with chloride of lime, take a much earlier start, and retain their greenness much longer than those manured with other articles. It produces also a very favorable effect upon cereals—wheat, rye, oats, barley, and buckwheat—and has been used with success on corn, millet, and various other crops.

Some years ago, we said, in a little volume denominated *The Progressive Farmer*, published by C. M. Saxton & Co., 140 Fulton Street, New-York:

Many families make use of chloride of lime as a *deodorizer*, or *disinfecting agent.* They pay for it ten or twelve cents a pound; and, at that, it is ineffectual, unless used in considerable quantities. Peat is cheaper and better. When peat can not by any means be obtained, black, vegetable mould from the edge of the wood, or wherever great quantities of leaves have drifted together and decayed, will answer. If this can not be obtained, there is a sort of home-made chloride of lime, which can be prepared easily, and is worth more for agricultural purposes than it costs. To prepare it, take one barrel of lime and one bushel of salt; dissolve the salt in as little water as will dissolve the whole; slack the lime with the water, putting on more water than will dry-slack it, so much that it will form a very thick paste; this will not take all the water; put on, therefore, a little of the remainder daily, till the lime has taken the whole. The result will be a sort of impure chloride of lime; but a very powerful deodorizer, equally good for all out-door purposes with the article bought under that name at the apothecaries, and costing not one-twentieth part as much. This should be kept under a shed or some out-building. It should be kept moist, and it may be applied wherever offensive odors are generated, with the assurance that it will be effective to purify the air, and will add to the value of the manure much more than it costs. It would be well for every farmer to prepare a quantity of this, and have it always on hand.

It will be seen that our way of preparing this compound differs a little from B's. The difference is not essential. Our way would give less redundant water to be got rid of, and would be a little easier. If any of our readers are in possession of facts which tend to show the value of chloride of lime for agricultural purposes, we should be glad to hear from them. N.

PROFITABLE FARMING.

A GENTLEMAN farmer—we do not mean one who puts on airs, or farms at the expense of money made in other callings, but an earnest, self-reliant, enterprising man; one who farms for profit, and wins—wrote us, last November, as below:

"My carrot crop has just been harvested. I employed a practical surveyor to measure off just one half acre on the west side of the field you saw, and the carrots were all sold by the pound, and I was satisfied of the weight, and found it to be 21,250 pounds. This lot was entered for the premium offered by our society. They required all to be weighed, and thinking it less trouble I sold them on the lot for one-half cent per pound, and received $106 25 in cash for the half acre, besides nearly enough for tops to feed to pay the harvesting. Nothing more was done after you saw them than harvesting and loading teams on the lot. I am sorry that I did not thin one row so as to compare the difference. If any one had told me two years ago that a crop would grow like this, standing, as they did, about ten to the foot in the row, I should not have believed it; but I am now convinced after two trials."

We had visited this gentlemen a few days before. The carrots of which he speaks were exceedingly thick-rowed, not more than twelve to fourteen inches apart, and the carrots a real thicket in each row—two or three to an inch, as it appeared to us. His doctrine was, that they must be so thick in order to shade the ground. They served, as he thought, as a sort of mulching to keep the ground moist. We thought otherwise, that they should be thinned to one in three or four inches, and we are obstinate enough to think so still; though it must be confessed that he has had a great crop without thinning.

The same gentleman wrote: "My onions harvested 900 bushels of a first-rate article, and sold for seventy-five cents a bushel."

The carrots on the west side of his field were no better, as we could see, than those on the east side. The value of the crop on the whole acre must have been $212 50; and the two acres of onions brought him, at seventy-five cents per bushel, $675, making on the two acres of onions and one of carrots, $887 50.

The cost of cultivating was undoubtedly more than is requisite for small crops; but after hearing his statement, knowing him as we do to be a most reliable man, we think the increased cost was little compared with the increase of crops. The net profit was equal to that of some large farms slaternly cultivated. Perhaps we might say a thousand times greater, for we doubt whether there is much net profit in slatternly farming. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CROPS IN OHIO.

I WILL devote a few moments to giving you a statement of the crops of this State. We have had, on the whole, a dry season, but notwithstanding the drought our crops of grass and small grain have been an average. Wheat from one-third to one-fourth less than last year—condition fine. Hay and oats put up in the best order.

Corn may be put down in Ohio at about half an average crop—say one-third what it was last year, or a little more. There is a large quantity of old corn in the country, which will do much to feed out the hogs on hand. The pork crop will be below last year's—in my opinion, one-fourth. Respectfully yours,

GRANVILLE, Ohio, Sept. 3, 1856. WM. S. WRIGHT.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CROPS IN WESTERN MASSACHUSETTS.

AMHERST, Mass., July 25, 1856.

MESSRS. EDITORS:—As elsewhere, we had an abundance of rain. Farmers have suffered much from want of sunshine. Dark brown has become the fashionable color for hay hereabouts. The hay crop will be full middling. The prospect for the second crop is uncommonly good. Rye-harvest has commenced. There will be a good yield. Of wheat, but little is grown in this region. Farmers are turning their attention to it. There are no insuperable difficulties in the way of producing wheat in every part of New-England. The high prices of grain which have ruled for the last two years will be likely to put the ability of farmers to the test.

Oats never looked better. There will be an abundant yield. Potatoes promise well. The amount planted is unusually large. If the blight and the rot let them alone, the poor man's staple and the rich man's luxury will be abundant at twenty-five cents per bushel. The corn crop promises well. Never was there a greater breadth planted. Broom corn does not promise so well. Broom brush is a staple product of this valley. Till quite recently, most of the corn brooms used in the States were produced on the banks of the Connecticut; and now, I believe, more of the corn is raised in the old county of Hampshire than in all the rest of the Eastern and Middle States. It pays much better than Indian corn, but requires the best of land and skilful culture. The scarcity of grains, and the low price of tobacco, have caused the *weed* to be greatly neglected in this region. For several years past it has been cultivated to considerable extent, without difficulty; but a little Yankee skill can readily convert it into "honey dew," and the best of "Spanish cigars." Apples will be very abundant, and so of most kinds of fruit. Unless some sudden and unforeseen calamity should befal us, scarcity will soon give place to abundance, and the avocation of the breadstuff speculators will be gone.

I like the idea of National Thanksgiving. Certainly it was never more appropriate, and I hope you will assist in passing it around.

Yours, R. B. H.

[The above was mislaid, but as we happen to know that its statements are very accurate, and that its predictions are now verified, we give it a place.—Eds. P. L. & A.]

APPLE TREES BY THE ROADSIDE.

In Germany it is common to line the highways with choice varieties of the apple. The owner marks alternate trees by tying to them a red string, which in that country means, " If you will leave this fruit you may have the rest ;" and we have been told, though we cannot vouch for the truth of it, that the public generally keep the contract faithfully. Would it be so with us? We fear not. But have we not agriculturists who would set a few Goldensweets, Summer Pippins, and some fall and winter varieties along the highway that skirts their land. They might not profit much by it. Their children might not. But many a poor child, whose parents own no soil, might have delicious fruit without stealing it; many a wayfarer might regale himself on it; and the owner would have the satisfaction of knowing that, in so far at least, he had been a *benefactor*. N.

TRANSPLANTING TREES.

The time for fall transplanting is at hand. Perhaps we may say it is here. Trees will do well, transplanted any time from now till winter, if set properly, if firmly staked up, and if (in case of early setting) the whereas it is for fall transplanting. Mulching is necessary for either, ground around them be thoroughly mulched. Spring transplanting has this advantage, that staking is not absolutely necessary to success. Our climate is variable. Under the influence of scorching suns, the ground is now hot and then cold, now drenched with rains, and soon dried. Covering it with any sort of rubbish—straw, coarse hay, shavings, leaves, chips, sawdust, spent tan, etc.,—tends to equalize the heat and moisture. Ground that has such a mulching over it, receives heat from the sun slowly and imparts it slowly. Its temperature varies but a few degrees the whole year. And it retains moisture, when all around is parched. Now this holding the soil to an equable temperature and securing it against lack of moisture, is just what nature does for the trees of the forest.

In setting trees, broad holes should be dug; the roots should be laid in their natural position; the tree should be set at the same depth as it before stood, possibly a little deeper if the soil be light, and not quite as deep if the soil be heavy; nothing but pure soil, and that not over rich, should come into contact with the roots; water should be applied sparingly, just to moisten, not to drench the soil. The ground should then be covered four or five inches deep with some sort of mulching. This will fully prevent the necessity of after watering; and, if the work be done in the fall, the tree should be carefully tied with listing, or some other soft material, to a stake driven firmly, and having such a patch that the tree can by no possibility rub against it. Some portions of our country are becoming too destitute of trees. Forest trees, properly disposed, add to the picturesqueness of the landscape. They moderate the climate, affording a healthful moisture to a climate otherwise too dry. If placed about our buidings, they shelter us from the winter's blast. In summer, they invite the birds, and these destroy the insects. Here we say, cherish the society of the birds. Set trees for them to nestle in. Plant hedges, if you can do it about as economically as to build fences, that they be a covert for the birds and increase their number. Above all things, don't shoot the birds, nor suffer your children to break up their nests.

We have mentioned only a few of the advantages of the forest trees. They will produce fuel and timber enough to pay for all the labor of transplanting. If you will set rock maples, the soil being suitable, they will be worth something for sugar. They are a beautiful and clean tree. But don't set them within sixty feet of ground you wish to cultivate. They are remarkably exhausting to the soil, rendering it cold and heavy. Who does not love trees? If any, let him speak, for we are afraid he will come to an untimely end, perhaps by the gallows, or some other way not desirable. N.

The Ohio Wine Crop is estimated at 500,000 gallons. The quantity bottled for Mr. Longworth this season is one hundred and fifty thousand bottles, and with that added to his previous stock he has now in cellar full three hundred thousand bottles, mostly quarts, of which twenty thousand are of Isabella. The demand rapidly increases. The wine business, it is said, is second only in value to the great grain staples of Ohio.—*Edgefield Advertiser.*

EXERCISE, WORK, HEALTH.

A Word to Farmers' Girls.—In some recent words of encouragement to farmers' boys—*boys*, how we love them, and why shouldn't we, since *half* the hopes of the country rest in them, and we have a prodigiously long row of our own—we intimated that we might thereafter find space to say something for the girls, on whom rests the other *half* of our hopes, more especially for farmers' daughters. We can now only fulfill that promise by renewing it, as we have sometimes been obliged to pay old notes by giving new ones, and expect to be again, unless our readers are pretty prompt with us; but still we have a few *present* words for the country girls, and if there should be any future words they will find them.

With regard to the boys, all would agree that they should grow up *healthy*, *strong*, *robust*, broad-shouldered, deep-chested, inhaling at least a quart of heaven's elixir at every breath, and that any education which does not produce this result is miserably defective. All would agree that, in addition to their school education, which at best is little more than a preparation of the mind to acquire knowledge, boys should read, investigate, treasure up useful information, become intellectual—should be able to work, willing to work, never for a moment giving in to the ridiculous notion that labor is disagreeable or dishonorable, but yet intelligent enough to be able to choose their own employment, and not be restricted to a single kind of labor, as not knowing enough to do anything else. All would agree that boys should grow up to reverence their Maker, to respect their superiors, to conciliate inferiors, to live and let live, take care of No. 1, and get to be large-hearted. With a body strong enough to labor at anything, a mind adequate to direct labor advantageously, and a heart to use both for the best purposes, what could not a boy do when he has grown a man? He could take care of himself and a few more if necessary. Certainly he could.

But we have not yet learned why the girls do not need very much the same things—*good health*, *strong minds*, *and kind hearts*. If the city misses and their mamas will have it, that narrow shoulders, shallow chests, and crooked forms, artificially concealed, are better; if a thimble full of air is enough for them to inhale at once; if common prudence is vulgarity in their estimation, what then? Why we have lived long enough to know that it would be utterly in vain for us to battle away at their fashionable follies. But we have a good deal of faith in the country girls; we do not believe their mothers will be against us; and we tell them, with some sort of expectation that our counsels will be heeded, to run the pastures when they get out of school; to jump the fences, and laugh loud enough not to disturb the neighboring villages; to knock off brother Sammy's or cousin Billy's cap so good naturedly as to make him laugh loud enough to stretch his very ribs; to pick the delicious berries, and disappoint father and mother with a treat for tea that they did not expect; to do all sorts of innocent things that make girls strong and active. It does a young lady no harm to be strong;—she need not use her strength to flog her brother or her future husband, but it is well enough to have it. What an idea is this, so common among us, that a woman, in order to be engaging or interesting, must be a frail, weakly thing! Ideas are potent, and that false idea is doing more in our country to deteriorate the race, than a hundred wise men can say to counteract its influence. To farmers' daughters, we say, scout such an idea. Put it away as you would poison. What, must everybody, and everything else—your father, your brother, the very animals on the farm, be valued for being healthy, vigorous, agile, but you only for being a sickly, puny, half-developed being? It is absurd; and again we say, run, jump, tumble down if you can't help it, and then get up again; ride horseback, on a good side-saddle if you have it, but *ride* at all events, learn to manage a horse, and if you should learn how to saddle and harness one, no harm would be done; above all things, help your mothers about their work, and do it so cheerfully, that every turn you take will do you good. Nothing is better than house work to develop and mature the female form physically, and remember that whatever may be your lot in life, you will never be fit to have the charge of a house, unless you know what is to be done in it and how to do it. Health, strength, agility, is just as necessary for you as for your brother; and the way to get them is much the same for you as for him—play, frolic, out-door exercise, riding horseback, suitable work, anything that brings all your muscles into use, and makes you breathe *unrestrainedly* a great deal of pure air.

Knowledge too is as necessary for your sex as for ours. In addition to your school education, read. Do not read too long at once. Read sitting erect. We do not want you to grow crooked. To suffer yourself to grow crooked is to lay the foundation for ill-health as well as ill-looks. Do not read in a light that makes your eyes ache. We do not want your eyes to become prematurely dim. If you read trash, we are sorry, because it takes up your time for reading something useful. Read such works as you would like a younger brother to read, who you hope will become a sensible, intelligent, good man. What a ridiculous idea, that a woman should be *pretty*, but needs not to know much. We can see no reason in the world why she should not be strong in health and in mind. Her education should indeed have reference to beauty, because this is in itself a boon, and more especially because the very means which promote it, tend to higher ends —health, strength, usefulness, happiness, longevity. The romping, riding, running, reading, thinking, trying to be helpful and useful, which we have commended, all tend to give you beauty—not a mere ficitious beauty, which falls to few and may perish in an hour—but the beauty of health, of intelligence, of ability to discharge all of woman's duties.

To say that women should be as reverent as man, as conciliating, as kind-hearted, and as large-hearted, would sound strangely. In all these things and in whatever is polite, refined, tasteful, more is generally demanded of her, though we think wrongfully. In religious sensibility and moral goodness, in benevolence and refinement, we are not to demand that the daughters of our country should be better than we of the other sex *ought* to be, but we may ask them to set their standard for becoming much better than we *are*. N.

MISTAKES will happen. In our article last month on the Strawberry, the illustration which should have been inserted on page 150, was unaccountably omitted. Here it is, perhaps better late than never.

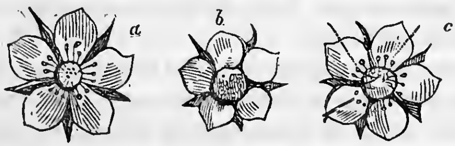


Fig. 1. Fig. 2. Fig. 3.

Fig. 1 is a perfect flower, with stamens and pistils—Hermaphrodite—self-impregnating. Fig. 2 is a Staminate or male flower. Fig. 3 is a Pistilate or female flower.

BENEFITS OF THOROUGH DRAINING.—A friend writes us, that five years ago, he harvested forty acres of wheat and produced two hundred bushels; and in 1856, on the same farm, he harvested from forty-four acres, over eleven hundred bushels of prime wheat, weighing 63 pounds to the bushel. This was caused by good cultivation, based on *thorough drainage* of the land. Who will hesitate, with the multitude of facts pressing upon the public, to attend to drainage where needed upon the farm?—*Iowa N. Y. State Ag. Soc.*

PROSPECTS FOR THE EXHIBITION OF THE N. Y. STATE SOCIETY AT WATERTOWN, SEPT. 30 AND OCT. 1, 2, AND 3, 1856.—The Executive Committee feel assured that the Exhibition, in all its main departments, will compare favorably with their previous Exhibitions. The various breeds of Cattle, Sheep and Swine, will be well represented; and horses will be shown, it is believed, equal to any previous Exhibition in the State. The Implement, Dairy and Domestic Departments, promise to be the most extensive that have been exhibited for years; and the Fruit Show will doubtless do credit to our State.—*Jour. N. Y. State Ag. Soc.*

Mechanical.

THE CULTIVATION OF THE MECHANIC ARTS THE ONLY SOURCE OF GREAT NATIONAL WEALTH.

A LARGE proportion of the controversies between individuals or communities arise from a misunderstanding or misuse of terms. Accuracy in writing is quite as important in the public teacher, as accurate thinking. Indeed, so long as one's own thoughts must be clothed in words ere they influence his own views or those of others, he may mislead and deceive both himself and them by a want of care or skill on this point. Various answers may be given to our inquiry, with more or less propriety, according to the sense in which the terms in which they are stated may be understood.

With the productive tillage land, the forests, and the whole array of facilities for agricultural success already in our possession, or at our control, what do we find? Over immense tracts, even in the older States, settled long before the revolution, tillable lands vary in price from two to three dollars per acre to as many hundreds, when designed for agricultural uses, and to forty or fifty thousand dollars per acre for certain specific purposes.

Millions of acres of wood-land are not worth clearing, while other tracts are worth hundreds of dollars per acre. Yet it is true alike of all, that agriculture, with all its modern improvements, may be carried on in any portion of these lands. Whence, then, this diversity in their value?

Large cities are thickly scattered over some sections of the country, while in others there are but few. Some of these contain immense wealth, and others are comparatively poor. Does the unequal enjoyment of facilities for carrying on agricultural operations occasion these differences?

In many places the products of agricultural labor command a high price, and in others are scarcely worth cultivating. The prices of some small and choice fruits vary from twenty-five cents to a dollar per dozen, while in others, quantities of these same fruits may be bought for a few cents. Is the regard had for agriculture, in any of its phases or conditions, the occasion of these differences?

Rents present the same diversity in value, varying from one to ten, or even twenty, for similar conveniences. The rates of wages range between equally remote extremes. Some able-bodied men cannot command fifteen dollars a month, while others, no more capable than the former, earn, with the labor of their own hands, three or four dollars per day.

The inquiry we propose has reference to the means necessary to bring up these lower prices to something nearer an approximation of the higher. And how shall it be done? There is a sense in which agriculture is at the basis of all wealth, and of all real independence, and the source of all profit. But this sense is akin to that in which it may be said that good health is at the foundation of true intellectual greatness, or that granite blocks underlying the walls of a building, alone insureb eauty and elegance in the superstructure. The health and the granite blocks are indispensable to the ends proposed, but their existence is by no means an assurance, or even an intimation, that a proper advantage will be taken of the facilities thus offered to genius, and skill, and taste.

The only real question is, how shall these facilities be turned to the greatest account?

Our answer is, BY THE CULTIVATION OF THE MECHANIC ARTS. We cannot doubt that it is the condition of the arts which determines the condition of our social institutions. They lie at the foundation of all financially-improved states of society. Commerce, with all its rich treasures, is the child of the arts. Not a ship would be built but for these. Not a ship was ever built until a demand was made for it by existing arts. This has been the case from the "ships of Tyre," and of "Tarshish" downward; and it is true at the present day. Tax your inventive genius, and, in fancy, build up a community, abounding in cities and rich in its commerce, independent of the existence of the arts. What would your ships carry? Wheat, and cotton, and fruits? To whom would you carry them? For what purpose would they be bought? Without artisans there are none to buy, none to need the raw material. Without the arts communities must be widely dispersed. There can be no concentration of population, of wealth, or of power. The people could be, ere long, no higher, no better educated, no other than a scattered peasantry. For prosecuting great enterprises, must they be powerless, for want of pecuniary means, as well as for want of facilities, and the skill to use them. Their greatest security against foreign aggression would be their poverty. If comparatively rich in anything, they would be the prey of frequent and successful attack.

When, under favorable circumstances, large cities have been built, and vast wealth accumulated, if they have afterwards become divorced from the arts, in the same proportion they have gone to decay. Look at Alexandria, in Egypt; look at Venice; and look the world over. Introduce the arts into a community, or connect the labor of a community with the arts, by the help of commerce, even at a great expense, and how rapidly do population and wealth increase! Real estate rises, rents rise, agricultural products increase in value, and all prosper.

Shut up the cotton-mills, and turn away the workers in iron, throughout England, and Great Britain, with all its immense wealth and power, would become bankrupt, and be at the mercy of not a few of the States of Europe, now greatly her inferiors. What advantage would she have over Belgium or Holland?

Real estate is of the greatest value, first, in and around large cities, and second, when it can look to commerce (in the popular sense of that term) to give it special value; and commerce can help real estate just so far as the mechanic arts enable her to find a market for the products of agricultural and mechanic labor.

Large cities grow up under the influence of the arts and commerce coöperating with each other; but as soon as the arts are neglected, commerce dies. Producers of fruit will not pay high prices for their own crops; hence they must look to these hives of mechanic and commercial industry for the most remunerative prices. Where population is sparse, as in agricultural districts, rents will be cheap. The reverse of this is equally true.

It is the mechanic arts which give special value to the mineral treasures of the world. But for these, what would be the worth of iron mines? How cheap, comparatively, would be the price of a coal bed! Families would pay more per ton or per chaldron for their yearly supply, for there would be far less competition, on account of the limited market, while the mining of a ton of coal would cost much more than it costs now. Such immense quantities are dug with existing facilities that miners can afford the very best machinery. Indeed, they can not afford to work their mines without taking advantage of the latest and best mechanical inventions adapted to such purposes.

Yet there are those who talk about "encouraging agriculture," as the "greatest of all interests," and suffering the mechanic arts to take care of themselves, forgetting that but for these thousands in every large community would be bankrupt within a year, and that every advancing step in the progress of mechanical skill adds a definite per centage to the value, real and marketable, of their own fertile acres and costly houses.

Our Southern friends are apt to talk sneeringly about "factory villages," and look contemptuously upon mere artisans, forgetting, that without these the property which they now estimate by tens of thousands could not command hundreds. The very existence of those communities, and their institutions, is now entirely dependent upon the sixteen hundred cotton mills of England. Were the market created by the prosecution of the arts in that country alone, to be denied them, their entire property, till a substitute could be found, in the prosecution of the same arts elsewhere, would have but a nominal value. But for the arts, the city of New-York, now so proud and boastful, scarcely conscious of the existence of the tens of thousands of busy mechanics lining her extensive streets with their work-shops, and covering her wharves, and loading her cars and boats with the products of their industry, would present a view not more desirable, physically or morally, than is now seen at her own Five Points, where this or a kindred process has actually been carried out, and the immense estates scattered over the broad surface of the State would scarcely exceed in value the few acres of some more obscure farmer, who plants, cultivates, and gathers the whole of his scanty harvest with his own brawny arms.

Dispute about the propriety of encouraging the arts! As well question the importance of wholesome food or of pure air. Accumulate wealth without the help of the arts? Yes, when you can sit in your granaries and cotton-fields, and hammer out genuine metal directly from the vegetable growth. But till then indulge in no such idle fancies.

"Encourage agriculture?" Yes, to fill up your barns and storehouses, and *keep them full*, without any change or diminution from month to month; for there is no artisan to buy. All are producers; and you have no money with which, even if cloth were in the market, to clothe yourself or family. You are rich in lands and crops, and have much to spare; but your purse is lean, and you feel poorer than he who has but a few acres; for with your "abundance," it avails you nothing. So it is now in the distant West, in dark corners, and the result is. that people are idle three days in the week, because they and their families do not need more than the three days' work will supply. So it was, within our recollection, in Ohio, and still more recently in Illinois.

How fortunate that you can use your own rye coffee, or prepare it from dandelions, and sweeten it with sugar of your own manufacture, so long as the implements required for such services, already prepared, are not passed using. For with the departure of the arts, with the decease of mechanical industry, commerce died. Seamen have all turned farmers; but they will die long before their land is paid for, and they can be buried only in a shroud, and that an old one! They will have no plate upon the rough box in which they are buried, nor any epitaph on their tombstone, for skill in such matters is only found in connection with the higher departments of art, which have perished long ago; and while you are conscious that you will live only in the memories of friends, you must console yourself by the reflection that you lived in, and leave behind you, a country which devotes all her gifts and resources exclusively to THE ENCOURAGEMENT OF AGRICULTURE, "the first and greatest interest of the human family."

We will not stop now to discuss how these interests can be encouraged, nor that other and simpler inquiry whether here at home, or at a distance, in foreign nations;—whether it is better that the proprietor and his employees, the stock and the artist, the buyer and the seller, should live at convenient distances from each other, or whether it is safer and better that oceans should separate them. This would seem more suited to curious and ingenious school-boys, or some village lyceum accustomed to Pickwickian modes of treating men and things. If this question is still doubtful, let there be an end to the use of acoustic-tubes in our houses, and of telegraphic-wires, and other contrivances for annihilating space, and it might be desirable to publish widely some instructions upon the mode of conducting our commerce without expense, and yet so as to give quite satisfactory profits to ship-builders and ship-owners. We shall take occasion to refer to these points when our pages are not so well furnished as now. Meanwhile, ENCOURAGE AGRICULTURE BY CREATING A MARKET FOR HER PRODUCTS AT HER OWN DOOR, and we assure you that this is the one only possible way in which this great object can be secured. P.

IMPROVEMENTS IN THE STEAM ENGINE.

FORTY years ago the careless observer of the steam engine scouted the idea of its adaptability to many of its present uses, especially to locomotion; and they who, more zealous than politic, ventured to advocate its application to this use, met with such ridicule as the following, which the counsel of the opponents of the Liverpool and Manchester Railway deemed not inappropriate to utter before a committee of the House of Commons:

"It is, I presume, agreed on all hands, that this railway, worked by horse-power, would answer no useful purpose. But they tell you they are to have steam carriages—locomotives, as they are to call them—with which they are to do incredible things. Look at their prospectuses, their pamphlets, and all that they have put before the public on this wild scheme. Here is one of their pictures, with a long imaginative description, setting forth that it is to run at ten, twelve, or even fifteen miles per hour. Of course they make no such pretense before this committee; quite otherwise. Mr. Rostrick tells you that he *believes* they will go eight or ten miles an hour. Mr. Stevenson thinks they will go six, and is confident that they will go four miles an hour with considerable loads. Very moderate, indeed, compared with the extravagant pretensions made where they are less likely to be scrutinized with intelligence; but still, as I think, much more than they will realize, if this visionary scheme is sanctioned, and actually carried out. Sir, I know something of the county in which this alleged improvement is to be attempted, and with no disrespect to it, I must say that it has a full share of rainy weather, when, from the slipperiness of the rails, it will be impossible for these vehicles to go at all; and all traffic, of course, must be suspended in wet weather, or carried on by horse-power. But even in dry weather, I question whether they will go at two and a half miles per hour—the common speed of a draft horse. But they must make some pretense other than that any known means under heaven can make their rails useful; so they set up this hobby of phampleteers and picture-makers, and trust to the chapter of accidents to turn up something else, if this fails them, when actually tried. Four miles an hour! that is one thing, not yet proved, however. But another story has been told to the deluded subscribers. They were to gallop from Liverpool to Manchester at a speed which the mail-coaches have attempted, but failed to accomplish; and it is for this committee to say whether they shall be swindled out of their money on such impudent pretences, and whether Parliament shall disgrace itself by sanctioning a scheme so wild, wasteful, absurd, and reckless, for the sake of filling the pockets of engineers and a multitude of other leeches, who will get *their* pay so long as they condescend to work, whatever may be the losses of those who furnish means to pay them."

At this time (1825) the actual condition of locomotives was such as to embolden even intelligent men to talk in this strain. It may be supposed, then, that there must have been vast improvements before trains would run at seventy-eight miles per hour. We propose to notice a few points in this series of the results of intellectual labor, without which, more hard work and capital would have been expended in doubtful competition with horse-power.

Some years after the firm establishment of the locomotive on the Liverpool railway, engineers finding, or at least concluding, that their engines did less than a twelfth as much work as the Cornish engines, with the same amount of fuel, set about making a theory to account for the deficiency. Among the causes of inefficiency, they supposed that, as the piston was driven faster than the rules allowed, it ran away from the steam, so that the pressure upon it was less than it was in the boiler; and to remedy this, they thought it advisable to give the steam more time to get in. They therefore set the eccentric in advance of the old position, which had the effect to open the steam-way before the end of the stroke. The engines worked better on a level, and with light loads; but in cases where they went slowly they did not work so well. They were, however, all altered in this way—the advantage of increased speed and economy on a level being more than an equivalent for the loss on ascents.

The steam being admitted when the piston had yet a twentieth of its stroke to perform, resisted its action for the remainder of its stroke, which evidently was a cause of loss. But experience decidedly proved that the timely opening and wide opening of the steam-port enabled the steam to get into its place, ready for efficient action, at the very beginning of the new stroke. That had all been settled by *practical trial*, and was not to be given up for theoretical considerations; and so they went on for some years, giving "a lead to the slide," as they technically termed the valve. At last, however, it occurred to some one that the steam might have difficulty in getting out, as well as in getting in; in which case there would be back pressure. This idea at once found favor, and, to test it, they made new valves for an engine, so long, that when set with the usual lead they should not admit the steam until the beginning of the stroke. The effect was decisive. There was a much better action, not only when running slowly, but at high speeds; and it was evident that the timely opening for the release of steam had been the sole cause of the improvement. This was followed by further lengthening of the valves, until they overlapped the ports a full inch, and a corresponding increase of lead; so that the exhaust port was an inch open at the end of the stroke. Thus the steam, which required a certain *time* to flow out, and reduce itself to atmospheric pressure, was allowed the time in which the piston traveled slowly, and therefore did little work, and caused but a corresponding consumption of steam. By this arrangement, the total back pressure was reduced, and the saving thus effected more than compensated for the loss occasioned by releasing the steam before it had exerted all the force of which it was capable. The saving from this head-work is shown by the following table, from Wood's Treatise on Locomotives:

GROSS AVERAGE OF COKE PER MILE.

46 lbs.	Old valve, 1–16 lap. 1839.
40 lbs.	Old valve, after an amount of fuel was kept with engineers. 1839.
36 lbs.	Valves with $\frac{3}{8}$ lap.
32 lbs.	Valves with $\frac{3}{4}$ lap.
28 lbs.	Valves with 1 inch lap.
22 lbs.	1 inch lap, with increased care in firing.
15 lbs.	1 inch lap, new engines, with larger exhaust ports, longer tubes, closer fire-box, and better construction.

From this table it appears that the increase of the length of the valve alone, reduced the consumption from 40 to 28 lbs., saving 30 per cent. of the fuel. Improvement in the *motion* of the valve, adopted at a later period, effected a further reduction.

We shall, at a future time, discuss these improvements, by which the rate of expansion was varied to suit the variable resistance. P.

MECHANICAL CURIOSITY.—With a great deal of wonder, says the editor of the New-Haven *Patriot*, we the other day saw at the store of Mr. Cannon a couple of bottles, each of which would not hold over a quart, and in one of which was a saw mill in operation, and in the other a flour mill also in operation. Both mills were moved by a crank in the neck of each bottle. The bottles and machinery are in the possession of Mr. A. H. Parkingham, who is now in the employ of Mr. Cannon. Mr. Parkingham says the machinery was built within their covering thirty-five years ago by a person who was then a resident of New-York, but now deceased. He did it on a wager of $5,000, which he won in less than three years, the time allowed for the work. It has been suggested that the glass must have been blown over the machinery, but it is also said it was impossible with such kind of bottles. They are filled full of machinery, which is braced and otherwise made strong. The neck of each bottle is filled with a plug which is keyed close to the neck. The mystery of getting in the key, when there is hardly room to get in a tool as big as a shingle nail, is as great as any other mystery about the ingenious affair.

Junior Editor's Table.

New-York as it is.—It is full of strangers, while many of her own citizens are still in the country, and trying to be comfortable, occasionally, over the fire. The streets are crowded, places of amusement are overflowing, and *unable to seat all* their visitors, and nothing is empty but the churches. At the Academy of Music, Mr. Maretzek, with a good company, and the superb Mad. Lagrange for *prima donna*, is very successful, both artistically and financially, and Mr. Hacket on the odd nights plays Falstaff and a few other characters with his well-known ability, to respectable houses. Down town, the Ravels have had a grand season. The wonderful feats of their own Hengler, the only one, so far as we know, who can rival the skill of the *Ravels proper* have drawn crowded houses every night of their performance, while the burlesque "opera-houses," and minstrels of various degrees of merit, have no occasion to complain of want of patronage.

The yellow fever has been doing an immense business, in the way of producing panics in the country and at a distance, but, like some "great men" that we have heard about, is scarcely thought of here "at home." The city was seldom, if ever, more healthy at the same season of the year. Doctors have disputed upon the point "infectious" or "contagious," with as much interest as ever Melville inquired in his travels among barbarians, "Happar or Typee." We believe the end of the debate, whatever is true of the fever, is not yet. It is, however, a question of very grave practical importance, and can be settled only by a large amount of incontestible facts carefully noted and collated.

The City is wonderfully enlarging herself. An uncounted number of dwelling-houses are going up, filling entire blocks, and taking possession of the waste lands all around Murray Hill, the Crystal Palace, and beyond. Fires, too, have lent their help in opening grounds for finer structures, though we could have desired the longer continuance of the Latting Tower, as an observatory, the center of a grand panoramic view But its destruction afforded a sight seldom witnessed, as, in the dead of night, we saw its flames ascending some twenty or thirty feet above its summit, the height of which measured about three hundred feet from the ground, which was one of the highest points of land in the city.

The Season of Fairs is now in progress. It is often a good test-fact, in respect to any event, or act, or series of acts, that both their direct and incidental influence is good. The aim of a farmer's Fair is to improve, by the offer of rewards, cattle and crops. This end, in a good measure, is secured. But we believe a still higher good is of a social and moral kind. Farmers and artists of various sorts and kinds come together and enlarge their horizon of thought and sympathy, and, while looking upon the objects, animate and inanimate, there collected, embryo thoughts nestle within their minds, and, by-and-by, are almost unconsciously conned over, and become parts of a system or a nucleus of a theory, or a key that unlocks some mystery, or, better still, are the basis of improved practice. Conversation at home, or among neighbors, is improved, just as a fire grows hotter by the accumulation of fuel. Better culture, larger fields, and a substantially higher form of life may be the later fruits that shall be gathered. To give increased efficiency to these fairs, we must secure the observance of these seasons as GENERAL *holidays*. If the 4th of July or New Year should occur at the same time only in a single township, and if its observation was confined to the inhabitants of these small territories, while the number of public days would be increased, the effects produced by them would be comparatively small. It is the social relations of these days that give them value either for the old or the young. It is when the people of a county or a state assemble, that our thoroughfares are thronged, and our stereotyped habits of domestic quiet are uprooted; and it is then only, as a general rule, that any single locality is deeply excited. But the whole community is improved by these occasional days. A plant in our parlors, whose roots, confined within a small ball of earth, are netted together and bound fast, are apt to decay. Pull it up and shake off the hardened soil, and give more room for growth and fresh earth, and how quick the new shoots will put forth. So it is in social life, if the culture is judicious, though in both cases alike, if the movement is guided by ignorance and recklessness, death is certain.

THE FAIR OF THE AMERICAN INSTITUTE, while we are writing, is preparing for a great show. We trust they will be successful.

OZONE.—In the scientific world, much attention has been given to the question, What is the matter properly designated by this term, and what is its effect on animal and vegetable life? 1st. What it is. This has been answered by M. Scoutetten, that it is oxygen in a peculiar condition, as by the electrization of the oxygen secreted by plants, or of that which escapes from water, or of that disengaged in chemical changes; or 4th, by electric phenomena acting on the oxygen of the atmosphere. He asserts further, that plants and water furnish it to the atmosphere, ordinarily, during the day, but not in the night. He supposes that "nascent oxygen" is ozone, and that it can perform combinations impossible with pure oxygen. "Nascent oxygen" is oxygen at the moment of escaping from some combination, as in plants, animals, water, etc. It is found that such oxygen, or oxygen under such circumstances, has a peculiar tendency to enter into fresh combinations. 2d. This atmospheric ozone is regarded by M. Wolfe, of Berne, as the cause of disease; and various experiments tend to show a constant relation between ozone and sundry epidemics. Observations conducted by our own Prof. Rogers, also tend to show that ozone is found in connection with W. & N. W. winds, but not in those from the opposite quarters, and the quantity of ozone was always the greatest when the wind changed suddenly to these quarters. Further observations are necessary before any theory in relation to the influence of ozone can be considered as established.

HELP YOURSELF.—It is related of Girard, that when a young tradesman, having bought and paid for a bag of coffee, proceeded to wheel it home himself, the shrewd old merchant immediately offered to trust his new customer to as many bags as the latter might desire. The trait of character revealed by the young man in being his own porter, had given the millionaire confidence in him at once. His reputation was made with Girard. He became a favored dealer with the enterprising merchant, throve rapidly, and in the end made a fortune.

Recent American Patents.

SELECTED AND PREPARED BY M. P. P.

Contrivance to Prevent Liquids Boiling Over. By John Leiblong, of Waterbury, Conn., (assigned to Edward Baown and J. R. Case.—This invention consists in placing, within the upper part of the vessel, a conical shaped cap, having an opening at its apex. When the boiling liquid passes up through the opening in the apex of the cap, it strikes against a deflecting plate, and runs down again into the vessel.

Safety Gas Burner. By Augustus R. Marshall, of Stratford, Conn.—This consists in a safety attachment, whereby, whenever the gas is blown out accidentally by a current of air, or otherwise, its escape will be immediately arrested. This result is effected by arranging a valve in connection with an air-chamber, so placed that it is expanded by heat, and the valve kept open. When the flame is extinguished, the chamber contracts, and closes the valve, and thus the gas is shut off.

New Link-Motion.—A new modification of the link has just been brought out by a Scotch engineer, consisting in a combination of the shifting and the suspended link. The link proper is a straight bar; it is sustained in the usual way, by suspension from the reversing shaft. The radius link is likewise suspended from the reversing shaft, the sustaining arm being opposite that which sustains the link proper; from which disposition, it is obvious, the one is raised in proportion as the other is lowered; and the one partially balances the other. It is claimed that, by a proper proportion, the cut-off points may be adjusted as truly as in the suspended link-motion: and that it is easier and cheaper of construction, and occupies less room than either.—*R. R. Advocate.*

New Axle Box.—D. R. Perkinpine has recently secured a patent for an axle box of novel construction for outside bearing. The novelty consists in the ready removal of the outside end and bottom, all of which is cast in one piece, separate from the other portions of the box, and also in the ready removal of the oil cellar, which is another separate casting. This leaves the entire bottom and end of the journal exposed. The object is to clean and fill the oil cellar and examine the journal with greater ease than is possible with the ordinary box, of which the end only is removeable. Two grooves are cast in the bottom of the main casting of the box, parallel with the axle, and into these grooves slides a shelf cast with the front. The moveable part is confined to the main casting by two set screws, such as are ordinarily used to screw the plate to the ordinary lightner box. We do not see any great utility in getting at the journal any more readily, particularly when the arrangement weighs more than the ordinary box. The removal of the oil cellar of driving boxes and all *inside* boxes, which, of course, can not be examined in any other way, is a good idea. Mr. Quigley's box, described in the *Advocate* of last week, accomplishes this object partially. The oil cellars of Mason's driving boxes may be entirely removed without removing the jaw brace.—*R. R. Advocate.*

Improved Vise. By R. W. Thickens, of Brashter Iron Works, St. Lawrence Co., N. Y.—Consists, first, in a peculiar means of sustaining the moveable jaw in a vertical position, so that it may be moved back and forth, parallel with the stationary jaw. Second, in the employment of a nut composed of two parts, so arranged and operated that the nut may be connected and disconnected from the screw of the vise at will. This enables the operator to push the jaws together against any article, and then secure it with the screw in much less time than can be done by the common vise.

Comparative Elasticity of Wrought and Cast Iron.—The mean ultimate resistance of wrought iron to a force of compression, as useful in practice, is 12 tons per square inch, while the crushing weight of cast iron is 49 tons per square inch; but for a considerable range, under equal weights, the cast iron is twice as elastic, or compresses twice as much as the wrought iron.

A remarkable illustration of the effect of intense strain on cast iron was witnessed by the author, at the works of Messrs. Easton & Amos. The subject of the experiment was a cast iron cylinder, 10⅝ inches thick, and 14½ inches high; the external diameter being 18 inches.

It was requisite, for a specific purpose, to reduce the internal diameter to 3½ inches, and this was effected by the insertion of a smaller cast iron cylinder into the center of the large one; and to insure some initial strain, the large cylinder was expanded by heating it, and the internal cylinder being first turned too large, was thus powerfully compressed.

The inner cylinder was partly filled with pewter, and a steel piston being fitted to the bore, a pressure of 972 tons was put on the steel piston. The steel was "upset" by the pressure, and the internal diameter of the small cylinder was increased by full three-sixteenths of an inch; that is, the diameter became 3 11-16ths of an inch! A new piston was accordingly adapted to these dimensions; and in this state the cylinder continues to be used, and to resist the pressure; the external layer of the inner cylinder was thus permanently extended 8 1-50ths of its length. In fact, it can only be regarded as loose packing, giving no additional strength to the cylinder.

Under these high pressures, when confined mechanically, cast iron, as well as other metals, appears, like liquids, to exert an equal pressure in every direction in which its motion is opposed.—*Clark's Britannia and Conway Tubular Bridges.*

Pressure Tea Bell. By Jason Barton, of Middle Haddam, Conn.—Ornamental tea bells of the gong shape, operated by pushing down a button, are extensively sold. In these the hammer is connected with a spring and escapement. In the present improvement, which is of the same form and class, the button is attached to one end of a lever within the bell and the hammer to the other; the fulcrum of the lever is placed quite near to the point where the button connects, so that the opposite or hammer end of the lever, when the button is pressed, will have a larger sweep than the other end, and strike the bell. The improvement cheapens this kind of bell considerably, and renders it more durable, as the spring and escapement are wholly dispensed with.

Improved Fire Arms.—By Gilbert Smith, of Buttermilk Falls, N. Y.—This invention is applicable to fire-arms having either the sliding or the hinged breech, and to almost any that have the breech movable separately from the chamber, which are loaded at the rear of the chamber. It consists in forming a groove around the chamber near the extreme rear thereof, to produce a lip from the solid metal of the rear of the chamber, of sufficient thinness and flexibility to be driven back against the breech by the force of the explosion of the charge, and thereby to prevent any escape of gas, and consequent loss of the force of the explosion.

Gold Washer and Amalgamator.—By W. S. Pierce, North Attleborough, Mass.—This apparatus consists of a large box, in which a furnace for producing the heat is placed. The top of the box is beveled, and covered with an inclined plane or bed, over which the crushed quartz or gold bearing dust, mixed with water, is caused to flow. Ledges or pockets containing mercury are placed across the bed so as to intercept the gold. The fire below heats the mercury, and the precious metal is thus absorbed. At the lower end of the inclined bed is a fine screen, through which the finer particles of gold that may have escaped the mercury, fall, and are received on a sponge.

Improved Odometer.—By Smith Bears, of Naugatuck, Conn.—This instrument indicates the distance traveled by carriages. It consists of a combination of small cog wheels and indexes placed in a box and fastened to some convenient part of the vehicle. An elastic connection between the instrument and one of the wheels of the carriage is so arranged that at each revolution of said wheel one of the cog wheels of the apparatus will be moved, and a change of position be thus imparted to all the others.

The Merchant's Clerk and the Plough-Boy.—The young man who leaves the farm-field for the merchant's desk, or the lawyer's or doctor's office, thinking to dignify or ennoble his toil, makes a sad mistake. He passes by that step from independence to vassalage. He barters a natural for an artificial pursuit; and he must be the slave of the caprice of customers, and the chicane of trade, either to support himself or to acquire fortune. The more artificial a man's pursuit, the more debasing is it, morally and physically. To test it, contrast the merchant's clerk with the plough-boy. The former may have the most exterior polish; but the latter, under his rough outside, possesses the true stamina. He is the freer, franker, happier, and nobler man. Would that young men might judge of the dignity of labor by its usefulness and manliness, rather than by the superficial glosses it wears. Therefore, we never see a man's nobility in his kid gloves and toilet adornments, but in that sinewy arm, whose outlines, browned by the sun, betoken a hardy, honest toil, under whose farmer's or mechanic's vest a kingliest heart may beat.—*Hunt's Merchants' Magazine.*

Recent English Patents.

SELECTED AND PREPARED BY M. P. P.

An Improvement in the Manufacture of Brushes. By George Conner, Liverpool.—This invention consists in the use of a vegetable fibre obtained from the plant called Mexican grass—*Agave Americana*—in the manufacture of brushes; the object being to obtain a cheap and efficient substitute for bristles, or for certain vegetable fibres that are now used in the manufacture of brushes or brooms.

To remove extraneous matters from the useful fibre, the patentee cuts the plant into pieces of the required length, and, after loosening the fibres by rolling, crushing, or other convenient means, dresses them, by means of a comb, in the ordinary manner of dressing other vegetable fibres or bristles. By this means, all the short waste is removed, and the fibres are then baked in an oven, to straighten them: they may then, if required, be dyed of any suitable color, by immersion in any suitable dye liquor. When dry, the fibres are submitted to the operation of heckles, in the manner pursued in treating horse-hair; and the result will be a strong, firm, and stiff horny fibre, somewhat resembling coarse horse-hair. This strong, horny, vegetable fibre may then, according to its quality, be used in the manufacture of brushes of various kinds, and may be employed either alone or mixed with other fibres.

Improvements in Apparatus for Ascertaining the Pressure of Steam, Air, Water, or other Fluid. By Frederic K. Ludewig Hahn Danchell, near Islington.

In this invention, for ascertaining the pressure of steam and fluids, instead of admitting the entire pressure of steam, air, water, or fluids or liquids to act directly upon the indicating instrument, for the purpose of showing the amount of the pressure, a part of such pressure is only admitted to act directly or indirectly upon the indicating instrument. Instead, therefore, of a column of thirty inches of mercury for every fifteen pounds of pressure, which renders the ordinary mercurial guages of equal division impracticable for high-pressure purposes, such a column of mercury only is obtained as will correspond with that portion of pressure which is admitted and made available; and this permits of the scale of the mercurial guage being reduced to any lengths most convenient to indicate any amount of pressure. The quantity of steam, air, or fluid which is to act on the indicating instrument, is limited by reducing the passage which admits the supply of the fluid, the pressure of which is to be measured by the indicator; and the instrument is regulated by allowing one part of the fluid, thus reduced, to escape into the atmosphere, while the other acts upon the guage.

We suggest to those skilled in the practical application or working of such machinery, whether some good use may not be made of this invention, with some slight modification, for affording greater security to passengers and crews in our steam navy, both foreign and coastwise.

Suppose that while half the pressure of the steam acts upon the safety-valve, the other half should "escape into the atmosphere," through a whistle. The valves are not opened till the steam is heated to a given pressure. When this legal or safe point is exceeded, not only is a valve opened, or an escape of surplus steam permitted, but all on board are apprized of the fact by a shrill whistle, so placed as to be out of the control of the engineer or captain; and the higher the steam is raised, the louder is the fact made known through this senseless organ. Confidence may not always be placed safely upon men, even though *respectably* honest. But this signal, while in order, is beyond control, and cannot perjure itself. While it is silent, passengers may feel assured of their safety, so far as this security is concerned; and if warned of danger—having knowledge of the fact, and not being obliged to rely on others' opinions—application at the right quarter would, no doubt, meet with success, and the cause of their alarm, for the time, at least, be removed. Or even a series of such tell-tales might be arranged, each having its own musical tone, and by a constant report, make known the precise condition of the steam.

Improvements in Wrought Iron Shafts for Steamboats, etc. By Geo. Tomlinson Bousfield, of Sussex Place, Brixton.

The usual practice, in constructing wrought-iron shafting, has been to weld and forge it in one piece, while the difficulties in getting sound shafts by such means of manufacture greatly increase as the diameters of the shaft increase. This invention consists in constructing each shaft of several pieces, which are not welded together, but are caused to retain the form of a shaft by being fitted together and bound by strong hoops or rings of wrought iron. For this purpose, a central bar is used, of comparatively small diameter as compared with the intended diameter of the shaft—having around it several sectional pieces which make up the diameter desired. The shaft is constructed of such a number of separate pieces of wrought iron as will make each piece from its size best adapted for the process of hammering, so as to be thereby the most strengthened, and rendered free from defects. Six or eight pieces work well. Each piece is forged and hammered separately, and planed into the required shape; each piece is also tongued and grooved longitudinally, for the purpose of interlocking the pieces together lengthwise; cross grooves are also cut in the adjacent faces of the several pieces, for the insertion of steel keys, to prevent any movement of the pieces among themselves lengthwise of the shaft. The pieces are fitted together with their longitudinal tongues and grooves, and lateral keys, and then bound with large wrought-iron collars, which are to be fitted on hot, and shrunk by cooling. The large hubs or centre pieces, which carry the paddle-wheel arms, are also fitted and shrunk on in the same way, and serve as powerful collars to bind together the shaft. These collars and hubs may be fitted on over the ends of the lateral keys, or some of them, to prevent their starting out; the large crank is also fitted on hot, and shrunk by cooling, so as to make that serve as a collar to bind the shaft.

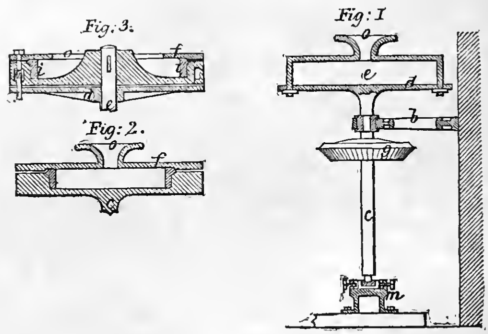
Improvements in Apparatus for Extinguishing Fires, and for other purposes. By Thos. Taylor, of Manchester.

This invention relates, firstly, to the apparatus through which water is discharged for the purpose of extinguishing fires, and consists in the adaptation of fixed blades, vanes, or similar parts, in front of the orifice thereof, by which means the fluid becomes divided, and is caused to cover a greater area of the ignited surface. Secondly, to apparatus for extinguishing fires, and also to ornamental fountains, and other apparatus by which it may be desired to cause a spreading of the fluid, and consists in the adaptation thereto of revolving blades or vanes, which receive motion from the pressure of the fluid as it passes onward to be discharged.

Improvement in Machines for Threshing and Winnowing. By Oliver Maggs, of Dorset.—This invention is as follows:

In constructing the winnowing apparatus of a thrashing machine, and also of a winnowing machine, two riddles or sieves are in each case employed, one above the other; but, in place of allowing the grain to fall from the upper sieve or riddle directly on to the lower one, an inclined partition is employed, on to which the grain from the upper sieve or riddle falls, and by it the grain is conducted to the end of the lower riddle or sieve, and streams of air from a blowing machine are directed over and between the riddles or sieves, as heretofore. It is preferred to use two sets of such riddles or sieves and partitions in a thrashing machine. And in constructing the shaker of a thrashing machine with rotatory rakes, in place of having all the rotatory rakes of the same diameter, some are made of larger diameter than the others. The larger rakes are placed either alternately with the rakes of smaller diameter, or there may be more than one of the smaller rakes between two of the larger rakes. Below the rotatory rakes there is an incline, down which the grain which is shaken out descends to to the lower winnowing apparatus, as heretofore.

Improvement in Casting Metals. By John Henry Johnson, of Lincoln's-inn-fields.



This invention relates to certain peculiar constructions and arrangements of machinery or apparatus for casting wheel tyres and rims, either toothed or plain, hoops, bands, drums, and all other articles of an annular form, by the aid of centrifugal force, whereby the central core, hitberto employed for casting such articles, is dispensed with, and the work is effected with accuracy and economy.

In the engraving, fig. 1 represents a vertical sectional elevation of one arrangement of centrifugal moulding apparatus for casting wheel tyres, rims, or other hoops or rings, of any diameter and thickness.

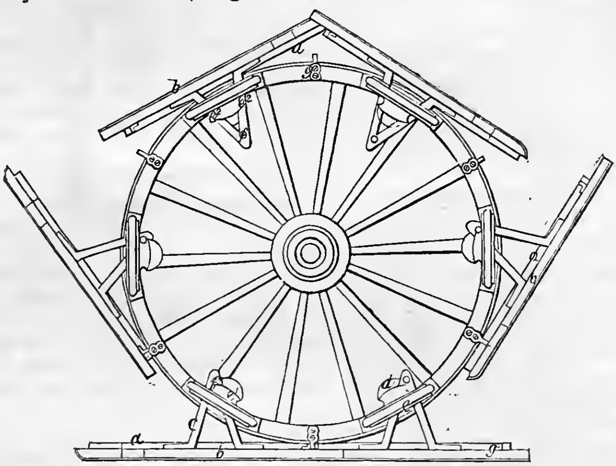
c is a vertical shaft, which receives rotary motion through a bevil-wheel *g*, keyed thereon. This shaft is supported near its upper end by a bearing in the bracket *b*, and works at its lower end in an adjustable footstep bearing *m*. On the upper end of the shaft *c*, is fitted the circular mould or chill *e*, which is keyed to the disc *d*, formed on the end of the shaft. A funnel-mouth *o*, is formed in the centre of the mould, into which the moulten metal is poured. The rapid rotary motion which is imparted to the mould by the driving-shaft and bevil gearing, causes the metal to fly off by centrifugal force from the centre of the mould to the periphery, and there form a ring of perfectly even thickness all round, and of an external contour corresponding to the shape of the periphery of the mould.

In the arrangement shown at fig. 1, the mould is intended to produce a plain ring, suitable for the rim of a wheel, or other suitable purpose. Fig. 2 represents an arrangement of mould for casting wheel tyres; it is of a somewhat similar construction to fig 1, with this exception, that the top plate or cover *f*, is bolted on to the bottom of the mould, which is shaped so as to produce the flange of the tyre.

In fig. 3, the mould is rotated by bevil gearing, as in fig. 1, and rests upon and is bolted at *n*, to a disc *d*, on the end of the vertical shaft *c*. An internal boss is made in the centre of the mould, through which boss and the end of the shaft a key is driven to connect them together. The sides of the boss are curved or sloped all round from the top outwards, so as to cause the molten metal which is poured in at *o*, *o*, to run more freely towards the periphery, which is so shaped as to form a wheel tyre. The ring or annular cover *f*, is bolted on to the mould by the bolts *n*, *n*, in order to prevent the metal from flying out during the rapid rotation of the mould. By suitably shaping and indenting the periphery of the mould, the rims of external toothed gearing of all kinds may be cast with facility; or by having the internal periphery plain, and pouring in a suitable amount of metal, thin circles or hoops of cast steel may be formed, suitable for ribbon saws or springs.

From the above description, it will be obvious that annular articles of all kinds may be cast of any metal without the necessity of making separate moulds and using internal cores; and the rings so cast may afterwards, if found requisite, be submitted to a rolling mill or forge hammer, for the purpose of further working the same, and reducing them to the desired size and form. By afterwards cutting the rings so formed, they may be rolled out straight into lengths or bars, which may be used for any suitable purpose.

Portable Railways, or Apparatus applied to Carriages to facilitate the Draft. By James Boydell, Regent's Park.



This invention is applied to the wheels of carriages or heavy wagons. etc., and consists in the application of moveable detached parts of a railway to the wheels of carriages, whereby each part is successively placed by its wheel on to the road or land over which the carriage travels,—each part of the portable railway, when down, allowing its wheel to roll over it; the wheel depositing and lifting the parts of the railway in succession; and the present improvements consist in the application of side pieces to each portion of the moveable rails, so as to obtain a more extended bearing for the rails whilst the wheel is passing over it; and the invention also consists in the construction of the parts of the portable rails by combining trough iron and wood, to obtain great strength with lightness.

The Figure in Plate III. shows, in side view, a wheel with the improved apparatus applied thereto. The parts of the rails on which the wheels of a carriage run, are each fixed to a plate, by preference of wood strengthened with iron, so that the surface bearing of the plate is considerable, as compared with the width of the tyre of the wheel—the plate extending considerably on either side of the rail on which the wheels run. The ends of the bearing plates are formed so as to match into each other, and in each case to extend beyond the end of the portion of rail which a bearing plate carries; so that when a carriage wheel comes to the end of one portion of rail, it does not come to the end of the bearing plate on which that part of the rail is fixed, but is received on to and is supported by the next portion of rail, before the wheel has passed beyond the end of the previous bearing plate. In the drawing, there are shown to be six portions of a rail to each wheel; and each portion of the rail *a*, is fixed to the bearing plate *b*; and, for lightness, with strength and stiffness, it is preferred to use light troughs rails of iron, filled with wood, and fixed by rivets or otherwise to the bearing plate *b*. To each of the bearing plates *b*, is affixed or formed the triangle *c*, which passes between the two guide plates *d*, *e*, fixed to the side of the wheel—one such pair of guide plates *d*, *e*, being used for each bearing plate *b*. These triangles have each a projecting stud or pin *f*, through them, and the guide plates *e*, fixed to the wheel, have each a raised surface e^1, with hollows or notches at the ends, at e^2, by means of which, together with the stops *g*, the bearing plates *b*, are correctly laid on to the ground; and this is effected by the pin or stud *f*, entering the forward notch e^2, of the guide plates, whilst the back end of the bearing plate which is about to be laid down, is correctly gauged by one of the stops *g*. Similar stops may be applied in the opposite position, to assist in backing the wheel, and the bearing plates will be taken up or lifted correctly by the studs *f*, coming into the back notch e^2, of the guide plates *d*, *e*,—the other end of the bearing plates coming against the stops *g*, as they are lifted up. By this construction and mode of combination, the parts of a portable railway will at all times be laid and taken up correctly, notwithstanding the bearing plates are detached and independent of each other. The patentee remarks that the invention is applicable to all classes of carriages with wheels, whether moved by animals or by steam, or by other power. He claims the combination herein described.

An Improved Mode of extracting Metals from their Ores. By John Forrest, of Dears Place, Somers Town.—In carrying out this object, the ore is reduced to small pieces, and immersed for a short time in a hot alkaline bath, in order that it may absorb within its pores or fissures a portion of the alkaline solution. The broken pieces of ore, when saturated with the alkaline solution, are removed from the bath, and subjected to the action of a white heat in a muffle retort, or other suitably constructed furnace. While under this heat the alkali will become fused, and, forming a flux, it will greatly facilitate the fusion of the metallic matters contained in the ore, and the separation of the precious metals from their combinations.

Another and most important part which this flux plays in the operation is to cause the small particles of gold or silver to agglomerate in large beads on the surface of the broken pieces of ore, and thus to prevent the loss of the precious metals by sublimation.

The ore having been subjected to a white heat sufficiently long to reduce the gold to a pure metallic state (which will in general take place in about fifteen minutes, more or less, according to the quantity of ore under treatment,) is discharged from the muffle or furnace into cold water, whereby the ore is rendered very fragile, and capable of being readily crushed and reduced to powder. The precious metals may then be separated by any of the ordinary washing or amalgamating processes.

The composition of the alkaline bath may vary, but the following is found cheap and efficient:—(1), American potash; two pounds dissolved in water sufficient to cover the broken ore to be operated upon; or in lieu thereof, (2), common soda, six pounds dissolved in the like quantity of water before indicated; or, lastly, (3), a mixture of one pound of American potash with three pounds of common soda dissolved in water, as above indicated.

When operating upon gold or silver bearing ores which contain in large quantity either iron, copper, or arsenic, the process is somewhat modified; that is, instead of immersing the ore in a hot alkaline bath, the broken ore is placed in the furnace, and a dry flux is strewn over or mixed with it. The temperature of the furnace is then raised to a white heat, and the precious metal is extracted in a pure state from the ore. By continuing this heat, the pure metal (if the ore under operation is very rich) may be run into a mass, thus rendering the crushing, washing, or amalgamating process unnecessary. When the fusing operation is arrested at the stage at which the ore is discharged into water, the gold or silver will be found in the form of beads of various sizes studding the surface of the ore, which is covered with a glaze, that insures the adhesion of the gold or silver beads to the ore, and which glaze prevents (as above mentioned) the sublimation of the precious metals. The dry flux employed (the quantity of ore under operation being, say, half a ton) is a mixture of nitrate of potash one pound, carbonate or borate of soda one pound, and common soda eight pounds.

The patentee claims, "The glazing of gold and silver bearing ores as herein described, for the purpose of preventing the loss of the gold and silver by sublimation, when exposed to furnace heat."

New Glass.—In making common transparent glass, potash and soda are generally employed as fluxes for the silica, but L. I. F. Margueritte, of Paris, has obtained a patent for dispensing with these in making transparent glass, by the use of silica, lime and albumen alone. By calcining a mixture of silica 65·47 parts, lime 25·80, and albumen 8·73 parts, a perfectly transparent glass can be manufactured.

New Method of Manufacturing Iron and Steel. By M. Bessemer.—English journals, recently received, contain a very long but very satisfactory account of a new process, as above described, which promises to be of immense importance. At present we have room only for general statements.

The ore is now placed in the smelting or blast furnace, and run into short pieces called *pigs*, and these pigs are afterwards transferred to a second, the fining furnace, and again to a third or puddling furnace, where it is exposed to an immense heat, till it is in a proper condition to be rolled into balls or "blooms." It is then put under a tilting hammer, and through a pair of squeezers, or taken to a steam forge, and thus, at very great expense, is converted into malleable iron.

M. Bessemer's new method is as follows:—The melted ore is run out from the smelting furnace into a "converting vessel," where it is exposed to streams of *cold air*. Pig iron contains carbon, sulphur, phosphorus, silicium, and other impurities, from which it must be freed. The oxygen of this cold air, forced through the liquid mass, unites with the carbon in the melted pigs, and thus produces a very powerful combustion, which consumes a portion of these impurities, and causes other portions to rise to the surface, as a scum. The whole mass, coming successively into contact with these streams of air, is also completely liquified and made homogeneous in texture, composition, quality, etc., and it can be drawn off and made into masses of any size. The "boil" will continue till the carbon is consumed. The moment this terminates, the mass must be run out, or, by contact with the cold air, it will harden with great rapidity.

The old process was very expensive, not only from the immense consumption of fuel, but from the necessary waste of the metal. The gain of the new process is immense. Steel now worth £50 or £60 per ton may be produced for less than £10. In the manufacture of malleable iron the gain is nearly as great. We shall refer to this again, hereafter.

Miscellaneous.

NEW-JERSEY MARL AGAIN.

"Mr. Woolley manured a piece of land in the proportion of two hundred loads of good stable manure to the acre, applying upon an adjacent tract of the same soil his marl, in the ratio of about twenty loads per acre. The crops, which were timothy and clover, were much heavier upon the section which had received the marl; and there was this additional fact greatly in favor of the fossil manure over the putrescent one, that the soil was also entirely *free from weeds*, while the stable manure had rendered its own crop very foul.

"There can be no doubt that twenty loads of marl per acre must be regarded as an unnecessarily bountiful dressing, but computing the relative cost of the two manures when employed in the ratio above stated, we find a considerable disparity in favor of the Green Land. Placing the home value of farm-yard manure at one hundred cents for each two horse-loads, and the value of the marl at twenty-five cents per load, we have the expense of manuring one acre *two hundred dollars*, and of marling the same *five dollars*. This being an *experiment*, an extravagantly large dressing of manure was employed, but not exceeding the usual average application more than the twenty loads of marl surpassed what was necessary.

"Experience has already shown that land, once amply marled, retains its fertility with little diminution, for at least ten or twelve years, if care be had not to crop too severely; while, with all practicable precautions, the stable-manure must be renewed at least three times in that interval, to maintain in the soil a corresponding degree of vigor."

We have copied the above from the Geological report of Prof. H. D. Rogers on the State of New-Jersey, for 1836. In connection with other facts, well known to ourselves, it satisfies us of the very great value of these Green Sand Marls. Where they can be had for 25 cents a load, or even for ten times that price, farmers are beside themselves if they do not use them. Still there is a limit to their value. Prof. Rogers is, beyond all question, a good geologist. The agricultural interest owes him much. But we apprehend he may not be a practical farmer, and we therefore call the attention of those who are, to a brief comment on the above experiment.

The putting of two hundred loads of stable manure in an acre of (probably) sandy, light land, having little retentive power, was no way to test the value of such manure. The manure so applied would largely steam away into the air, and go to benefit the farms of all mankind, about as much as the land on which it was put. If Mr. Woolley had applied ten loads of marl to one acre; ten loads of marl and ten of stable manure to another; and twenty loads of stable manure to a third, the indications would not have been, as they were, that one load of the marl was worth more than ten loads of stable manure. We have not one doubt that they would have indicated a very high value for the marl, and we believe that if experiments were to be repeated for a lifetime, they would prove (in fact hundreds of experiments for these twenty years have proved) that this marl is worth far more than the "New-Jersey Fertilizer Company" are proposing to furnish it for, all along our coast and on the banks of our rivers, wherever it can be shipped nearly to the place. But we are always sorry to see statements which seem to depreciate the value of barn manure. The husbandman should think much of this, should preserve it carefully, use the last load, and then purchase fertilizers to supply the deficiency, inasmuch as no barn furnishes as much manure as is to be desired; and since the recent opening of that immense bed of marl on the New-Jersey shore, at a point most favorable for shipping, we have no doubt that the trade in it will be profitable both to the seller and the buyer.

Mr. Mechi's Exhibition.—Mr. Mechi's annual gathering was held this year on the day succeeding the Royal Agricultural Society's Exhibition at Chelmsford. Six hundred were present; more than ever before. By a liberal application of capital, Mr. Mechi has converted 175 acres of before nearly worthless land into something like a garden. His draining is three and a half feet deep. His irrigation is magnificent. All his manures are applied in a liquid form, scarcely differing in appearance from rain water a little riled, as if in a barrel of it there were dissolved a handful of concentrated manure, or a shovelful of common barn-manure. Whether he makes or loses money by his farming we know not; but from having seen in 1853 his enormous crops of wheat, barley, turnips, &c., &c., and knowing as we did from adjoining lands, not yet reclaimed, how miserable his soil was a few years before, we could not but believe that in the end his farming will pay. There is not capital in our country to expend as lavishly as he expends it. The time has not yet come, nor will it for a long time, for us to expend as much on a single farm. If we thought it necessary we would warn our countrymen against it. But we hardly think it is. Hundreds of dollars, we believe, are lost by not reclaiming our wet lands soon enough, to where one is by reclaiming them too soon; and the danger among us of using capital in agriculture too sparingly is greater than of using it too freely; but good sense is profitable to direct, and we suppose that Mr. Mechi's example would be somewhat better for an agriculturist who has a very lucrative trade in Broadway, in Chestnut or Baltimore street, than for one who looks solely to the land for his money. N.

Terms.—We promised in a former Number to adhere, as far as possible, to the use of terms which are universally understood; and occasionally to explain scientific terms in a little vocabulary for that purpose. In pursuance of that plan we give the following:

Sulphate of Lime; Gypsum, Plaster of Paris; a chemical compound of 40 parts of sulphuric acid (oil of vitriol) to 28 parts of lime and 18 parts of water. The experiment of putting plaster with green manure for the corn crop has succeeded admirably in many trials.

Sulphate of Ammonia; a chemical compound of sulphuric acid and ammonia, very soluble in water, and favorable to the growth of plants. It is obtained from the water of gas works.

Carbonate of Lime; a compound of carbonic acid and lime, 22 parts of the acid to 28 parts of lime. Marble, common lime stone and a portion of marls, and a small portion of all soils, are carbonate of lime. Carbonic acid is the gas which rises from foaming beer, cider or wine; also from soda water, and from a bit of chalk or limestone when you drop vinegar upon it. It is injurious, if taken into the lungs—destroys life if breathed in large quantities, as in the bottoms of dry wells—but is wholesome when taken into the stomach, as in soda water. It arises from fermenting manure heaps, also from rich soils; water readily absorbs it, and brings it down in the form of rain. It constitutes a large portion of the food of all plants.

Carbonate of Ammonia; a compound of carbonic acid and Ammonia. Ammonia is composed of 14 parts of Nitrogen and 3 of Hydrogen. It rises from fermenting or decaying substances, and combines with carbonic acid, which springs from the same sources, forming with it carbonate of ammonia, a volatile gas, that is, one which flies away in the air. What is meant by fixing the ammonia is this:—Carbonate of ammonia is volatile, that is it flies away in the air and is lost from fertilizers which contain it. By putting in plaster (or sulphate of lime) if the manure be in a moist state, the volatile carbonate of ammonia is changed to the soluble sulphate; and in this form it remains for the future use of plants. Hence the great utility of applying plaster to all manures and keeping them in a moist condition.

GUANO POISONOUS.—Agriculturists should be cautious not to handle guano, or permit those in their employ to do so, with sore hands, as the poison will communicate with the blood, through a cut or scratch, when otherwise there would be no danger. Several lives have been lost in this and other countries, from a neglect of this precaution. The danger cannot be great, but should be avoided. Nor is this peculiar to guano. The handling of any thing liable to prove poisonous, as the bodies of animals that have died of disease, human bodies in post-mortem examination, and even spoiled articles of food, should be avoided, unless the hands are sound and the skin entirely unbroken. Not that the danger in any of those cases is very great; but it is well enough for all to know that the putting of scratched, cut or bruised fingers into substances that may be poisonous is not quite safe. N.

THE twenty-eighth annual fair of the American Institute, is now opened at the Crystal Palace in the city of New-York, and will close on Saturday evening, October, 25th, 1856. The Annual Exhibition of Cattle, of all breeds, and all other useful Farm Stock, will be held on on the 14th, 15th and 16th days of October, 1856, at Hamilton Square, a beautiful plot of ground of ten acres, granted by the Corporation to the American Institute for the express purpose; it lies between the Third and Fourth avenues, with its entire front on Third avenue, about four miles from the City Hall. The omnibusses and railroad cars pass the same continually throughout the day, and afford every facility for passengers to go out and return at pleasure. The most ample and comfortable arrangements for the Stock will be made, and the premium list will be found satisfactory. N.

BARLEY WITHOUT BEARDS.

IT is even so. A variety of barley has been discovered in the gulches of the Himalayan Mountains, entirely free from those annoying and poisonous beards attached to all our common varieties.

The undersigned obtained 7 grains of this new variety three years ago, and being much pleased with its general appearance and productiveness, has spared no pains to multiply this small quantity as fast as the Shanghais and other birds would allow.

Its merits for grinding or malting have not been traced, and the quantity is now too small to squander in that way, when every tiller of the soil who sees it is anxious to have a few grains, not doubting it will prove a valuable acquisition. I have sufficient, however, to furnish all persons interested who will be likely to see this notice, with one head each, containing 30 to 60 grains. Send me your address, on a stamped envelope and I will enclose a head, and send it back by return mail, with printed instructions for cultivating in a way to insure a large return from a small quantity of seed. Should this new variety be found to answer all the purposes of the common barley, a few years will suffice to drive the "Barley Beards" from the country.

Should any person desire more than the one head, I will send a package of 700 to 800 grains securely enveloped, by mail, post-paid, for 25 cents, accompanied with a few heads, to *prove the fact* of its being beardless. Address, I. W. Briggs, West Macedon, Wayne Co., N. Y.

PRESERVING APPLES.—If apples are carefully packed in hard wood sawdust, (how it would be with pine we know not,) they will keep in an open garret through our coldest winters. This we have tried, and we know it for a certainty. But in packing, care should be taken that none of the apples touch the barrel nor each other. We have had them open in fine order, when thus packed, long after those in the cellar were rotten, or so withered as to be useless.—N.

A GEM.—An eminent modern writer beautifully says: "The foundation of domestic happiness is faith in the virtue of woman; the foundation of all political happiness, is confidence in the integrity of man; and the foundation of all happiness, temporal and eternal—reliance on the goodness of God."

To the Reader.—Several gentlemen from various parts of the country have enclosed to us the price of this journal to single subscribers. We take this in all cases to be a voluntary contribution to sustain our efforts by paying a little more than the lowest price; but, whatever be the motive, they have our hearty thanks. Equally hearty thanks do we give to another class. Many residing in the East, but having a son, a son-in-law, or perhaps a brother, cultivating the soil of the far West, have ordered our paper to be sent to them, with the double object, as we suppose, of encouraging us, and of presenting a token of remembrance, a valuable present, which will last all the year, to a distant relative. We regard this as a peculiar favor, because it tends to make our journal still more extensively known. We learn, also, that others—persons to whom we have sent specimen numbers—are busily at work, getting up clubs, entitling them to our journal at reduced rates. Success to them. We will forward the premium books promptly; or any one, sending six or more names, may retain one-fourth of the money, if he chooses, as we have stated otherwhere. (See 2nd page, cover.)—Eds. P., L. & A.

To Advertisers.—Our subscription list is increasing. We commenced this volume with 5000 copies, and have a reasonable prospect of a large increase hereafter; consequently our journal will be an excellent medium of communication between the manufacturers of farm implements and those who use them.

We would gladly aid the manufacturer of implements of real merit; and at the same time we would carefully guard the farmer against the purchase of implements which we do not believe would give a full return for his money.

Manufacturers of such implements as will show well for themselves, will please let us hear from them.—Eds. P., L. & A.

N. Y. State Agricultural College.—A meeting of the Trustees of this Institution, was held at Ovid on the 12th inst. Hon. John A. King was re-elected Chairman for the ensuing year, and vacancies in the Board—occasioned by the death of John Delafield, the resignation of N. B. Kidder as Treasurer and Trustee, and T. Delafield as Trustee—were supplied by the election as Trustees of Hon. J. B. Williams, of Ithaca, Rev. Amos Brown, of Ovid, and Hon. Samuel Cheever, of Waterford. Joel W. Bacon, of Waterloo, was elected Treasurer, and Rev. Amos Brown, Secretary. Messrs. Bacon, Brown and N. P. Ellis, of Ovid, were appointed a Committee to obtain subscriptions, and desired to obtain special subscriptions for the endowment of the "Delafield Professorship of Agricultural Chemistry." The Committee on Subscriptions reported the amount subscribed as exceeding $40,000, which, with the $40,000 appropriated by the Legislature for the endowment of the College, "renders its establishment in full and successful operation at an early day no longer a matter of question." It is said that the people of Seneca county, and especially the citizens of Ovid, have subscribed liberally, and, it is anticipated that the farmers and friends of Agricultural Education in other sections will aid in endowing this State Institution.

[Since the above was in type, we learn that the Hon. Samuel Cheever, ex-President of the State Agricultural Society, has been appointed President of the Society, and has accepted. We learn also that the College is fully located at Ovid, Seneca County, on a farm of 670 acres.]

Lean Diet.—A Methodist minister at the West, who lived on a very small salary, was greatly troubled at one time to get his quarterly instalment. He at last told the paying trustee that he must have his money, as his family was suffering for the necessaries of life. "Money?" replied the steward. "*You preach for money!* I thought you preached for the good of souls!" "*Souls!*" replied the minister; "I can't *eat* souls, and if I could, it would take a thousand such as yours to make a decent meal"

Hotel Life in New-York.—Many noble natures are ruined by the fashionable follies and vices of American society. The old relations and endearments of home are almost unknown in gay circles; there is no inward life, no retirement, in which the graces of the heart are nurtured. All is life outward, gay, dazzling, aiming at display, asking for admiration. The *Transcript* has some pertinent remarks on the influence of hotel life in New-York:

"Take, for instance, a woman brought up in one of our New-England or western towns, of good parentage, some culture, and decided attractions: you have the germs of a superior character. Choice society, retirement, a life of tranquil improvement, would develop the bud into a consummate flower. Perhaps such a girl marries a business man, who brings her to a New-York hotel of the first class. For the first time she is exposed to an epitome of the great world; daily she is seated beside a foreign adventurer or an old coquette. The rude and the gentle, the pleasure-seeker and the speculator, the politician and the trader, the vulgar and the cultivated—all mingle in the sphere of her daily life. Having no house-keeping to attend to, time hangs heavily on her hands; she loiters in the drawing-room, and chats on the stair-case; she dresses elaborately for strangers' eyes; partly from curiosity and partly from *ennui*, she meets half-way advances to an acquaintance, and before the winter is over, is on familiar terms with scores of people, of whose antecedents she knows nothing, and whose companionship fritters away her time, and begets a love of admiration, which finally becomes as requisite an excitement as alcohol to the inebriate. This feeling grows less and less fastidious, and exacts more in quantity than quality; emulation feeds it. To outdo the others of her sex in the house, and collect the largest circle, or retain the greatest beau, is the goal of her ambition. She soon forgets how to blush, and learns to talk loud, loses all charm for the refined and intelligent, and prides herself upon being *fast*. When some country cousin or early friend meets her unexpectedly, it is difficult to believe she is the same person known of yore, so completely is the down rubbed off the peach, so wholly is the original interest of character evaporated. To unsex a sweet and modest girl, there is no quicker process than unmodified hotel life in Gotham. The picture, however, must be seen and studied to be appreciated.—*New-England Farmer.*

Profit of Fruit.—Examples almost without number may be given, where single trees have yielded from five to ten dollars a year in fruit, and many instances in which twenty or thirty dollars have been obtained. If one tree of the Rhode Island Greening will afford forty bushels of fruit, at a quarter of a dollar per bushel, which has often occurred, forty such trees on an acre would yield a crop worth four hundred dollars. But taking one quarter of this amount as a low average for all seasons and with imperfect cultivation, one hundred dollars would still be equal to the interest on fifteen hundred per acre. Now, this estimate is based upon the price of good winter apples for the past thirty years, in one of our most productive districts; let a similar calculation be made with fruits rarer and of a more delicate character.

Apricots, and the finer varieties of the plum, are often sold from three to six dollars per bushel; the best early peaches from two to three dollars; and pears, from hardy, productive trees, two to five bushels per tree, with good management is a frequent crop, and on large pear trees five times this quantity. An acquaintance received eight dollars for a crop grown on two fine young cherry trees, and twenty-four dollars from four young peach trees, of only six years' growth from the bud. In Western New-York, single trees of the Doyenne or Virgalia pear have often afforded a return of twenty dollars or more, after being sent hundreds of miles to market. An acre of such trees, well managed, would far exceed in profit a five hundred acre farm.—*American Agriculturist.*

American Enterprise.—One of Hoe's celebrated six-cylinder printing presses—with experienced workmen to superintend it—was sent from this city by the Ericsson, on the 10th inst. It is to be used for printing Lloyd's Weekly Newspaper, in London. This is a large first-class weekly journal, having a circulation of 140,000 copies. The time was when we used to import our printing presses from London, but the tables have turned in our favor, and we are paying back our debts with compound interest. —*Scientific American.*

Golden Rules of Life.—All the air and the exercise in the universe, and the most liberal table, are but poorly sufficient to maintain human stamina if we neglect other operatives—namely, the obedience to the laws of abstinence, and those of ordinary gratification. We rise with a headache, and set about puzzling ourselves to know the cause. We then recollect that we had a hard day's fag, or that we feasted over-bountifully, or that we stayed up very late; at all events, we incline to find out the fault, and then we call ourselves fools for falling into it. Now, this is an occurrence happening almost every day, and these are the points which run away with the best portion of our life before we find out what is for good or evil. Let any single individual review his past life: how instantaneously the blush will cover his cheek when he thinks of the errors he has unknowingly committed, because it never occurred to him that they were errors until the effects followed that betrayed the cause. All our sickness and ailments and a brief life mainly depend upon ourselves. There are thousands who practice errors day after day, and whose pervading thought is, that everything which is agreeable and pleasant cannot be hurtful. The slothful man loves his bed—the toper his drink, because it throws him into an exhilarative and exquisite mood—the gourmand makes his stomach his god—and the sensualist thinks his delights imperishable. So we go on, and at last we stumble and break down. We then begin to reflect, and the truth stares us in the face, how much we are to blame.—*Home Journal.*

Instruction in Agriculture.—In the kingdom of Prussia there are five Agricultural Colleges, and the sixth is about to be opened. In these colleges are taught, by both theory and practice, the highest branches of science connected with the improvement of the soil. Of Agricultural Schools of a more elementary order, there are ten; there are also seven schools devoted to instruction in the culture of flax; two specially devoted to instruction in the management of meadow lands; one for instruction in the management of sheep; and there are also forty-five model farms, intended to serve in introducing better modes of agriculture; in all, seventy-one public establishments for agricultural education, not to mention others of a kindred nature, or those private schools where the art and science of good farming are taught.

Prussia is a monarchy, with fifteen millions of people. New-York is a republic, with three millions, and a territory which, though not quite half as large, is richer and better situated, the means of transportation incomparably superior. Prussia has seventy-one public establishments to instruct her people in farming—the science of sciences, and the art of arts. New-York has not one; and the proposition to establish a single Agricultural College has again and again been voted down in her Legislature. Ought so shameful a contrast to exist between that monarchy and this republic?—*Tribune.*

The Philosophy of Rain.—To understand the philosophy of this beautiful and sublime phenomenon, so often witnessed since the creation of the world, and so essential to the very existence of plants and animals, a few facts derived from observation and a long train of experiments must be remembered:

Were the atmosphere everywhere at all times of a uniform temperature, we should never have rain, hail or snow. The water absorbed by it in evaporation from the sea and the earth's surface would descend in an imperceptible vapor, or cease to be absorbed by the air when it was once fully saturated. The absorbing power of the atmosphere, and consequently its capacity to retain humidity, is proportionately greater in warm than in cold air. The air near the surface of the earth is warmer than it is in the region of the clouds. The higher we ascend from the earth the colder we find the atmosphere. Hence the perpetual snow on very high mountains in the hottest climate.

Now, when from continued evaporation the air is highly saturated with vapor, though it be invisible and the sky appear cloudless, yet if its temperature is suddenly reduced by cold currents of air descending from a higher to a lower latitude, its capacity to retain moisture is diminished, clouds are formed, and the result is rain. It condenses, it cools, and like a sponge filled with water and compressed, pours out the water its diminished capacity cannot hold. How singular, but how simple the philosophy of rain. What but Omniscience could have devised such an admirable arrangement for watering the earth?—*Selected.*

Book Notices, Etc.

Dred; a tale by Mrs. H. B. Stowe. Phillips & Sampson, Boston. 2 Vols.; 700 pages. $1.75.

This book, if not the lineal descendant, at least the immediate successor of Uncle Tom's Cabin, has been laid upon our table, and read with no ordinary interest. The bloody aspects of the former are chiefly omitted in this. The place of Eva is occupied by one of the most fascinating of young ladies, just returned from a New-York boarding-school, and at first naughty enough to be "engaged" to three suitors at the same time, but afterwards, under the influence of the example of personal friends, and of her own experience, is modelled into a most lovely character, far more true to nature, and far more pleasing to us, than that of Eva. She was quite too perfect for a descendant of Adam, and her unnatural maturity of mind and heart were at the same time brought out apparently without the exercise of any formative influence, and without meeting with any opposition or hindrance. In commending virtue, and illustrating the transcendent value of a sensitive and enlightened conscience, and the charm of true piety, this work has no superior and few equals, and the secret of this is in the fact, that these lessons are not obtruded upon her or upon the reader, but are living experiences, growing out of the ordinary course of events. They are a part of real life, and prove themselves to be vital truths, in the absence of which there is no true life, and nothing worth living for. Vices and lesser faults, as they are often regarded, such as selfishness in general, and peevishness and fretfulness, perhaps the most common forms of selfishness, and which produce, in real life, more misery than all the murders and other felonies combined, are made to appear repulsive and odious. Aunt Nesbit teaches quite as successfully as Nina, and Clayton and Tom Gordon are alike capital instructors, which neither Milly, nor old Uncle Tiff is second to any of them. These characteristics are quite as obvious as its anti-slavery influence, and are more constantly before the mind of the reader; but although it is probable that all these are intended by the author to be subservient to this one leading point, they have a power of their own of great value, and quite independent of every thing else. But for this, we should write differently in reference to the whole, for though fiction is a most effective style of controversy, it is not always logical nor fair. He who draws upon his imagination for his facts, and upon his genius for his combination of incidents, his causes and his consequences, must be quite destitute of skill not to make out his own case.

But those portions which bear directly upon the vexed question of Slavery are "done" with more tact then in Uncle Tom's Cabin. From these volumes it would appear, as it does in real life, that many slaveholders are among the best of good people, while, like all the rest of the world, communities present a great variety of good and bad, the majority being remarkable neither as the one nor the other.

As a whole, there is one prominent artistic defect. Nina and Dred are each the heroine and hero of half the story, and not only are they strangers to each other, but are quite separate and disconnected in the narrative. Dred is scarcely named before Nina, and many of those connected with her have disappeared, and most of those which remain play a secondary part in the plot. This has the effect of making two stories, very unlike each other,—and each essentially independent of the other.

But the book will be read the world over, and in the present excited condition of the public mind, its influence will be immense, far greater than that of any purely logical argument, or philosophical essay, though ever so able or ever so sound.

List of Patents.

Samuel Arnold, Wilson county, Tenn., for fly-trap.

James H. Banta, Piermont, improved weather strip for doors.

Jno. A. Bailey, Jersey City, assignor to John Warrin, of New-York, for reel for fishing rods.

Thos. R. Bailey, Lockport, improved mortising machine.

Moody Belknap, Boston, improvement in spike machines.

Sherburn C. Blodgett, Philadelphia, improvement in sewing machines.

Joseph Bond, Jr., Philadelphia, improvement in sewing machines.

John Boynton, East Hartford, improved brick press.

Henry Brown and William Brown, Philadelphia, improvement in ice-breaking boats.

John M. Brooks, United States Navy, improvement in means for attaching and detaching boats to and from the tackle.

Wm. S. Carr, New-York, improvement in water-closets.

Wm. B. Coates, Philadelphia, for envelopes.

Chas. H. Dana, West Lebanon, N. H., improved sash supporter.

William H. Danforth, Salem, improved printing press.

S. R. C. Denison, Rochester, improvement in carpet fastenings.

Solomon B. Ellithrop, New-York, improved metal pavement.

John W. Fowble, Cincinnati, improvement in mechanism for compressed air railroad signals.

Samuel H. Gilman, New-Orleans, improvement in bagasse furnaces.

Lorenzo D. Gilman, Troy, improved wrench.

Isaac H. Giffing, New-York, for instrument for breaking ice.

Augustus J. Goffe and Dennis Goffe, Cohoes, improvement in knitting machines.

J. H. Gooch, Oxford, N. C., improvement in straw cutters.

Peter Hannay, Washington, D. C., improved blanks for bank notes, bills, etc.

Wm. A. Jordan, Thibodeanx, La., improvement in means for guiding line ferry boats, or flying bridges.

Jacob O. Joyce, Cincinnati, improvement in corn and cob mills. Ante-dated February 5, 1856.

Joseph M. Lippincott, Pittsburgh, improvement in locks.

T. Kenton Lyon, Richmond, improved pen-holder.

David Munson, Indianapolis, improvement in lightning rods.

Sydney W. Park and Edgar S. Ellis, Troy, improvement in rotary knitting machines.

Anson H. Platt, Yellow Springs, Ohio, improved door stave.

John R. Sees, New-York, improvement in heating feed-water apparatus for steam boilers.

John Shopland, Honesdale, Pa., improved combined steam and hot-air cooking stoves.

Gilbert Smith, Buttermilk Falls, improvement in breech loading fire-arms.

D. B. Spooner and H. B. Spooner, Springfield, Mass., for mode of coloring photograph pictures on glass.

Meliwether Thompson, St. Josephs, Mo., improvement in hemp brakes.

Francis A. White, Roxbury, improvement in methods of stuffing leather.

Linus Yale, Newport, N. Y., improved bolt for vault and safe doors.

Richard Hoe, N. Y., for method of securing types on rotary beds.

Calvin Adams, Oak Hill, N. Y., corn sheller.

Daniel N. Alard, Bokely, Ohio, washing machine.

James T. Alstun, Raleigh, N. C., improvement in invalid supporters.

Luther Atwood and Wm. Atwood, Waltham, Mass., improvement in the production of oil from cannel coal.

Luther Atwood and William Atwood, Waltham, Mass., improvement in preparing oil from bitumens.

Ephraim Hall, Canton, O., improvement in mowing machines.

E. R. Barnes, Brookfield, Conn., and James B. Blakslee, Newton, Conn., improvement in felting hat bands.

Smith Beers, Naugatuck, improvement in odometers.

Jno. Drummond, Norwalk, Conn., improvement in steering apparatus.

Anthony Faas, Philadelphia, improvement in accordions.

Chas. R. Gardner, Detroit, improvement in dies for screw blanks.

Theodore Gomme and Eugene Augusta Beaubrand, Paris, France, improvement in manufacture of sheet metal ware.

Jabez W. Hayes, Newark, fruit box.

Adolpus Heddeans, Pittsburgh, improved nail plate feeding apparatus.

Fredrick W. Hoffman, New-York, improvement in fire-arms.

Ira Holmes, Leicester, N. Y., improvement in filtering sand for cider.

Chester Hunter and N. Ishsm, Norwalk, O., improved method of raising, lowering and operating farm gates.

Cyrus F. Kneeland, Buffalo, improvement in coal hods.

Frederick Kahlman, Lille, France, improvement in vehicles for paint compounds.

Frederick D. Newbury, Albany, assignor to Rickard Varick De Witt, Jr., same place, improved fire-arms.

Abner N. Newton, Richmond, Ind., improvement in fire-arms.

Wm. Patton, Towanda, Pa., improved sash fastener.

Warren S. Pierce, North Attleborough, improved gold washer and amalgamator.

George M. Ramsay, New-York, improved files.

St. Julien Ravenel, Charleston, improvement in artificial stone.

L. R. Saterlee, Rochester, mode of attaching nkstands to desks.

John Shopland, Honesdale, improved spring pullies for window sashes.

A.B. Smith and William Weaver, Clinton, Pa., improved machine for throwing projectiles.

Edward Q. Smith, Cincinnati, improvement in manufacturing chairs.

Wm. F. Shaw, Boston, improvement in treating India rubber.

Jerome B. Shaw, Pittsburgh, method of lettering and ornamenting glass.

Andrew Sprague, Coldwater, Mich., improvement in corn harvesters.

Alva B. Taylor, Newark, improvement in the manufacture of hat bodies.

Thos. W. Taylor, Connelton, Ind., improvement in spinning frames.

Geo. W. Thatcher, Philadelphia, improved chimney ceral.

Wm. O. Thompson, Orange, Mass., and Leonard Harrington, Worcester, Mass., improved mode of extracting stumps.

Chester Van Horn, Springfield, Mass., improvement in planing metal.

Chas. W. and Jno. W. Willard, Dorchester, Mass., improvement for valve gear for steam hammers.

George W. Wood, Green Bay, improved rock drill.

Wm. Wright and Geo. Brown, Newcastle-upon-Tyne, England, improvement in blast furnaces.

Wilhelm Ziervogel, Treskow, Pa., improvement in processes of separating silver from the ore.

Robert P. Bradley, Cuyahoga Falls, O., assignor to Joel Wisner, East Aurora, N. Y., machine for wringing clothes.

Hezekiah Bradford, New-York, assignor to Horatio Bogert, same place, improved ore washer.

Thaddeus Fairbanks, St. Johnsbury, Vt., assignor to John E. Schooley, same place, improvement in refrigerators.

Isaac Harmeans, Tamaqua, assignor to himself and Wm. Beckel, same place, improvement in brick machines.

Samuel Whitemarsh, Northampton, assignor to Wm. J. Demarest, Orange, N. J., improved vapor burning lamps.

Henry W. Adams, New-York, improved mould for pressing glass fountain lamps.

Levi Averill, Elmira, improvement in lime-kilns.

Jno. L. Brabyn, New-York, improvement in furniture polish.

Lewis Buchholtz, Richmond, Va., improved blastic compound.

John H. Belter, New-York, bedsteads.

Gail Borden, Jr., Brooklyn, improvement in concentration of milk.

Thos. Brownfield, George's Township, Pa., improvement in wheels for carriages.

John Broughton, Chicago, improved door spring.

Joel Bryant, Brooklyn, carpenter's guages.

Chas. S. Bruff, Baltimore, improved sash supporter.

Oscar L. Cowles, Township of Teconsha, Mich., and Allen L. Denring, Township of Homer, Mich., improvement in clamping and upsetting fire.

R. Eickemeyer, Yonkers, improved method of regulating volocity of feed for sawing mills.

Geo. Fetter, Philadelphia, and John S. McClintock, Libertyville, Ill., improvement in coupling pipes.

Ephraim D. Poss., Mainville, O., improved farm fence for rolling ground.

Wm. W. Hopkins, Chesterfield factory, N. H., improvement in knife-cleaners.

Lansing E. Hopkins, Brooklyn, improvement in felting compounds.

Abraham Southworth, New-York, improvement in paddle wheels.

Isaac G. Hubbs, New-York, improvement in machines for adding numbers.

Wm. H. King, Philadelphia, assignor to himself and Isaac Hyneman, of same places, machine for sweeping gutters.

F. A. Jewett, Abingdon, Mass., improvement in thorough braces for carriages.

Sherman McLean, Reynales Basin, N. Y., improvement in cupping instruments.

Larrkin L. Moore, Petersburgh, improvement in harvesting machines.

Wm. Osborn, Louisville, improvement in machines for pressing bonnets and bonnet frames.

Chas. Parkhurst and Chas. Weed, Boston, improved machine for forging horse-shoe nails.

Jno. Potter, Ellicottsville, improved tenoning machine.

Adonijah Randel, New-York, improved bristle separator.

Edwin A. Russell, Hookset, N. H., hand-etamp.

Henry A. Rains, Nashville, improvement in cart saddles.

Edward S. Renwick, New-York, improvement in valve motions for steam engines.

Nathan Scholfield, Norwich, Conn., improvement in projectiles.

Francis E. Sessions, Worcester, improved window sash.

Jno. S. Shapter, New-York, improved arrangement of steam cylinder within the boiler.

John S. Shepler, Beaver, Pa., washing machine.

Wm. B. Slaughter, Chicago, head rest to be used in railroad cars.

Wm. Tinker, Kelloggeville, Ohio, improvement in harvesters.

R. W. Thickens, Brasher Iron Works, N. Y., improved vices.

Chas. H. Watkins, New-York, improved self-clearing chimney cowl.

Benj. Welgert, New-York, improvement in water-proofing textile fabrics.

Greenleaf A. Wilburn, Skowhegan, Me., improved grapple for raising sunken bodies.

Clarendon Williams, Franklin, Mo., improved apparatus for boring artesian wells.

Wm. M. Barton, Russellville, Tenn., assignor to himself and Robert M. Barton, improvement in machines for drilling and dressing stone.

Levi J. Henry, New-York, assignor to Benj. J. Hart, of same place, mosqueto canopy.

Abijah D. Stowell, Fulton, assignor to John A. Place, of same place, improved wheelwright's machine.

Chas. Moore, Trenton, N. J., improvement in the process of preparing linseed, &c., for pressing in extracting oil.

Wm. M. Barton, Russelville, Tenn., assignor to himself and Robert M., improvement in rock drills.

Edward C. Shepherd, New-York, improvement in magneto-electric machine.

RE-ISSUE.

Jonathan Reed, Alton, improvements in reaping machines. Patented March 18, 1842.

The Plough, the Loom, and the Anvil.

VOL. IX. NOVEMBER, 1856. No. 5.

Agricultural.

HOW SHOULD AGRICULTURAL JOURNALS BE CONDUCTED?

IN the first place, not in all respects as they have been. In saying this, no disrespect to the Corps Editorial is intended. The commendations we often bestow on our contemporaries will shield us from such a suspicion. It would ill become us to carp at the doings of veterans in the cause, while we have hardly yet entered the lists. But our older brethren will admit that there should be progress. We call upon the farmers *to go ahead*, and we should set them the example.

Farmers, it is true, should do as their ancestors did; but they should do it only so far as their ancestors can be shown to have done the *best thing*, and not only the best *for them*, but what would be the best in our *altered* circumstances. So we of the pen should not eschew the old, merely because it is old; but we should keep up with the times; should give an example of progress; should strive, from year to year, to diffuse knowledge of a higher and a more comprehensive character, than it might have been wise sooner to attempt; much as the farmer may, in many cases, wisely undertake improvements to-day, which it would have been premature to have attempted twenty years ago.

The time was, when about all that an Agricultural Editor could do was, to retail to farmers generally what the better sort of farmers already knew and practiced. This was a good work; and well has it been done. If farmer A knew how to grow or to expend a particular crop advantageously, the agricultural papers carried that knowledge to farmers B, C, D, all the way down the alphabet, and all over the country. This was well. It should still be persevered in. What one farmer knows, all should know; and agricultural papers are the proper medium for the diffusion of practical knowledge. In accomplishing this object, they have done immense good.

As a medium of communication between farmers, agricultural papers are of great value. Let farmers write for them. On many points their teachings would be worth more than those of all the world besides. In all practical matters they have a rich experience; and the agricultural papers should convey the results of their experiments over the land. But while the retailing of practical instruction on a thousand items of agriculture, as when to plant, what seed to use, how deep to plough, what manure to apply for each plant, what food to give each animal, etc., is important, and should occupy a large portion of each paper, it has seemed to us that a higher duty attaches itself to the agricultural press—that of teaching science, not exactly as it is taught in the schools, but in a way more adapted to the habits, modes of life, and circumstances, of working farmers. We do not say that nothing of this kind has been attempted. It has. The conductors of the agricultural press have often paid generously for scientific articles. They have sometimes obtained valuable articles in return, but generally too elaborate, and not sufficiently applied to the subject in hand—better adapted to the college than to the farm. The trouble was that the writers knew nothing about agriculture; and how could they apply science to a subject of which they were profoundly ignorant? The very first requisite for a writer on this subject is, that he should know *agriculture;* he *may be* scientific; he *must be* so, if he would be capable of teaching, for no other employment involves so much science; but if he has no experience on the farm, if he has not learned agriculture from the soil as well as the books, if he has not, for some part of life, at least, hardened his own hands with farm labor, he is not competent to write on agriculture, and cannot be a sympathizing, friendly, and safe adviser to the working farmer.

Three things, then, if we reason correctly, are essential to the usefulness of agricultural papers: 1. They should abound in the details of plain, practical agriculture; should herald every improvement in the growing and expending of crops, in the management of the garden and the orchard, and in the rearing and fattening of stock. Articles on these topics should be short, direct, plain, *home-thoughts in household words.* The more of them come from farmers the better.

2. They should aim at something beyond this: should not be contented with bringing up the backward farmers, by informing them what their betters are doing, but should strive to elevate the whole farming community, to meet the most intelligent, as well as the less inquiring, with something they did not before know, or had not well considered in its relations to their employment. They should, there fore contain scientific articles of a more labored character, not perhaps attempting a methodical arrangement of any one science, in all its parts, for some of them might have very little connection with agriculture, but drawing out, explaining and applying, such scientific facts as are adapted to throw important light on the various processes of agriculture.

3. These articles should be prepared by men who understand both the science and the practice of farming. The mere scholar, however excellent as a scholar, is not adequate to the task. As we would not trust the farmer, who knows nothing of chemistry, to write on the application of chemistry to agriculture, so we we would not trust the best scholar in the world, who knows little of agriculture, to write on the same subject for farmers. N.

VEGETABLE PHYSIOLOGY.

THE GROWTH OF PLANTS.—When plants grow, they must of course obtain the substance of which their increase consists from some source out of themselves; for nothing new is created; nothing exists, after their growth, which did not exist before. Consequently the substance of the grown plant must have been taken from the matter existing about it, and manufactured, so to speak, into the form in which it is found when the plant is mature. The matter which is thus transformed into the plant is called its food.

It has been stated that during germination, or while *sprouting*, as is more commonly said, the miniature plant takes its food from the parent seed. It has food inclosed in a skin, as in corn, wheat, or barley, or in a less or more hard shell, as the chestnut, or walnut, for this purpose. The plant, or rather the enlarged germ, for it can yet hardly be called a plant, has yet no organs by which to take its food otherwhere. But when it is fairly up, spreading its first leaves, and thrusting downward and outward its roots, it no longer depends upon the parent seed for its support; and though its sack of food may not be exhausted, it draws its food from the air through its leaves, and from the soil through its roots. Plants may be said to take in about one half of their food through their roots, and the other half from the air through their leaves. But this does not decide what proportion of their food really comes from the air, because a great deal of that which the air supplies, is taken in through the roots—is absorbed from the air into the soil, is then dissolved in the water of the soil, forming a pure, limpid solution, and in that state it flows into the plant, through the root; so that in reality a great deal more than half of the substance of a grown plant comes from the air. If you should burn a hundred grains of dry hay, where does it go when burnt? It is not destroyed. Man can destroy nothing. Fire can only change its form. It can spoil the hay as food for cattle; but cannot put it out of existence. It still exists somewhere, in some form. But where is it? About ninety-five grains of it have gone into the air, in the form of various gases, and only five grains remain as ash. Now when the grass of which that hay was made was growing, it took from the air the same parts which go into the air when it burns, and it took from the soil the same parts which remain as ash. It should be remembered that all plants obtain from the soil only that which remains as ash, when they are burned; that they obtain all the rest of their substance from the air, either directly through their leaves, or indirectly *through* the soil, by their roots.

While the plant is growing, it pumps or sucks up from the soil that part of the substances which makes the ash when it is burned; and it draws in the portion which, on being burned, goes into the air, partly through the leaves and partly through the roots, this last part coming from the air through the soil; from about ninety to ninety-nine parts in a hundred in various plants coming from the air, and from one to ten parts in a hundred from the earth.

Not far from one half of the substance of plants—all that part which makes charcoal when burnt, with the exclusion of air, rather all except a little ash in the coal—enters the plant in the form of carbonic acid, a gas, or kind of air, about once and a half as heavy as common air, and, like common air, transparent and invisible. Carbonic acid, as before stated, consists of six parts of carbon (coal) to sixteen of oxygen. Now oxygen is the vital principle of the atmosphere, that which makes it support life and invigorate us when we breathe pure air. But when combined with carbon in the proportion of six parts by weight of carbon to sixteen of oxygen, it forms carbonic acid, which is poisonous to the system if inhaled into the lungs of animals, and sometimes even destroys life; but is life-giving, and productive of healthy growth to plants. When the lungs of animals inhale air, they retain a part of the oxygen to support the system, and give out as much carbonic acid. On the other hand, when the leaves of plants inhale carbonic acid—as they always do during the day-time so long as they are growing—they retain the carbon and send back into the air the oxygen. It follows, that the breath of animals is favorable to the growth of plants, because it supplies the air with the food which they require; and that the growth of plants is favorable to the health of animals, because they purify the air by retaining its carbon, and giving back the oxygen.

Thus the breath of every animal promotes the healthy growth of plants; and the breath of every plant (for plants breathe, in a certain sense—inhale and exhale air) is health-giving to animals. Were it possible that all animal life, over a whole continent, should be suddenly extinguished, all vegetable growth would from that moment be checked; and, on the other hand, if all vegetable life throughout a large continent were suddenly destroyed, men and brute animals would languish for the want of the purifying influence of growing plants on the air they breathe.

It should be kept in mind, as an inference from what we have said, that the more perfectly a soil is prepared, the more vigorously does the plant put forth its leaves to draw in that part of its nutriment which it is the office of the air to furnish. In other words, the better you care for a crop at the roots, by giving it a deep, mellow, rich soil, with a clean, loose, absorbent surface, the better will it feed itself out of the air, that great reservoir of plant-food, which costs nothing. Within reasonable limits, to be determined by the price of labor, the value of produce, and the ease or difficulty of obtaining manures, unquestionably high cultivation is more profitable than low.

N.

UNITED STATES AGRICULTURAL SOCIETY.

FOURTH ANNUAL EXHIBITION.

This great show came off at Philadelphia, as previously announced. The arrangements were well carried out, the number of entries was very large, and the attendance upon the show-ground was all that could be anticipated. Nearly two hundred thousand persons passed through the gates.

So far as the ability and efficiency of the officers could secure it, a perfect success was attained. Even the high reputation of Mr. Wilder, at least, lost nothing.

The gentlemen concerned with him, the Philadelphia city government, and others, were certainly entitled to great credit, for the manner in which they discharged their several trusts.

Daily and weekly papers have already made public to the whole country, the general features of the show, and it is needless to repeat them. We indeed have room, in this number, for a mere glance at the different departments.

Cattle.—The entries of cattle were very numerous, and from all parts of the country. The quality of the animals was of course various. Some of them would not attract special notice anywhere. But some of the best animals in the country were in those stalls. Bulls, oxen, cows, the Devons, the Durhams, the Jerseys, the Alderneys, the Ayrshires, and natives, each in their own department, made a great show. Probably no better exhibition of the kind has ever been made.

Sheep.—We failed to be impressed with the show of sheep. It might have been our fault. We viewed this department very hastily. Still there were some very beautiful fleeces.

Hogs.—The show was good, presenting the best breeds, in good condition, but it was not so extensive as the show of the last year.

Horses.—The splendid show of horses at the exhibition in Boston, led us to anticipate a similar treat on this occasion. But we were disappointed. Some of them, of course, were superb animals, but the number of the best class of horses was exceedingly limited. Family horses, by far the most generally useful, were, however, well represented. A very few splendid draft horses were on exhibition, either singly or in teams. But, with very few exceptions, trotting horses were not there. We believe there was not a single trial for speed, as trotters, in which all the horses were not on the run, through more or less of the course. Some "broke" several times on a single round. This was, no doubt, the fault partly of the rider, for he ought to know his horse well enough to guard against such occurrences. We would declare such trotting as of no account, and order a new start. We doubt whether a really fair trial can be had, among us, in any other way.

The trotting horses entered for the first premiums made good time, to wit, two minutes and thirty-four and a half seconds. Others were but very little behind. The other trials of this kind were very unsatisfactory, and ought not to have been rewarded by the grant of a premium. We do not believe in the propriety of inviting mere family horses to compete as trotters. As well admit any other swift-footed animal into this race. There should be conditions annexed to all these offers, insuring the public and the parties directly interested that comparative merit, in the absence of real merit, should not entitle to a premium.

The Vermont breeds of Morgan and Black Hawk horses, greatly excelled. We saw no others that would compare with them. Some of these were of almost matchless beauty. Yet we believe the horse that won the first prize for trotting was not a Vermonter.

Agricultural Implements.—There were several acres of ground well covered by new and useful implements, of every kind and variety, from the farm steam engine and the hugest reapers, to a fancy amateur lady's hoe. This is a new feature in the exhibitions of this Society, and one worthy of especial notice. But all our fairs are deficient in the means of a thorough trial of the merits of many competing inventions. We approve and fully endorse the recommendation of the committee having charge of awarding premiums in this department, that a separate appointment should be made for the actual trial of all such inventions, for testing their qualities in actual farm-work, under the supervision of practical, as well as scientific judges. Many implements are good under certain conditions of soil, &c., which are good for nothing under other conditions. Such may be worthy of a premium, but care should be taken that farmers are not led astray by a general commendation of what is useful only in certain unusual circumstances. These days of trial may be public, they ought to be open to all, and they may often be turned to very good account by the observation of outsiders. This was fully illustrated on the trial of the reapers at the London Fair. The reaper which obtained the prize, by no means obtained a unanimous verdict from those who witnessed the trial; nor did he obtain any exclusive possession of the market. Others sold, perhaps, as extensively as he did.

Among the machines exhibited, were many which we would like to notice in our pages, and we may do so hereafter.

The show of the tables in the HORTICULTURAL department, did not offer much encouragement to repeat the experiment, now tried, we believe, for the first time, of collecting the best samples of agricultural products from the whole country. This part of the show, perhaps the only one, indicated a lack of effort on the part of the managers. The cotton, the rice, the sugar, the tobacco, the corn, the wheat, and even the numerous fruits, &c., had no representation here. Such a show, if made, ought to be so extensive as to present to a stranger sensible evidence of the extent and variety of these products, or the show should not be attempted. A monstrous squash, or huge cucumber, or large bean-pod, are unworthy such an exhibition.

The same remarks apply to some extent to POULTRY. If fancy men wish to exhibit their own curious or beautiful birds, to the people assembled on such occasions, as a speculation, a place may be assigned them. But we doubt whether such a department adds to the dignity or utility of this Society.

In reviewing what we have written, thus far, and noticing what may be taken as unfavorable criticisms, we are almost tempted to burn our "copy." But we offer these suggestions by no means in a spirit of disapprobation or reproof, for, talk as we may about this or that department, as a whole, it was a GREAT SHOW. No country, perhaps, has yet exceeded it, still less any other Society in this country. Such was the opinion of those who have been abroad extensively and have had ample means of judging on this point. But we *can* do better, and therefore we *ought* to do better, *in some departments*. We cannot have wiser, abler, or more efficient officers; we cannot command any higher talent for planning or for executing, than we have in the present President and his associates. Superior men do not exist. These gentlemen have a much harder task than the world gives them credit for. It is a very laborious and perplexing trust which is committed to them. We know of no persons who could, in all respects, do so well, and we are not at all surprised that the Society were unwilling to excuse them from further service. They have, no doubt, *encountered* many advisers, advocates for all sorts of policies and plans, and they are worthy of all praise for doing up the business before them, so much like business men.

THE BANQUET, &c.—The dinner under "the big tent," was all that any reasonable man could ask. Those who went there to be conspicuous, or whose abilities lay chiefly in the stomach, might have preferred a more fashionable saloon, and special attendants behind their own chair. Some of the "reporters" for the daily press, have indulged in criticisms quite unworthy of the occasion. But probably they have done but little harm. The dinner was attended by about two thousand persons, and was well furnished with the substantials, which were followed by a dessert more extensive and more tempting than we have usually found on similar occasions.

The INTELLECTUAL BANQUET was made up of appropriate speeches from gentlemen eminent for their ability, and was in every way worthy of the occasion. Addresses were made by Governor Pollock, of Pennsylvania; Governor Price, of New-Jersey; Mr. Meredith, of Pennsylvania; Mr. Quincy, Jr., of Boston, and others. P.

BOTH SIDES, AND A CORRECTION, IF NEED BE.

A HIGHLY-VALUED correspondent, alluding to an article in our October number, says:

DO I UNDERSTAND RIGHTLY?

DEAR N.:—It is not without fear of receiving a merited rebuke for presumption that one, young and inexperienced like myself, ventures a few remarks on the teachings of a professor. Lest you should think that I am addicted to fault-finding, I will say that your articles met my cordial approbation, excepting (if I understand your meaning rightly) a part of the article in your October number, entitled "Farming; its relations to soils, etc." If I understand you rightly, you deprecate variety on the farm, would have a farmer confine himself to a single branch of the great art of agriculture, and think a man that knows and practices the whole art a "Jack at all trades and good for none," and that it "belittles" a man to know and practice the whole art, and that a farmer should forego his independence, and depend on the caprices of speculators and middlemen for his supplies of country produce. But I may misunderstand you; I hope I do, for it is disagreeable for friends to think differently. To conclude, I send you "Norfolk's views," as published in the *N. E. Farmer.*

"It has been said that a farmer should never buy what he can possibly produce on his farm, and this is sound doctrine. The most forehanded and prosperous farmers I know of, are those who act upon the above principle; they have 'every thing' to sell, and buy but little. They are the men who plant their own trees, raise their own seeds, as well as pigs, etc. YEOMAN."

In part our good friend misunderstands us, and in part we differ;

nor do we regard a slight difference of opinion as a very great evil, after all, since a generous forbearance is one of the most beautiful elements in that moral discipline which all of us are undergoing. Indeed if we would be perfect men—perfect, we mean, in no controversial sense—what all will acknowledge we ought to be—we must learn to love men of other religious views than our own, of other political stripes, and of other pursuits, including among the rest farmers who think with us, farmers who do not think with us, and farmers who do not think at all, if there are such, as we fear there are a few.

Our object, in the article referred to, was to castigate that thoughtless course which, we are sure, prevails with too many, of raising a little of every thing which Grandpa grew, and about as much as Grandpa did, without considering whether the times have changed, whether the condition of the soil is altered, or whether it may not be more suitable for another kind of husbandry. We do not object to the farmer's having "every thing to sell," if his farm will produce every thing advantageously, nor to his having but little to buy. But he will have some things to buy. The soil will not grow a dress ready-made for his wife, nor fashionable bonnets for his daughters; and although the bonnets of the present day are modest little things, not hiding a great deal of beauty, as of yore, yet they cost no less than when they projected as far as the cornices of the national Capitol; and the farmer who is so fortunate as to have a wife and daughters, must buy them; and so a great many other things which the soil refuses to grow. It is of no use to say that dress is *nothing*. The world says it is *something*. The world is right, too. But if it were not, it is contrary. It will have its way. The farmer must bow measurably to its dicta, or he inflicts a sort of disability—at least a social inequality—upon his family, such as every kind-hearted man would eschew. In order to meet the *reasonable* demands of a family, and to fulfill his obligations to society, he has much to buy, and consequently he must have something to pay with. It was the having *nothing* to sell that we deprecated; and we think that this, in too many cases, results from bad management, in not aiming strenuously, we will not say exclusively, at a surplus, above the wants of the household, of some one or a few staples, such as the farm is best adapted to produce.

Our idea is, that every farm, the poorest even, the worst situated, may be made to produce a surplus of something, and at some profit, though not always large. We do not advise the farmer to stake all upon a single crop. If he have not a large capital, it would be too hazardous, for that crop might fail; the season might prove unfavorable to it; and he could illy bear the loss. Nearly every farm is capable of producing the ordinary vegetables, most of the cereals, the fruits, the animal productions, as meats, butter, cheese, etc., required by a family, and then of producing a surplus of some one or two things; and as the farmer can buy such necessaries as will not grow out of his soil only by selling a surplus of what will grow from it, it becomes the great question with him, what can be grown in surplus to the best advantage, *on that soil*, *in that location*, BY HIM, with all his tastes and his distastes, his abilities and his inabilities, his family consisting largely, it may be, of women, able and willing to manage a dairy, or the reverse; more circumstances than we can name to be taken into account. To grow the necessaries for a family, so far as the soil produces them, is not very difficult; a farmer may do that who is not an adept in any one branch of farming; but to grow the surplus which is to procure the other necessaries, is another thing; it is more difficult; and here is the inducement which the farmer has to make himself more skillful in some one branch of husbandry than he could possibly be in all.

One farm, for instance, being far from market, land cheap, unsuitable for tillage, but good for grazing, may be better for wool-growing than for any other purpose. Now, why should not the owner plunge into that business? And why should he not make himself far better acquainted with that business, as regards the different breeds of sheep, the qualities of their wool, the characteristics of their meat, their adaptedness to his latitude, their degrees of liability to disease, the care they require, the remedies suited to their diseases, and a thousand other points, than the generality of farmers can be expected to be? It seems to us that he should study the subject, practically and theoretically, till he becomes so much an adept (*au fait*) in the business, that we, who have a less interest in it, would be willing to be put down only as "Jacks at the trade"—"good for nothing," *comparatively*, at that particular branch of agriculture. And that is all we meant when we used the expression. All farmers may know *pretty well* how to grow each product of the farm; but we want each of them should know *very well* how to produce some surplus, adequate to the procuring of such articles of necessity, taste, and luxury, as the farm will not grow, and to the making of himself independent.

Another farm, viewed in relation to the soil, climate, location, tastes and circumstances of the occupant, may better produce beef as a surplus; another, fine stock; another, wheat; another, the cereals generally; another, Indian corn; another, fruits and vegetables for a neighboring market; and so on, in great variety; and we hold it to be very evident, that the owner of each farm should settle the question, what he is to produce *as his main dependence*, and then, whether it be cotton or wool, beef or pork, dairy products or fruits and vegetables, wheat, corn, onions, or cranberries, let him acquire a knowledge and skill in that particular branch which none less interested will ever acquire. A grand secret of doing things advantageously is, that they be done by persons who the most perfectly know how to do them. With these explanations, we reäffirm the doctrine expressed in our last—that while the farmer grows a considerable variety of such products as are wanted in his own family, so as not to be obliged to buy what may as well be grown at home, and so as to be able to dispense, as far as may be, with the services of the "middlemen," he would do well to aim at a large surplus in some one or two items, which he, by a wise adaptation and preparation, can produce with more than ordinary facility.

"Norfolk's" instruction is not far from right. If it had been, it would not have found a place in the *New England Farmer*. A journal so truthful, so prudent, and so candid, will, however, allow us to suggest an amendment. Instead of saying, "A farmer should never buy what he can possibly produce," we would say, a farmer should produce what he can produce to the best advantage, considering the nature of his soil, its location, etc., and considering, also, all the advantages that can be ascribed to living within himself, and escaping the being made merchandise of by the middlemen. On this principle, the farmer may sometimes buy what he could *possibly* raise. For instance, Massachusetts farmers must have wheat—about five bushels, we suppose, to each person in the family; they could possibly produce it, but it would be hard to convince them that it is not better to buy it, even after passing the hands of half a dozen speculators, and reaching a price of more than double of what the Western farmer gets for it. Their soil does not utterly refuse wheat; but it refuses it except at a cost which they think too great; and perhaps they are right. If they can grow beef, pork, butter, cheese, corn, vegetables, and fruits, at double the profit, they certainly are.

Too much importance can hardly be attached to the growing, in each location, of the crops best adapted to it. Almost equally important is it, that the man who grows them should be specially versed in that particular branch of agriculture. And as it is in practice, so is it in precept: the men who have excelled in any product, are the very ones to instruct others in that branch of agriculture or of mechanics, as the case may be. Will our agricultural readers take notice of this? We want articles from them on some branch of agriculture, or in some department of mechanics, in which they excel. We ask this on the common-sense principle, that those who have traveled a way successfully know best how to direct others in it; or that he who has done a thing well, can, better than all others, tell another how to do it. We value short communications from men who know practically, and from long experience, whereof they write, more than long and polished essays from men who know more of Greek literature, Latin accidence, or Addisonian style, than of agriculture or mechanics. Some of our readers are among the best cotton growers in the country. Will they give us occasionally an article on that subject? Others excel in wheat growing, in the growing of Indian corn, in rearing superior stock, in dairy operations, in horticulture, in the nursery business, in the construction of labor-saving implements, in rural architecture, in the arrangement of farm buildings, or in some other important branch of industrial art. Will they give us their views in those departments in which they excel respectively? We want them from every part of the country, that our work may be truly national, and on all subjects connected with human industry, that it may be something more than national—the friend and helper of industrial art everywhere, and in all its forms, and an open medium of communication with each other for all "the workers" in the world of useful industry.

Thanks to our correspondent for his criticism. We are always willing to define our position: and nothing suits us better than to retreat, if we get upon the wrong track. N.

NO SENILITY.

A WRITER in the *Country Gentleman*, over the signature of Senex, complains of the undue attention given to horses, especially to fast horses, at our Agricultural Fairs. There is more truth than fiction in the "old man's" contrast of the past with the present. *Good* horses go as far to promote a nation's wealth and prosperity, as any one material object, but *fast* horses have precious little to do with agriculture. They tend more to make fast men than sure farmers.

"Ten years ago and more, I was in the practice of attending county fairs, in one of the States, where, after an interval of one decade of years, it was again my lot to be present. In those early days there was little to encourage the hard-working, enterprising, and self-denying officers—the number of spectators in attendance was at most but a few hundred, and all that was to be seen was open to the wide world; a fee even so small as a few cents for seeing the sight would not have been tolerated. Now, although the grounds were inclosed by a high fence, and a snug fee was exacted of every visitor, yet there were at least fifteen thousand persons present, and I learned that in that part of the State twenty thousand was by no means an unusual number. The funds of these Societies were thus largely maintained, and there was little of that hard-working, up-hill business once required. This would have been indeed very gratifying, had I not observed a striking difference in another direction. Formerly, every thing connected with the operations of the Society with which I was most familiar, (and the others in that part of the State were much like it,) tended to the development of the most valuable information; and all the spectators, to a man, (or *woman*, as the case might be,) were busily occupied in examining the fine animals, and learning where the breed could be procured; how to raise such large and fat oxen; how those fine squashes and excellent water-melons were cultivated; what was the secret in making that excellent firkin of butter, and those large and magnificent cheeses; which was the best made plough in the county, and whose threshing-machine run with the least friction. The reports contained much of the highest value on raising the different crops—the results of experiments on manures, underdraining, and other departments of profitable farming.

"But at this present fair, I observed that a great change had come over the spirit of the dream. Of the fifteen thousand persons present, there were about forty-five engaged in examining the new farming implements, of which there were some quite meritorious, and perhaps twice that number, including mostly ladies, were in the 'hall' (shanty) devoted to stoves, fruits and vegetables, cheese and butter, and the various household articles. The cattle had a few occasional visitors, who passed quickly along the line of posts to which they were tied, made a few random remarks, the general run of which was, 'I left a great deal better oxen than *these to* home;' 'Them 'ere cows aint a touch to mine,' etc., and passed on. The race-course was the great object of attraction throughout the day. Early in the day, this ring (nearly encircling the entire grounds) was taken by some twenty or thirty drivers of various grades, in buggies, sulkies, carriages, wagons, etc., most or all of which endeavored to show the speed of their horses. Some trotted their teams at the moderate pace of only ten or twelve miles an hour; others more ambitious, in light buggies, and with unlit segars, or sticks to imitate them, were not satisfied with any thing less than fifteen or twenty miles, while occasionally those were all passed like drift-wood by the flying sulkies drawn by the 'two forties,' the drivers of which appeared to regard with great contempt their slower competitors. As one set of charioteers wore out their steeds, others took their places, so that the ring was kept well thronged for several successive hours. Nineteen twentieths, at least, of all the spectators at the fair, were intently watching these performances the day through."

EXHIBITION OF THE AMERICAN INSTITUTE.

The Cattle Show.—This show was held on Hamilton Square. It was not so extensive as in some previous years, but in some of the departments, it was not inferior to them or to others held elsewhere. In the department of cattle, it was well worth attention. The Durham cattle were, many of them, very superior animals. Several of the bulls would rank among the best in any show. Among the Devons were also some excellent specimens. The Ayrshires were less numerous, and perhaps not of so good quality, and of the native breeds, only one or two cows were worthy of especial mention.

The Poultry Show was not specially attractive, either for its extent or the quality of the fowls. The poultry fever seems to have almost disappeared.

Pigs.—The Suffolks, the Essex, the Berkshire, and some other kinds were exhibited, of very good quality; though limited in numbers, the collection was very creditable.

Sheep.—The Southdowns were present in very large numbers. The Leicesters, the Spanish Merinos, and some long-wooled sheep, and one or two other varieties, made a very good display. Mr. Campbell, of Vermont, exhibited a fine lot of Spanish Merino rams. The Chinese rams were objects of peculiar interest to us, at least, from their novelty, being the first we have seen. They were on sale.

The Horses made a very indifferent show. A few were fine animals, and if you believe the declarations of their owners, some of them are very remarkable. But we were skeptical, and preferred trusting our own eyesight. We are not anxious to volunteer an advertisement of the animals here exhibited, and hence omit individual references. Many of them were on sale, and some were offered at auction, but with what success we have not inquired.

This show was not crowded with guests. What we wrote a year ago, in reference to the management of fairs, is even now verified by what we have witnessed the present season. A show held for three or four days, demands something not yet devised, to attract those who wish to learn from those more successful than themselves, in some particular department, at least, while the charms of the race-course, which are by no means imaginary, are of at least doubtful tendency, and attract only a part of any community. But more of this elsewhere. Such remarks are not specially required by the American Institute, and we are not disposed even to make them serve for a text.

The exhibition of this association in the Crystal Palace, was capital. Perhaps it was the best we have ever seen. In the number and character of the new machines and of recent inventions there exhibited, it was well worthy the careful notice of every mechanic, and could not fail to interest all who have a taste for witnessing ingenious combinations and applications of inventions long known, to uses hitherto not thought of, but yet simple and effective.

A description of several of these inventions will be found in another part of this number, to which we refer our readers.

Capt. Ralston's Lectures.—For three successive evenings, Capt. Ralston entertained such portion of the visitors in the Crystal Palace as knew of the appointment and as were inclined to listen, with lectures upon different branches of veterinary science, illustrating the subjects treated upon with his beautiful paintings, by the aid of his powerful magic-lantern. This was a capital idea. The only mistake was, in having other attractions so strong, as Dodworth's splendid band, to attract attention, and not giving sufficient publicity to the announcement.

Many persons were within a hundred feet of the learned lecturer who would have been highly gratified in listening, but who were ignorant even of his presence. But it was a good beginning, and in another season, better arrangements may be made for such entertainments. P.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

OSAGE ORANGE.

Prairie countries, especially where the prairies are large, are destitute of fencing material, and the law of this State is not as it was in the days of the patriarch Jacob, or at the birth of our Savior, when shepherds were required to keep the flocks of cattle and sheep from getting into mischief, or from straying off and getting lost—they are permitted to roam at large, and get their living where they can, no matter how, or from whom.

We, therefore, us settlers of a prairie country, have to fence our farms to protect our crops. One of the great studies of the prairie farmer is, to contrive how to fence his farm when his small piece of timber is exhausted. Osage Orange has been introduced here for the purpose of hedging. A large portion of the settlers, especially those from a heavy timbered country, doubt its being of much value, as the winters are often very severe, and it being a Southern plant, they fear it will kill out. But experience being a good school, I resolved to try it. One year ago last spring, I got me five pounds of the seed, and before planting them, I put them into water milk-warm, and let them soak four days, changing the water daily; then I took them and spread them on a board, and put them in the sun, keeping a wet cloth (woolen) over them, until they were thoroughly sprouted; I then planted them, covering one inch deep. In a few days they were all up. I had been told that I must take them up and bury them during the winter, or they would all kill out; but as I was busy at the time, cold weather made his appearance, and coming sooner than I was looking for him, I did not take them up. Last winter being the coldest winter on record in this part, I expected my hedge was ruined, my fence all lost. As the old saying is, "Nothing venture, nothing have," I thought I would let it go, and try again. But when gentle Spring made her appearance, and the great fountain of light had made his journey northward far enough to drive the tingling frost, whose business it had been for several months to be searching the cracks of houses, and putting men in mind that their houses were to be inspected unless covered up—when the herbs and fields began to look green, I thought I would examine my fence, and instead of finding it all dead, I found it nearly all living. The tops were dead, but the roots being green, they all sprouted up. Now if the first year's growth will stand such a winter as last was, I think there will be no danger of their being killed out and spoiled for a fence.

If they will stand the Northern winters, nothing can equal them for fencing in this prairie country; they will make a lasting living fence, secure from attacks of all kinds. But in making this fence, the proverb of "Poor Richard" will have to be borne in mind, and that is, "What is worth doing at all, is worth doing well." I have seen hedges in this State of two years' growth that would turn most kinds of stock. Where a hedge is planted the ground must be tilled as for all other crops. It needs plowing and working, in order to make the hedge strong. It must be cut the first summer after being set in the hedge-row, in June, and then again the last of August. If set late, twice cutting it off will answer. The object of cutting it is to make it spread and have it grow thick. After it gets once thickened up at the bottom, it will stop all kinds of animals, as small as the hen and her family of young chicks.

It is my opinion that the Osage hedge will become the adopted fence, in the course of a few years, throughout all of Uncle Sam's dominions, with the exception of the extreme North. Although timber is sufficiently scarce at present for the farmers of this prairie country, it will not remain so for many years, and something must take the place of rails or boards, and I have not heard of any thing that I think will make as good a substitute as the Osage Orange. Mr. Editor, I have been a subscriber to your journal since it originated, with the exception of the first volume, and if I mistake not, it is one of the best journals of the kind that I have read in the United States, though you have said but little about fencing with anything but rails or boards. Your Plough cuts a wide furrow, your Anvil takes many a hard knock from the sledge, and your Loom weaves and spreads a long web; and if this communication will help the ploughman to secure his crop after he gets his ground ploughed and sowed, I shall be much pleased. Perhaps your readers and correspondents can give me some information how to proceed in raising a living fence, which certainly must be done within a few years. This country is going to be thickly settled, and men must keep their stock in pastures, although there are at present great chances to raise cattle upon the broad prairies. L. S. Spencer.

Lynn, Warren County, Iowa.

Thanks for the above *experience* with the Osage Orange. If practical agriculturists will often give us short, matter-of-fact articles, confining themselves to what they *absolutely know*, as we believe Mr. Spencer has, our Plough will cut a deeper furrow, and will be less likely to run crooked and *balk.* If mechanics will do the same, our Anvil may receive more workman-like knocks, and our Loom give a more perfect web; or, in other words, our cherished desire to advance the great national industries, will be more surely realized. As many working men as will give us something which they *know*, but which they have reason to believe is not generally known, shall have our thanks.

The question of fencing is one of vast importance. We remember to have seen the great fire in this city, in 1835. It was a sorry sight, burning over nearly fifty acres of the city, and destroying property to the extent of perhaps forty millions. But the loss was a mere nothing compared with the cost of farm-fences in the United States. The time will come when fences *for the protection of crops* must be dispensed with. Already the cost of fences in many districts is eating up nearly all the profits of farming. But as fencing is yet the order of the day, it is a question of annually increasing importance how it can be done to the greatest advantage.

Our impression is that the Osage Orange will become hardier by acclimation, and will prove exceedingly valuable for all but the most Northern States, and perhaps for them. But we have not positive knowledge on this subject. It may become liable to new diseases or new enemies, as it travels out of its native region. We cannot now give our friend, Mr. Spencer, specific directions how to proceed; but he should understand that trimming, *trimming*, TRIMMING, is the first, second, and third rule; and we believe it is the fourth, fifth, and last. Do not be in too great a hurry. When men tell us of having a sufficient hedge the third year, we fear it will prove easy to small animals afterwards. A downward, lateral growth must be forced for two or three years, and while this is going on, an upward growth must not be tolerated. Severe trimming—the cutting down all aspiring shoots—is the rule by which the hedge becomes imperviously thick at the bottom.

N.

DIOSCOREA BATATAS.—At the show at Philadelphia, we had an opportunity of testing the Dioscorea Batatas, which has been the occasion of much contention and not very courteous criticism on the part of many writers in our periodicals. We do not hesitate in saying that every gentleman who made the trial, pronounced it a good potato, of a fine, smooth grain, and pleasant taste. Among these were some who had not been very careful of their words in their ridicule of the whole thing. We could not avoid the conviction and were tempted to utter it, that it was always best to know something about a subject before giving a *very* decided opinion in relation to it.

P.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

WARREN CO., IOWA, AGRICULTURAL AND MECHANICAL FAIR.

MESSRS. EDITORS:—Our age is an age of improvement, of inventions, and of literature. Men are coming forth from the dark ages and from the corruptions which have for centuries back led men who wanted to be distinguished, to array themselves for the battle-field, and to put their whole energy and their ingenuity to the invention of fire-arms and other destructive implements for the destruction of their fellow-men. He that could lead the largest army and destroy the most lives was greatest in the eyes of the world; his name was both in song and prose. He that could face the cannon with the most courage was a benefactor to his race. For ages past the *farmer* has been considered nobody in the councils of Church or State; but this class of men are getting their eyes open; they are coming into that "light which will grow brighter and brighter until the perfect day," when their counsels will be adhered to in our halls of legislation. The tiller of the soil begins to think that he is a *man;* so with the *mechanic:* they are the producers, the root and foundation of all business.

We Western barbarians, so called by many, as we are getting to be somewhat enlightened, and to feel our consequence, are forming societies for mutual improvement and for improving our business. A Society called the "Warren County Agricultural and Mechanical Society," was formed in this place a little more than a year ago. This Society held their first exhibition on the third day of Oct., 1855 The county is new, and not much was expected.

But all took an interest in the matter, and were determined not to have a "smash down." Cattle of all grades, from the "scrub" heifer of the prairie to the three fourths Durham, and the best cow, the best pigs, turkeys, chickens, geese, lambs, calves, colts, watermelons, pumpkins, potatoes, etc., etc., all, when put together, made quite a respectable exhibition for a new county. On the 3d of October, 1856, they met in "fair assemblies" to show their stock and their improvement upon the cattle and other domestic animals.

The Society have purchased twenty acres of ground, for the purpose of using it for this exhibition, one mile west of Indianola, the county seat of Warren county. It is upon an elevated piece of land, with a small descent each way from the center east and west. A splendid location it will be when fenced and improved as it should be. When the day appointed came for the second "fair," I thought I would go and see what I could of the improvements they had made in the short term of one year. When I arrived I saw a high board fence around perhaps two acres, and as I was not a member, my admittance fee was twenty-five cents; but rather than pay the twenty-five cents I paid one dollar and became a member, so that I could go out and in at pleasure, and have a voice in the proceedings of the Society. I went in and walked around, and I was astonished to see the difference in the cattle. Here I saw as good calves at the age of six months as I ever saw in Lake Co., Ohio, and they think there that they cannot be beat for good cattle. Men had got their ambition up, and had taken some pains to raise their calves and see what they could make of them. Some had sent or gone to Illinois or Ohio and purchased bulls of the best quality; and I hope that they will keep up the excitement. In horses but little improvement is made as yet. All other things, especially in the mechanic art, have done well. The products of the earth were not as good as last year, owing to the lateness of the spring and the heavy drougth during the summer. The season has been a poor one for the farmer. As regards the female "fixins," I have never seen better, with the exceptions of the State Fair of Ohio, and the World's Fair at New-York.

They were got up in the best of style—best blankets, and quilts of the nicest kind; yet there is a chance for all to improve. But although we are called barbarians, we are becoming partly enlightened, and I am in hopes in a few years that we shall be able to compete with our sister States in agriculture and the mechanical arts. It takes a child several years to become a man after he begins to walk. So with a new country. But there is one thing we have got, and that is the soil, and we hope to be able to act the man in all capacities.

LYNN, Warren Co., Iowa. L. S. SPENCER.

That is the right sort of spirit. The sooner you go ahead of the East the better will it be for all parts of the country. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

GUMBO.

Messrs. Editors of The Plough, Loom, and Anvil:

DEAR SIRS:—E. M. from Tulip Hill, Iowa, Mrs. Ellis, and her "revision" by An American Lady, as well as "Old Noah's" Dictionary, are wrong as to what we "outside barbarians," away down South on the Mississippi river, call "Gumbo," or we do not know of what we speak. It is said by old uns, "seeing is believing, but feeling is the naked truth;" now if one who has felt the oblivious state following a meal from our Gumbo knows the truth, then we must be O. K.

As to cooking the Gumbo, Gumbaud, or Okra, much as to that, is a matter of taste; as to ourself, we would just as lief have it when cooked in the same pot with bacon and cabbage, it being tied up in a bag, then seasoned with rich sweet cream, butter, salt, and pepper; though our women folks since the railroad and the telegraph has got out in the backwoods, cook it by itself, then use "drawn" butter, salt, and pepper.

But "Gumbo Soup," is the thing that comes as nigh making *a gentleman* forget his mamma, as "rum punch," does on the *herd* swinish. I cannot give the quantities, but having had to order it done, I could perhaps *show* the quantities, and will now only give the general directions. Take a fowl, when about grown is perhaps best; cook till done, by frying, just as for your breakfast; with the masher kept by cooks, mash all up by beating until bones and meat are broken up. Have your pot; water; okra and ripe tomatoes cut fine; butter, salt and pepper, and not too much onion; use these last only to flavor, then boil all together for several hours, even from 8 or 9 o'clock till 1 or 2. When well made, the chicken is boiled all to pieces and so mingled with the soup as to be barely discernible as a fibre. Some put in thin strips of nice middling of bacon, only to make it richer. Tell all the above, except "old Noah," to try the "outside barbarian" style, and then tell us of what is, GUMBO.

MANAGEMENT OF FAIRS.

IN our seventh volume we published several essays in relation to the true policy and proper management of fairs. We have not since had occasion to change our opinion in reference to the questions there discussed, nor do we believe that many years will pass before a portion at least of those suggestions will be adopted by all our agricultural societies. There are other points that are by no means of secondary importance, in respect to which a change seems almost indispensable.

Suppose an exhibition is to be held for three or four days. It consists of cattle, swine, horses, sheep, etc. The entries are very numerous. The animals are choice. But how much time is it desirable to consume in viewing this collection? How long could even an enthusiast content himself in gazing upon them? Perhaps half a day would be ample time for such an examination, and would even allow the taking of memoranda sufficient for an extended report in some newspaper. But give a whole day to this. You have then used up just one fourth of the time. What shall each or all do the other three fourths? Who will answer for us this question?

Practice, recent practice says, gaze upon a horse-race. Very well; how long can we occupy ourselves profitably in this manner? Scarcely three days, we think. But there are three days unprovided or, and how can they be advantageously employed?

Go home before the show is concluded, some one may reply. But though good advice under supposable circumstances, it is not consistent, perhaps, with the plan or wishes of the managers, who would prefer to retain the whole company, if possible, to the close of the fair.

Shall we give our own views on this point? We will do so, but beg leave, first, to ask, What is the one great object of the show? The answer is not doubtful. It is to improve the condition of agriculture, in all its departments—to deepen and to extend an interest in and a knowledge of this great branch of industry. This design, though single in its ultimate aim, consists of several parts, and in its accomplishment, the manager of a fair must know, and properly appreciate the importance of, these details.

One important part of the education to be given at such exhibitions is to show to the community what can be done. Some make too low an estimate of this feature of a show, and some too high This lesson concerns not cattle alone, but ought to embrace all departments of agricultural labor. It is quite as important to know when and how lands can be improved, or better varieties of seed secured, as to know the best breeds of cattle. Nor can this more extensive view of the subject be well overlooked. It is of the very first importance. Some suppose that by scientific treatment, every acre of land can be made to bear the largest amount of crops—its hundred bushels of corn, its sixty bushels of wheat, and so on. Others believe that their land already produces crops that pay better than larger ones. Both are equally mistaken, and on a fundamental point. What are our societies doing to enlighten the public on these matters?

Another branch of this education is, to teach the appropriate modes of treating different soils, so as to bring them to the best condition. This may be treated theoretically, and by actual experiments. But how far do our State and national societies attempt to do either of these? The only effort in this way, as we understand it, consists in a statement, by a limited number claiming premiums, of their mode of cultivation.

Another department of education has relation to breeds of cattle, the treatment best for each, the possibilities of each, and their peculiar distinguishing points of merit, whether, if cows, as milkers, or for butter and for cheese; if oxen, their powers of endurance, the feed they require, and the quality of their beef, etc. But we need not complete the list which we have but just begun. It might be extended indefinitely.

Now we beg leave to ask, in how many of these feasible ways, are any efforts made in securing the one great end? It seems to us that almost the whole labor required in preparing for these shows is wasted. We have hundreds and thousands of well-informed farmers, and practised in writing on these subjects. Why not bring them out on such occasions, not in idle theorizing or oratorical displays, but in the detail of experiments; in describing actual processes, not for securing a single large crop, but processes by which lands have been permanently improved and ordinary crops made remunerative?

The successful treatment of clayey soils, of cold soils, of gravelly soils, etc.; the daily treatment of cattle, of swine, or of fowls; the manner of planting and the products secured under the processes adopted—these and many other topics, assigned at the previous annual show, or early in the year, and made the constant topic of study and of care through the year, the details and their results being carefully written, may be read to all desirous of knowing. By opening these subjects to a general discussion, the practices and the results of all present may then be obtained, and so far as they differ from the written essay, these differences may be discussed on the spot and by the press; for these verbal statements being taken down, by a skillful reporter, may be made part of the record, and the whole, in the form of an abstract, be given to every member of the Society, and to the public, at the actual cost of printing them. How rapidly four days would pass away if thus devoted. How short the time compared with the end aimed at. Here is at least work enough for the visitors of an annual show.

P.

DIRECTIONS FOR THE FLOWERING OF DUTCH BULBS IN POTS OR GLASSES.

Hyacinths may be planted in pots from the latter end of October till December. The soil used should consist of about one third of white or river sand, and the remaining two thirds equal proportions of vegetable mold and loam. The pots should measure about six inches across the top. When the bulbs are planted, the pots are to be lightly filled with earth; then the bulb may be placed in the center, and pressed into the earth, so that it may be about half covered. After this, the earth should be made solid all around the sides of the pot, to fasten the root. When the bulbs are thus potted, they should be removed into a cool place, in order that they may become well rooted before the tops shoot up. Much light is not necessary at this period; indeed, this deprivation of light causes them to root more quickly than they would otherwise do. For the first fortnight or three weeks after potting, they may be placed upon a shelf in a shed or a cellar, or in any other convenient place, providing it be cool. Little water is also requisite; once watering, immediately after the roots are planted, being sufficient, if the situation is tolerably damp where the pots are placed.

If the stock of bulbous roots, such as hyacinths, narcissus, early tulips, &c., be large enough to occupy a small frame, the pots may be put within it after planting, and they may be covered a few inches deep with rotten tan, or any other light material. The pots will soon become well filled with roots, and the shoots produced by bulbs previously well rooted, will be stronger, and the flowers larger, than if they had been put in a warm and light situation. When they are rooted, a few may be introduced occasionally into the room window, or on the mantel-piece, if there be sufficient light. Light is quite essential when the tops begin to grow. By this means a succession of flowers may be had during a greater part of the spring.

If it is wished to bloom hyacinths in water-glasses, the glasses should be filled up with water, but not so high as to come in contact with the bulb. Too much moisture before the roots protrude, might cause the bulb to decay. The glasses may be put in a light, but cool situation, until the roots are grown half the length of the glass, at least. The longer the roots are before being forced into flower, the finer the flowers will be; and when rooted they may be kept warm or cool, as flowers are required in succession. The flowers will not put forth, even when the glasses are filled with roots, if they are kept in a cool place. The water should be changed about twice every week, and rain or river water is better than spring water. Although the practice of growing bulbous roots in water is common, it is by no means preferable to growing them in earth. There are many failures when bulbs are grown in water, which are chiefly caused from their being more liable to rot before they begin to emit roots, than when grown in soil. Keeping the bulbs quite clear of the water is a partial, but only a partial, preventive. Another cause is, that when the roots have attained some length, they frequently decay, and the loss of flowers is the consequence. Should success attend the growing and blooming of the greater part of those placed in water-glasses, the bulbs will be good for nothing afterwards; but those grown in pots might be planted the year following in the garden, and they would make pretty border flowers for several years.

Similar treatment to that now described is required for the large-rooted narcissus, whether in pots or glasses.

To force early tulips in pots, they should be placed about three or four in each pot, just within the earth, which may be of the same sort, and the management the same as recommended for hyacinths and narcissuses.

Crocuses will force well. They should be planted near together, say from ten to twenty in a pot, according to size. Let them root naturally after planting, before they are forced into flower. They require similar treatment to the preceding.

In order that bulbous roots, which have been forced, shall not be quite exhausted, they may be planted in the garden, with the ball of earth entire, as soon as the flowering is over, if the weather is favorable. They will thus mature their roots and leaves, and be strengthened sufficiently to bloom again the following season. If bulbs are neglected when their flowering season is over, they will not recover such neglect for a considerable time; but if carefully placed in the garden till their leaves become yellow, when the root will be matured, they may then be taken up and kept in a dry cool place until they are wanted the following season for planting.—*Breck's Book of Flowers.*

INSECTS INJURIOUS TO VEGETATION.

DIPTERA, CONCLUDED.

Cecydomia Tritici is a small gnat, long known in England as very destructive among the wheat fields. The insect and the manner of its depredations are thus described: What the farmers call the yellows in wheat, and what they consider as a kind of mildew, is, in fact, occasioned by a small yellow fly, with blue wings, about half the size of a gnat. This blows in the ear of the corn, and produces a worm, almost invisible to the naked eye, but which, seen through a pocket microscope, appears a large yellow maggot, of the color and gloss of amber, and very prolific. It somewhat resembles a musquito in form, but is only about one tenth of an inch long. Its two wings are transparent and changeable in color, narrow at base, rounded at the tip, and are fringed with little hairs on the edges. Its long antennæ, or horns, consist, in the female, of twelve little bead-like joints, each encircled with minute hairs; those of the male will probably be found to have a great number of joints. Its legs are longer and more slender than those of the Hessian fly. Towards the end of June, or when the wheat is in blossom, these flies appear in swarms in the wheat fields during the evening, at which time they are very active, though they remain quiet during the day, in clear weather. The females generally lay their eggs before nine o'clock at night, thrusting them within the chaffy scales of the flowers by means of a long retractile tube in the end of their bodies, in clusters of from two to fifteen or more. By day, they remain at rest on the stems and leaves of the plants, where they are shaded from the heat of the sun. They continue to appear and lay their eggs through a period of thirty-nine days. The eggs are oblong, transparent, of a pale buff color, and hatch in eight or ten days after they are laid. The young insects, produced from them, are little footless maggots, tapering towards the head and blunt at the hinder extremity, with the rings of the body somewhat wrinkled and bungling at the sides. They are at first transparent and colorless, but soon take a deep yellow or orange color. They do not travel from one plant to another, but move in a wriggling manner, and by sudden jerks of the body, when disturbed. It is supposed that they live at first upon the pollen, and thereby prevent the fertilization of the grain, which becomes shriveled and abortive. When fully grown, the maggots are about one eighth of an inch in length.

The pupa is smaller than the full-grown maggot, of a brownish yellow color, of an oblong oval form, tapering at each end.

According to Mr. Gorrie, the maggots quit the ears of the wheat by the first of August, and descend into the ground to the depth of half an inch. They probably remain unchanged through the winter, and finish their transformations and come out of the ground, in the winged form, in the spring, when the wheat is about to blossom.

Such are the descriptions given of the appearance and habits of the wheat-fly, by English writers. A similar insect has been observed in the Northern and Eastern States and in Canada. It has been often mistaken for some of the species we have previously described, and it is difficult to determine what effects have been actually produced by this insect. There is, however, no doubt of the identity of this and those seen, in our own country, by Judge Buel, Mrs. Gage, and other well-informed persons, who have communicated facts and opinions in relation to it. Among the partial remedies for the ravages of this insect are, sprinkling the growing crop with lime, and burning sulphur in the field.

The following, in relation to this insect, is taken from *The Progressive Farmer.*

"By referring to some notes, I find that near sunset on the ninth of sixth month, 1852, I noticed hundreds of small flies alighting on the heads of wheat, and apparently depositing their eggs in them.

"Some heads of the wheat which were then in a milky state, were inclosed in a glass for the purpose of observing what would ensue; but being deprived of its nourishment it soon dried up, and no further discovery was made; but at the expiration of six days from the time the flies were first seen, the worm appeared in the growing wheat, and probably at this time entered that state of existence in which it draws its support from the grain.

"On examining the heads of wheat when ripe, it was found that the earliest ones had escaped entirely, while others were partially injured, and the small backward ones were entirely worthless, some containing five or six worms to each grain, or rather the place where the grain should have been.

"It is evident, therefore, that the way to escape this pest is, by timely sowing of early ripening varieties, and by liberal manuring to push it on to early maturity; a course which is also calculated to secure the crop from rust. It is contended by some persons that the white wheat is more liable to be injured—or rather that the worm has a preference for that, while the Mediterranean is nearly exempt from its ravages—which is doubtless true. But I think there can be no question but that the cause of this difference is occasioned by the Mediterranean ripening several days earlier than any white variety that has been introduced here. The Mediterranean has been raised in this country for the last sixteen years, and is preferred to any other kind, although it has a weak stem, and is, therefore, liable to fall, yet it is valued for its producing qualities, yielding on good ground from twenty-five to forty bushels to the acre. J. S."

We have now gone through the several orders of insects, describing the species most destructive to cultivated crops, and a few insects not strictly belonging to that class. But we have omitted many that ought to be known to the farmer, and many of them injurious to forest trees. These would fill a small volume, of themselves, and if our farmers would take more care of their forests, they would soon learn the benefit to be derived from an acquaintance with the appearance and habits of these insects. But, unhappily, we have but little inducements to furnish such facilities, our forests being chiefly suffered to get along as they can. But we purpose to go on with our subject, reviewing the ground already gone over, though changing the plan of the series, referring to what we have already written, and adding what we deem most important to the practical farmer. We write for practical men, rather than for the student who wishes to learn the science. For the latter, full and properly arranged treatises are essential, though other means of information may be valuable in connection with good text-books.

We may also add that we need much more careful and more extensive observation, in reference to insects, and especially those destructive to our wheat. Their habits should be carefully noted, and specimens preserved, both of the insect and the injured plant, and sent to those who best know how to profit by such means. We should be very grateful to any persons who will forward such specimens to us, and we will in turn give such information as may be in our power. P.

EDITORIAL CORRESPONDENCE.

From copious minutes of a trip westward during the last month, we select the following:

Paterson, N. J., September 22.—This is a thriving village of northern New-Jersey, situated in a rather infertile region, owing its existence to the falls of the Passaic, and its prosperity to the skill and energy of its manufacturers. Its cotton mills, carpet factories, machine shops, locomotive works, &c., &c., tell the story of its growth.

Our object in stopping here, was to seek an interview with Roswell Colt, Esq., a distinguished importer and breeder of fine stock. Sickness on the part of that gentleman, thwarted our purpose in part. Mr. Colt, we believe, possesses ample means. We advise the working farmer of limited means, to possess himself of good stock at something less than importing prices; and at the same time we applaud the spirit of a man in Mr. Colt's position, who freely uses his means to test the comparative value of foreign breeds. His sleep, we presume, will not be disturbed, nor his enjoyment of life lessened, should he lose a few hundreds by the operation.

Though, for a reason before stated, we failed to see Mr. Colt, we were kindly permitted to visit his stock, consisting largely of Alderney cows. Mr. Colt's farmer informed us that the bulls of this race are rather furious; but with reasonable care he thinks them not dangerous. The cows he represents as mild in temper, inclined to be thin in flesh while giving milk, but fatten easily when dry. Many of Mr. Colt's Alderney cows, and several of the heifers even, have made ten and a half pounds of butter per week, of uncommonly fine quality, much of the past season. The quantity of milk is not large, but it is of an exceedingly rich, creamy quality, and of a delightful flavor, admirably adapted to all family purposes. These cows are inclined to milk, giving it with more than ordinary uniformity, so much so, that it is difficult to dry them off as soon as is desirable. They are not the kind to be desired for the general purposes of the farmer. We are, above all other nations, a beef-eating race. Whether we are wise in this, is another question, one which we do not assume to decide. The fact is evident. It everywhere stares us in the face. Americans love beef—roasted, broiled, boiled, smoked, *fixed* every way. They will have it. Consequently we want larger breeds than the Alderney. Some of Mr. Colt's Alderneys, it is true, have attained a good size, are well formed, and apparently hardy. Indeed, several of his herd are such as one might be proud of, aside from their extraordinary milking properties. But the general character of the race is quite otherwise—thin in flesh, high-boned, frail-looking, not such as we wish to see grazing our hills and valleys. Their real value, we have long been satisfied, and are now more than ever convinced, is for family use; and while we hope they never will become the stock of large farmers, and that their blood will be kept aloof from the farm, we heartily commend them to families keeping a single cow, or two at most. If we were to keep one or two cows, they should be pure Alderneys; if we were to keep more, there should not be a drop of the Alderney blood in them. We would not see the meek, sorry, pitiful looking things about us, otherwise than as a pet, to be taken kindly care of, and to make good tea, good coffee, luscious butter, and fat, rosy-faced children. The milk of the Alderneys is exquisite for these purposes; and the fact of their yielding it so equally, throughout nearly the whole year, is an additional reason for the family wanting a single cow, supplying itself with an Alderney.

For the general purposes of the farmer, we venture an opinion, after much investigation, which we *may* find occasion to alter, as the results of still further trial come to light, viz., that for cold regions and poor pastures the North Devons are the best of any thing yet offered; that in regions a little more favored, but not the best, the Ayrshires are preferable; and that the still larger Herefords and Durhams should have the preference, wherever the climate is favorable and the soil fertile, as in large portions of the Western and Southwestern States.

Rochester, *September* 25.—It was not without some regret that we left the New-York and Erie road at Corning, for this place. So well is it conducted, so comfortable for passengers are all arrangements, and so attentive to their duty all in its employ. A more desirable route from New-York to the West cannot be found. From Corning to this place is ninety-four miles by the Buffalo, Corning and New-York road.

Rochester is very full; three important meetings in addition to a mammoth political convention, being in progress—one, of the American Pomological Society; a second, of the Genesee Valley Fruit Growers' Association; and a third, of the Munro County Agricultural Society. The Pomological Society was opened by an address from its President, Hon. Marshall P. Wilder, of Massachusetts. The address was characteristic of its author—practical, suggestive, in good taste, aiming at the useful, and yet showing a nice appreciation of the beautiful, by nature and by cultivation. It was listened to with marked attention, and will, of course, be published. We had not before learned the value of these Fruit Growers' Associations. The members have the appearance of exceedingly intelligent men—quick of apprehension, prompt, communicative. We presume their employment has something to do with this. Their discussions were continued several days; and never have we seen men of fewer words or more facts. It is astonishing, how much may be learned in a short time, from men gathered from all over the Union, each stating in the fewest possible words, what he knows of the subject of inquiry. For instance, the Baldwin Apple has long been known to be an excellent fruit. The tree is a good grower, and has been believed to be sufficiently hardy to stand our northern winters. The question came up: Who knows any thing new of the Baldwin? "Nearly every tree was killed in our State by the last winter," said a member from Iowa. "And in ours," said one from Illinois. "In many parts of ours," said another from Indiana. Others replied as briefly; and in less than five minutes it was ascertained what degrees of cold the Baldwin endures; how it bears snowy regions as compared with those equally cold without much snow, &c., &c., facts adapted to show every grower of fruits, with what degree of safety he may invest in the cultivation of this fruit in his particular region. So with regard to other varieties of the apple, and of fruits generally, an immense amount of practical information was elicited, pointing to the appropriate soil, climate, and treatment for each. We understand that these discussions are to be published as a part of the transactions of the Society; and we should suppose they would be worth ten times their cost to all fruit growers. Valuable extracts may be expected in future numbers of the Plough, Loom, and Anvil.

Buffalo, September 26.—When last we were in this place there might have been 8000 inhabitants. There are now 80,000. It is well named the "Queen City of the Lake." If it were called the "Queen of the Lakes," Chicago might be out of joint. The Chicagans claim that their city is the greatest grain market in the world; the Buffaloes, as they call themselves, claim that theirs is greater. It has grown up as cities grow in no other country, and is a beautiful city. Geographically it is as large as New-York. The reason is, that the people have kept themselves a little apart—have laid out wide streets, and left open spaces about their dwellings. These measures are partially a substitute for public squares. They secure pure air at home, and consequently make it less desirable to go abroad for it. We think, however, they will sooner or later be sorry that they had not reserved more land for parks and open squares.

Hamilton, C. W., September 30.—After a pleasant sail of twenty miles down the Prince of Rivers, to Niagara Falls, and after gazing the best part of a day at that greatest of all *lions*, roaring, foaming, shaking his shaggy mane, and opening his remorseless maw wide enough to swallow all that comes along, we crossed the suspension bridge afoot and alone, traveling bag in hand—it did not break down with us—and took an accommodation train for Hamilton, with a view there to await the next morning's express. This being hurried off at sunrise, half dressed and half fed, is not what it pretends to be. By the way, how long have those waters been tumbling down that stupendous precipice? How long has it taken them to gash the earth's rocky crust seven miles in length and five hundred feet in depth? We forgot to ask, and perhaps the *guides* could not have told us. If Moses implied that the work has been done in six thousand years, we should have hard work to believe even Moses. But fortunately for our belief in revelation, Moses implies no such thing.

Hamilton is a beautiful town—a little English and a great deal American in its appearance—of perhaps 20,000 people, situated at the extreme south-east corner of Lake Ontario. On arriving at this place, a host of carriers tendered their services, anxious, like *omne id genus* everywhere—a very useful class, certainly—to carry us to the very best hotel. Attracted more by the name than any thing else, we took the omnibus of the "Anglo-American Hotel." Whether others are better we know not. This is good enough. It is kept by C. S. Coleman, Esq., brother of the Messrs. Coleman of the Astor House, New-York, and of the Burnet House, Cincinnati. Its arrangements are truly Anglo-American, combining the very best traits of English hotel-keeping with the best of American. To our *notion*, every thing here is about as it should be, from the stately building and airy rooms down to the tender steak and the sharp knife to cut it with. It would seem as if caterers might learn that a trifle invested in the sharpening of knives contributes more to the satisfaction of their customers than a like amount invested in any other way.

Hamilton is the shire town of Wentworth county. The Provincial Agricultural Fair was last year held at this place. Next year, it is to be at Brantford, the county town of Brantford, the next county west.

Detroit, October 2.—London, on the road from the Falls to this place, is a beautiful and thriving town, in the midst of a fine wheat region. It has several flouring establishments; is the shire town of Middlesex county, and is destined to become of considerable importance. But what business has it with its name? One London is enough for one world. It is silly to undertake another. A little boy in the cars, on hearing its name, asked, "What! are we going through that great city?" We advise the *Londoners* of Canada West to change their name by the aid of their next Provincial Parliament. It will save a great many little blunders. The name is in no better taste than that of a little hamlet on Long-Island calling itself by the pretentious soubriquet of Eastern New-York.

The people of Canada West are, in appearance, general manners, style of building, &c., &c., so much like Yankees, as to make one feel that he is not far from home; and yet so far unlike as to produce the feeling that he is not exactly at home. The Great Western Road from the Niagara Falls to Detroit is doing an immense business. We believe it affords the shortest and best route between the East and the far West. The road is excellently managed. The quiet, noiseless way which these Canadians have of doing up things is an *example.* One hears very little swearing. We wish there were none. Why should Americans be the most swearing nation under heaven, and Englishmen next? We see no absolute necessity for it, and yet such is the fact. You would want to stay in London a month and in Paris a year, to hear as much profanity as you would hear in New-York in a day.

Statistics show that Canada West is advancing in the culture of wheat faster than any State in the American Union. In some portions we perceive, in passing, a neatness of cultivation that is worthy of imitation. Drill culture we see prevails. So far as we could judge, by a glance at the farm buildings in passing at railroad speed, our Canadian neighbors are not making that provision for the winter care of stock, which their cold climate and abundance of building materials would indicate as their true policy. Growing wheat, as almost their sole business, selling all from the land, maintaining few buildings, keeping little stock, and doing nothing to sustain the fertility of the soil, will not make them permanently prosperous. We see they are exporting twenty-seven millions' worth of various articles a year, and importing forty millions' worth. This does not indicate that they are growing poor to the tune of thirteen millions a year, for undoubtedly their real and personal estate is rapidly increasing in value; but as their neighbors and kind friends, we could wish the balance less against them.

Detroit is certainly a goodly city. It has now upwards of 60,000 people, and we understand is growing, but not rapidly. It is at present the center of abundant gatherings, political and others. The State Agricultural Fair is the principal. More gentlemanly persons than its officers, Messrs. Shoemaker, Holmes, Backus and others, we have nowhere found; and as our first observations on such an occasion pertain to the people, we must say that the Michigan farmers, here assembled, strike us favorably. In no place, where we have attended these gatherings, have we witnessed more general decorum, or seen less of intemperance, profanity, and other vices. We cannot, in consistency with truth, say that none of these things appeared; but, in justice to our Michigan friends, we will say, that for some reason, either because our eyes and ears were occupied with more pleasing occurrences, or because the vices we complain of were not rife, we saw less of them than is usual on such occasions farther east; and we believe that every thing which the officers of the Society could do, was done, to make the occasion one of high social enjoyment and of valuable improvement to the multitudes assembled.

Owing to the severe drought, and perhaps in part to political excitement, the agricultural products exhibited are said not to have equaled those of last year. Horses seemed to be the most attractive feature of the exhibition. Not more time was given to them than the importance of the subject would warrant, but more than was consistent with a due attention to horned cattle, sheep, swine, agricultural implements, machinery and domestic manufactures. Mr. Osborn Blackmer, of Hillsdale, exhibited a large number of both Durhams and Devons, very fine. J. B. Crippon, of Coldwater, exhibited some remarkably fine Durhams; and C. H. Williams, of the same place, exhibited some as fine Devons as we have ever seen. There were a few grade cattle of great merit, as also of French merino sheep, Spanish merinos, South Downs, and Leicesters, and of Suffolk, Essex, Berkshire, and grade swine. Among agricultural implements we noticed a new seed-sower, manufactured at La Porte, Indiana, with drills reversed, which, we think, must be as good as any other for feasible land, and all the best yet invented for lands that are rough.

We felt considerable interest in the trial of female equestrianism, which came off on the last day of the fair—an interest arising from a belief that American women do not, as a general thing, take sufficiently varied and exhilarating exercise. Why should the race be dwarfed or enfeebled for the want of a proper physical development on their part. Probably no other nation is so unwise in this respect. To manage a horse skillfully, and to ride with ease and grace, is a valuable accomplishment. Nothing is more conducive to health. In the physical education of both sexes it should have a prominent place, and we are glad to see that some of our Western women know how to manage a horse with spirit, and to ride as if they were used to it. Whether there is any impropriety in ladies displaying their skill in this line on such occasions, others must judge. We confess that to see fifteen thousand pair of eyes gazing at only five ladies, seemed to us rather out of proportion. Had five hundred, instead of five, divided so many staring eyes, we cannot see why they could not have been very much at ease, nor that there would have been the least impropriety in the exhibition, even in the eyes of the most prudish; and we would suggest to the committee, that it would, perhaps, be well for the ladies either to turn out *stronger*, or not at all, on future occasions. It should be understood that fast riding was no part of the game. Our Michigan friends commended moderate riding to the ladies. Was it because they wished to do all the fast riding themselves? We have some fears that so many trials of speed at our cattle fairs will make fast men, but we sincerely hope that nothing of the kind will make fast women.

Ann Arbor, *Jackson*, *Marshall*, *Kalamazoo*, and *Pawpaw*, are fine, thrifty towns, on the Michigan Central Railroad, which is well managed, and with the Canada Great Western forms, probably, the best thoroughfare to be found between the North-East and the North-West. But what a city is this Chicago! Twenty years old, a hundred thousand people, growing daily! We should judge that fifty buildings are now in process of erection, mostly of the first-rate stone, some of Milwaukee brick, and many with iron fronts, every one of which would do credit to the best parts of Broadway, in New-York, besides other buildings of less pretensions, enough in all, we learned, on good authority, to give a front of seventeen and two-third miles in length, if placed in a solid block—a pretty good summer's work, it would seem. We cannot say that Chicago seemed a pleasant place, yet we have no doubt it appears so to a business man. The stir and bustle of Chicago is equal to that of our most enterprising Atlantic cities. The buildings now erecting are equally as durable and more elegant than at the East; and there is no very good reason why an Eastern man should not come away satisfied, if he escapes being run over, in the rush of business, or having his hat blown off by the lake winds to be carried under a train of freight cars so long that the naked eye discerns neither end, or into one of those deep, narrow rivers or canals, which permeate the whole city, constituting its docks. Chicago is as likely to be the third city of the Union as New-York is to be the first, or Philadelphia the second. So we venture to predict; and we will also venture another prediction, though with less confidence, namely, that when the Chicagans shall have executed the magnificent system of drainage now in progress, and temporarily a great nuisance, because it turns most of their city upside down, and besmears the rest, and when the adjacent lands are brought under cultivation, and thorough-drained, Chicago will be among the very healthiest cities in the country. Aside from the exhalations of a low, and yet imperfectly cultivated region, every thing conspires to make it healthy; the same lake breezes which set one running after his hat, and turn his umbrella inside out, thoroughly ventilate the city; and such is the climate, that it can hardly fail to become desirable as a place of residence, while it must continue to be an increasingly important business center.

Madison, the capital of Wisconsin, is something like 150 miles north-west of Chicago. Here is the State University, a richly endowed establishment, we believe, but not as prosperous as Beloit College, a few miles south of it. Janesville, on the way from Chicago to Madison, astonishes one who reflects that, but a few years ago, the ground on which it stands was trod only by the Indian hunter. Who would have thought of finding here private residences, built at a cost of 50,000 dollars; hotels hardly less substantial and capacious than the Astor House, of New-York, and churches enough to indicate that the people *may be* as religious as they are energetic? Cromwell *prayed* and kept the *powder* dry. We rather "guess" these Western people *pray* and make *money*. Madison is a pink of a place, situated on a delightful elevation between two lakes, and, we believe, is as healthy as it is beautiful. It contains 10,000 people, and is growing slowly. The Legislature was in session. From a somewhat brief look upon the law-makers, we fancied they were discussing questionable measures with the three million acres just granted for railroads; but as we have no right to report upon mere suspicion, let that go. The *Wisconsin Farmer* is published here by Powers & Skinner, and is a journal of which the farmers of the State may well be proud, as we believe they are. The senior editor, Mr. Powers, is a practical farmer, having a farm of 640 acres (a section), near the city. Of the land about Madison, Janesville, and Beloit, we hardly dare speak till our surprise has had time to cool off. Some of it, however, is rather poor, being either swamp or oak opening; some has insufficient wood and water; but of the greater part, we will only say we see not how it could be better. A favorite expression with the people is, "It cannot be beat," and we believe it is true.

Of Milwaukee, and the State fair held in that place, we have space only to say that the city, like others in that region, is remarkably large of its age, and that the fair would have done honor to many an older State. We have always supposed these Western people great brags: and we told them so, and they do not deny it; but then they say, "You see we have something to brag of." We thought as much. Mr. Powers, of the *Wisconsin Farmer*, told us on the show ground, in reply to the question, "How is it that rum, whisky, ale, and all that intoxicates, are so rife here, and yet few drink, and none are drunk?" that strong, Western good sense prevailed. He said that the people of Wisconsin had found out that drinking "don't pay," meaning, we understand, that they consider the benefits not equal to the evils, and so, as in a business matter, they let it alone. This was a noble testimony, if true; and our observation, at fairs and other gatherings, went far to confirm its truth.

After spending some twenty days in the West, and making ourselves as busy as possible in their matters, and extending our observations as widely as the time permitted, we came away with the *hope*, we may almost say with the *belief*, for there is more to sustain such a belief than we have space to detail, that the human race is about to develop itself in those Western States, in a style of manhood not yet witnessed. There is land, such as the Almighty has made no better; there is a vastness of extent, adapted to expand the mind of man, as in no other country; mighty lakes and rivers, boundless prairies, untold sources of wealth to be developed, and a climate adapted to make man unconquerable; all conspire to results cheering to the heart of the patriot and the Christian. We see not why industry, education, religion, learning, are not in as rich promise in the West as in the Atlantic States. Families at the East, who have enough, need not be discontented. We do not advise them to forsake the graves of their fathers. If those who have more enterprise than wealth, choose to follow the Star of Empire, none should forbid. It will be well for those who go and those who stay. The West will unquestionably increase, but it will be without a corresponding decrease on the part of the East; and we say to the kind friends who have entertained us there, we have much to rejoice in at home, and we will never envy your prosperity. N.

[SEE PAGE 307.]

SORGHUM SACCHARUM, OR SUGAR MILLET.

In view of the high price of sugar, present and prospective, the New-York *Tribune* says:

"It is clear that the annual production of sugar must be increased—but where? and how? The severe cold of last winter destroyed a great deal of cane, and practically diminished the area of tropical cane-growing soil. India and the adjacent regions of Southern Asia might produce more sugar, but their people are very slow to change the direction of their industry, while those of Spainish America have little industry of any sort. There is more sugar land in the West-Indies, but it is mainly wilderness, which can only be converted into cane-fields at heavy cost and by severe labor—of course quite slowly.

"In view of these facts, inquiry has very properly been made for saccharine plants adapted to the temperate zone, and which may be profitably employed in the production of sugar. Until some plant of this sort is found and extensively cultivated, it is not probable the price of sugar, as measured by that of wheat, beef, and other edibles, will be essentially reduced. With the prospect of an active demand and a high price for sugar through several years ahead, it seems but reasonable that the sugar-producing area should be enlarged, if that be found practicable.

"That there is no lack of plants from which sugar may be made, is well known. Indian corn, the rock maple, and some other trees, the beet-root, and sundry other esculents, contain and yield sugar, but generally at a cost above that at which it can be extracted from the cane. There is, therefore, a real and realized demand for a sugar-producing plant which may be grown in temperate latitudes, and which will yield nearly or quite as bountifully, in view of their relative cost, as the cane.

"These requirements, it is believed, are satisfied in the *Sorghum Saccharum*, or Sugar Millet, which has for ages been cultivated as a sugar plant in China and in Southern Africa. Our attention was first called to it in Paris last summer, by a gentleman who had grown it for years in Natal, (South Africa,) where, as in China, it had been cultivated for sugar-making from time immemorial. His confidence in its adaptation to temperate climates was very sanguine, and he gave us some account of it, which was promptly embodied in a letter to the *Tribune*.

"Before this, however, the *Sorghum* had attracted attention in this country, mainly through the efforts of Mr. D. J. Browne, the Agricultural chief in the United States Patent Office, who gave some account of it in his report for 1854, and we expect to find a much fuller description in that for 1855, should it ever get published. Mr. Browne, we believe, obtained the first seed from France, and distributed it eighteen months or more ago. He had full-grown stalks of the plant on exhibition in the Patent Office last winter, and distributed a large quantity of seed to Members of Congress and others, last spring. This seed has nearly all been planted this year, and with results generally encouraging. *The North American* says:

"'A paper called *The Statesman*, published at Calhoun, Georgia, says that a Mr. J. Peters, of that place, has made this season about three hundred and twenty gallons of good sirup from the juice of the Chinese sugar millet, and asserts that, with proper cultivation, four hundred gallons of sirup may be obtained from an acre of millet. A person at Newton Center, Mass., as we learn from *The Boston Traveler*, has cultivated some of this millet this season, and made a quantity of excellent molasses from it, and it is stated that it can be cultivated in New-England as successfully as Indian corn. It thus appears that this plant is adapted to all parts of the Union, as much as wheat and corn. In the present juncture, when the price of sugar is so high, it might be to the advantage of the agriculturists of both sections to attempt its cultivation on a large scale. The process of manufacturing sirup is simple, the stalks being run through between a pair of heavy rollers, the juice received into tubs, and then boiled down into sirup or molasses. There does not seem any relief in prospect for our sugar market, unless the cultivation of some new sugar crop like this can be resorted to at once, and hence the interest felt at the South in all plants of the kind. The success which has attended all the experiments made with the Chinese sugar millet renders it worth a trial, and we trust the enterprising farmers of Pennsylvania, and the planters of Virginia and the South, may undertake it. If successful, the profits would be quite large, with the present market rates for sugar. In fact, the crop would be just now more remunerative than any other.'

"We have seen this *Sorghum* growing and nearly ripened this fall in divers sections of our own State and Northern Pennsylvania, and estimate its average hight in good soil at fully ten feet. Our own little patch will average more than that, but a high wind knocked most of it down more than a month ago. That it is destined to prove one of the best fodder plants, we have no doubt; but we fear it will not usually ripen its seed much north of this city. But the seed, like that of broom-corn, is small and light; enough of it to seed an acre (for sugar) would hardly fill a four-quart measure, or weigh six pounds. If grown for fodder, it should of course be sown much thicker. We have no doubt that it will pretty uniformly ripen on all the New-Jersey soil that will produce sweet potatoes or melons, and that every Northern farmer will find his account in growing at least an acre of it for fodder alone, even though he be obliged to buy his seed. That it will prove profitable southward of this city, cannot be doubted.

"We have tasted the sirup made from *Sorghum*, and find it quite palatable. We trust our farmers will cautiously enter upon its cultivation; though we do not believe any sugar will be made from it at a profit for several years yet. Inexperience, want of the requisite machinery for crushing, boiling, refining, &c., with the necessarily high price of seed, seem to stand in the way of any immediate realization of the sanguine visions of the seed-sellers. But if each enterprising farmer will obtain a little seed next winter—through his representative in Congress, if he cannot procure it otherwise—and plant this at Indian corn distance in the richest, warmest land he can devote to it, he may grow a fair supply of seed next year, and satisfy himself by experiment that his cattle will eat the stalk and leaves with avidity. Two years hence, he may grow a considerable patch, save the seed, and feed the stalks; and now he may begin to think of sugar-making if he shall meantime have thoroughly informed himself with regard to it. If we can avoid a multicaulis fever with regard to *Sorghum*, we shall soon find it a valuable addition to the staples of our Free as well as Slave State Agriculture."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

OBSERVATIONS.

Messrs. Editors:—Having spent the past week in the towns where a considerable part of the cheese so much in demand in Boston market, called Worcester county cheese, is made, namely West Brookfield, New-Braintree, Hardwick, Barre, Petersham, &c., I am moved to send you a short account of my observations for publication, should they prove worthy.

The above towns are chiefly agricultural towns, and bear a strong resemblance to each other, being considerably hilly, and having a strong soil with a pretty plentiful supply of rocks. They are better adapted to grazing than grain-growing, yet they produce good crops of grain with considerable labor.

It is said that "for all kinds of stock and agricultural products, this section of the State justly takes the lead." How this may be, I will not attempt to say, but the farmers may justly be proud of their stock, and proud of their Agricultural Societies, that have caused such great improvements to be made in stock-raising.

Worcester county has four growing Agricultural Societies, which are doing for the farmer's stock what the Farmers' Club and Agricultural Library stand ready to do for the farmer's mind, if he will but call in their services.

While the farmers have been making money the past few years, their land has not been growing poorer, as I am afraid is too often the case with grain-growing farmers. This is doubtless due more to the nature of the land and crops grown, than to the farmer, whose inclination to realize ready cash at the expense of mother earth, is as great as that of the grain-growing farmer. He has, no doubt, wished, during the past term of high prices, that his land was clear of stone and so constituted that it could be ploughed with less team and hoed with less labor, so that he could raise grain that could be sold as soon as harvested, instead of crops so bulky that they had to be manufactured into butter, cheese, beef, and pork, before they were salable. But he may live to see that causes beyond his control have forced him to pursue a better course than he would otherwise have done. An intelligent farmer informed me that farms could be purchased in this district for less money than the buildings and fences would be worth out West. Is not the time coming when those enterprising young men who have left the handsome two-story house, the long barn, and well-watered fields, that were prepared for their occupancy by a former generation, for the wild land of the West, which some speculator has made them believe is worth nearly as much in the state of nature as the improved land they left—will see that they have made a grand mistake at some period of their lives? YEOMAN.

Young farmers who have a capital equal to managing those dairy farms in Worcester county, Mass., advantageously, will do as well there as at the West; but those who have not will do better in Illinois, Wisconsin, or Iowa. There can be no doubt on this point. If they have to live in an inferior house for a while, their prospects are fair for a better one by-and-by. We say this, having just returned from a short trip to the prairie regions, and with full confidence that there the school, the church, the college, every thing that can secure a magnificent development for the human race, is to go hand-in-hand with the teeming exuberance of the soil. N.

THE SUGAR CROP.

A FRIEND at the South writes us a letter, from which we extract a portion, as follows.—EDS. P. L. & A.:

ASSUMPTION, September 27th, 1856.

DEAR SIR: The cane crop will be very small this season. In some parts of the State there is scarcely enough for seed, owing to the unusual cold weather of last winter, which destroyed all the stubble or rattoons, and a large portion of the canes which were put away for seed. It is generally believed that the crop will not exceed seventy-five thousand hogsheads, and some state it as less. I am of opinion that it will not exceed that amount, which will be less than the fourth of a full crop.

The memorable storm of the 10th August injured it materially in many places, by blowing it down, and stripping it of its blades. You may hear from me again before long, when I hope to be able to send you the names of a few more subscribers.

TO APPRENTICES.—When serving your apprenticeship, you will have time and opportunity to store your mind with useful information. The only way for a young man to prepare himself for usefulness, is to devote himself to study in his leisure hours. First, be industrious in your business—be frugal—be economical, never complain that you are obliged to work; go to it with alacrity and cheerfulness, and it will become a habit, which will make you respected and beloved by your master or employer; make it your business to see to and promote his interest; by taking care of his, you will learn to take care of your own. Young men at the present day are not fond of work. You must avoid all wishes to live without labor; labor is a blessing, instead of a curse; it makes your food, clothing, and everything necessary, and frees you from temptation to be dishonest.

Mechanical.

THE UNION OF THE PLOUGH THE LOOM AND THE ANVIL THE ONLY SOURCE OF GREAT NATIONAL WEALTH.

The discussion of the subject announced in our caption is attended with one difficulty which is quite worthy of a moment's consideration. Whenever we begin to exhibit the condition of a people destitute of the arts, we are met by the objection, that no civilized community exists which does not encourage them, to some extent, both in their theories and in their practice. Hence suppositions which imply the entire neglect of all arts, or even of all the higher arts, are comparatively powerless upon the mind of the reader, and are regarded as ultra and extravagant. Perhaps the suggestions at the close of our discussion in the last number, (pages 233 and 234,) were considered as mere idle word-painting, descriptive of no school in political economy, and without any living example. Whether this is so will appear in the sequel.

But analyse this objection, thus urged, and it will be found to admit as unquestionable that, to a certain extent, the arts MUST be encouraged. They are therein acknowledged as absolutely essential to every stage of true civilization. When this is once admitted, we have at least gained something, for then the only question that can be considered as open is, To what extent should this encouragement be given? If we are not substantially in error, a few facts, perfectly well known to all, ought to remove every doubt as to the truth of the doctrine we so often inculcate on this subject.

Great estates can only be acquired by large profits on small sales, or by comparatively small gains in a very extensive business. We care not whether you examine one form of industry or another, in testing this position. No man who has ever accumulated property, will dispute it. Let us first take the latter condition, and suppose that the farmer has a great many customers. Every producer supplies numbers of consumers, and the products of his labor are in so great demand, that he is perfectly safe in raising large quantities of them, and in anticipating some profit on every thing he produces. But who are these numerous purchasers and consumers? Are they all of one class of artisans? Are they all manufacturers of cotton goods? Where would they find customers for those immense quantities of cotton goods? Are they all woollen manufacturers, or all carpenters? Are they all masons, or all blacksmiths? In these supposed conditions, among so many competitors for a limited market, how can all live? Such competition would insure the ruin of every man of them. How could the land-owners expect to get even small profits from those who are obliged to labor at any price they can get? Such a condition of things would ere long ruin even the farmer, for his customers would soon become beggars. The entire class of artisans must come down to "ten cents a day," to use the phrase of political disputants, becoming a poor specimen of European peasantry, living only by the sufferance of the land-owner whose grounds they occupy without rent.

A *limited* increase in the variety of pursuits, would of course be proportionally limited in its beneficial effects.

A great variety of pursuits is then absolutely indispensable to the accumulation of large estates, unless, according to the former supposition, large profits can be obtained from comparatively limited sales. Let us, then, suppose these conditions. Let the farmer anticipate a large income from sales to a limited number of consumers. The first difficulty that meets us is, that all these surplus artisans must turn farmers, producers, competitors of those whose condition we have just een considering. But though the first, it is neither the last, nor the most formidable. Under the free trade system which these men always contend for, the world would be searched, as with a candle, for a country or community that could produce and sell at a lower rate than would be practicable under this theory of large profits on limited sales. Nor would it, perhaps, be difficult to find such a community. But we pass this by, and inquire what prices must be demanded by the cultivator of the soil, which will enable him to accumulate wealth from so limited a number of customers? If you carry this policy of high prices too far, it becomes suicidal, for the few buyers themselves become producers, quite satisfied that they can manage as well as their neighbors. Giving half their time to the cultivation of the soil, and growing their own crops to the extent of their own wants, and working at their trade the other half, at speculating prices, and with the fidelity of speculators or jockeys, genuine shavers, living on the principle of *sauve qui peut*, or *get what you can*, and where then are your rapidly growing estates? And what is the condition of the arts? Exactly as we described it in our previous essay. The skill of the artist is gone. Pride in his vocation is no longer an incentive to secure the best workmanship, and you must be literally buried "in a rough box." "It does not pay" to learn to be skillful, and hence none are skillful. If you should connect with this plan the idea of paying, for the labor of the artisan, prices corresponding to the prices you demand for the products of the soil, and thus encourage high art, you utterly fail in the accumulation of a large property, and are in no better condition than before. An acre of ground will not secure any greater returns than under another system.

But again, we might ask, and wait long for an answer, How is it that artisans can be supposed to be able to pay so high prices? They can pay no more than they receive, and they must first tax land-owners an immense sum before they are able to pay an immense sum for what they need. There is a fatal defect in this machinery, even though all our other difficulties should prove to be imaginary.

We have thus hit upon the real difficulty, as exhibited in actual, every-day life. Farmers must find purchasers able to pay remunerative prices, and they must have a market of almost unlimited extent, or limited only by their ability to supply it. Then, and then only, they can add much to their wealth by agricultural labor. Now, how is this market to be obtained? There is but one way, and that way is to encourage the cultivation of the arts, even beyond the necessities of the community where they are practiced, if possible, and thus not only secure a market for their own artisans, whom they have induced to settle among them, but for the artisans of other communities. Then we have established distant and foreign commerce. This brings in a new class of artisans, and increases the demand for those classes already established, and thus again the demand for agricultural products is increased. A new market is also opened, to wit, for forest trees, and here again is a definite per centage added to the value of land, if its growth can be used for ship timber. And where does this increasing progression terminate? What is the last term of this ascending series? No community has yet found it. It has changed the value of land from a few dollars, or cents even, and we might say from nothing, to thousands of dollars, as in this city and elsewhere; and what will be the highest value of land, or what quantity, what extent of land, can be made to represent those immense sums, per acre, who can tell us? Probably we have learned by experiments long ago, and oft repeated, what values can be given to land shut out from such advantages, and the result is by no means commendatory of the system we have here and elsewhere condemned. But who can assure us that the arts have done their utmost, in any community, and under any circumstances, to bring in and heap up wealth, both for the farmer and the artisan?

Deprived of these facilities of trade, tillers of the soil cannot amass wealth. Even now, the small farmer often finds it difficult to live as a man should live, cultivating his better capacities, and gratifying his tastes, and indulging in the higher amusements, so useful both to the body and the mind. By diligent labor with his own hands, he may feed himself and his family, as he does his cattle, and with his small surplus products, pay for the additional labor his fields imperatively demand, and purchase his coffee and sugar and other necessaries which his own land will not produce, for his table. But he cannot educate his children as he would, nor buy books for his family, nor even afford such agricultural periodicals as he would like and much needs, to show him how to make the most of what he has. Even for the more costly and valuable implements of husbandry, he may be dependent on his neighbor, who equally needs a similar favor in return. If they had still fewer customers, and could command only still lower prices for their crops, a necessary result of a contracted market, these farmers would be in a condition that no man would envy. They would scarcely be recognized as the originals of those glowing pictures of the independent and happy tillers of the soil, so often met with in orations.

But the theme is fruitful of thought, view it as you will. We have yet scarcely touched upon the inquiry, How are the arts to be encouraged? nor, Under what circumstances will they best answer the ends in view? And we can only suggest now, that the farmer cannot well afford to carry his product to distant communities, nor beyond the seas, nor to pay others for doing so. If there are ten, or a hundred, or a thousand, or ten thousand artisans to be fed by the products of his and his neighbors' fields, who can doubt that it would be better for him and his neighbors, if those artisans would come from across seas, and elsewhere, at their own expense, and live among them, and be of them, and, without even the cost of an express wagon, furnish each other with a good home market, at each man's door? Can any man, who forgets for one moment his *party platform*, entertain a doubt on this point? P.

MECHANICAL EXHIBITION OF THE AMERICAN INSTITUTE.

We have seldom, if ever, seen so capital a show as this. Almost every variety of machine that can be thought of, has here its representative. We have space and opportunity for the description of only a few of these ingenious inventions, and shall add to this list, from time to time, as circumstances will permit. P.

STEAM PLOUGHS.

Two plans are exhibited: one, a drawing without a name attached, is a locomotive, driving a row of ploughs or cultivators. It is of no merit except as an expression of the opinion of an unknown person, that a locomotive-drawn plough is the best mode in which steam can be applied to this purpose. The other is a neat model by Alvin Adams, of Massachusetts. He applies water instead of steam in his driving cylinders, which operate upon a crank axle, as in the inside-connected locomotive. The water is forced into a pressure reservoir by a Worthington steam pump, which takes its steam from a boiler of the locomotive pattern. We have no doubt that this arrangement will work so as to demonstrate the feasibility of steam ploughing; but we see no advantage in the roundabout way of working; on the contrary, there are great disadvantages. First, the Worthington pump does not work expansively; but steam worked expansively to the extent practicable in such engines, will do double the work it can do without expansion; and the friction of the water cylinders is so much more to be deducted from the effect. If Mr. Adams will apply his steam in his driving cylinders, his machine will come near to what we regard as the best plan; and if he will put them outside, thus avoiding the expense of a crank axle, he will, we think, come as near the mark as any plan we have yet seen.

P.

STEAM STAGE-COACH.

J. K. Fisher exhibits a plan of a stage for twenty inside and twenty outside passengers; and proposes a subscription of $3000, a third of which is subscribed, to build it. Two thousand dollars will so far complete it as to test its powers; and it is estimated that $2400 will pay the total cost; but he deems it imprudent to start upon the amount estimated. This carriage will test the applicability of steam power upon the worst roads to which it can be applied with economy, and of course it will test it on city pavements and good roads; and, although such a machine will be necessarily expensive for ploughing, it may be tried for a day for that purpose; and as it will have power to draw two or three ploughs, it will serve as a partial test of the economy of this application of steam. With this view, we hope some of our liberal readers will send us their names to be added to the subscription list, for as much as they are willing to contribute to an enterprise which will, in all probability, be of great use to the public, but which speculators seem to apprehend cannot be made the subject of a patent monopoly, and therefore can be of no more use to them than to the public generally. In this state of the case, it will be wise for those who own land, to be efficient and prompt in promoting what, if successful, will inure so much for their benefit. Any number of dollars may be subscribed, which may be safely invested, and we shall be happy to act as agents in such a work. Twenty fine paintings, valued at more than the amount required, by the judges on the fine arts appointed by the managers of the fair, are pledged as security against loss; and the stock of the patent right will be divided between the inventor and the subscribers, by judges appointed by the trustees of the American Institute, in case the parties should fail to agree.

We have in former numbers advocated this invention, and shown that the notion that it failed in England in consequence of its inability to compete with horses, is erroneous. It failed simply because the House of Lords, by rejecting two bills which the Commons had passed to relieve it from prohibitory tolls, convinced capitalists that they were determined to crush it; and this they did, for the same reason that they kept up the Corn-laws, namely, to keep up the rent of their lands. The invention, though probably as imperfect as were the railway locomotives of that time, was declared by a committee of the Commons, to have been proved capable of working with profit at half the usual fares of horse-coaches; and to have attained a speed of more than twenty miles per hour with nearly full loads of passengers.

The question for speculators now is, not whether it will run cheaper than horses, but whether the patentable improvements will enable them to secure a monopoly of the invention. If they are not confident that this monopoly will be secured, they will not invest in it—it would not pay them. But the questions for landholders are: will it give us a quick and cheap travel to market? will it help to introduce the steam plough? will it work on something less costly than rails, until there is traffic enough for rails? and shall we wait for mechanics and speculators, who have, comparatively, little interest in it, to start it, and thus lose twenty years, it may be, in addition to the twenty already lost since the invention was proved capable of giving a speed that nothing but the railway can equal?

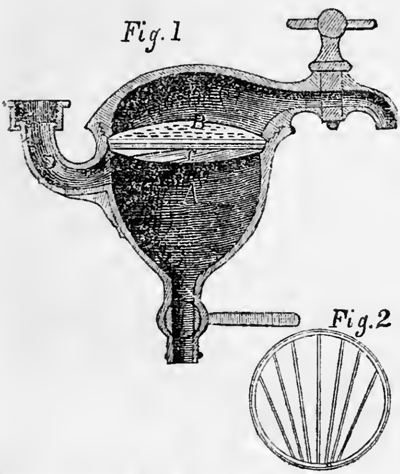
The combination of the locomotive and the iron road, is undoubtedly better than the combination of the locomotive and the common road; but the latter combination is not therefore to be neglected; on the contrary, it would have been better that only half the railways, and those the trunk lines, had been built; and the locomotive in a light form, had been put on the common road, thus making it an efficient feeder to the trunk lines. This policy would have made the trunk lines more profitable, and saved the total loss of all that has been expended on the permanent structures of about half the railways. Business would have grown up; actual experiment would have indicated the time and place when and where to improve the road by planks, timber, or stone tracks, or by rails; and steady progress would have been made, with gain to all parties and loss to none. But what is the picture we now see? A quarter of the railways carry an average of less than twenty-eight passengers per train; 4500 lbs. is the average gross weight per passenger; and eighty-three cents per mile per train, or three cents per mile per passenger, is the cost of transportation. Now, we believe, that a single steam carriage could do the average work of these trains at a cost of thirteen cents per mile, and with an average speed, taking the terminal distribution into account, very little less than that of the railways. P.

MANUFACTURE OF FEATHER DUSTERS.

The diversity in Northern industry, which is so conspicuous to any observer, is one of the peculiar features of the Northern States. And it is their life. If they were confined to a single kind of manufacture, the result would be disastrous in the extreme. It is this variety which secures to those States their real independence. An embargo might be laid on all foreign trade, without a great interference with a regular supply or demand. Among these manufactures, we have been interested in attaining the following facts, in reference to that valuable article, Feather Dusters.

The feathers (ostrich or vulture) are imported from South America, (Buenos Ayres,) and arrive in bales from 650 lbs. to 850 lbs. The first operation is to wash, dress, and dry the feathers—afterwards they are assorted and measured according to the length in inches. The handles (of common kind) are of white wood—some of which are stained and others japanned—which is mostly done by the manufacturers themselves. Some handles, however, are of rosewood some of maple or black walnut, and even sometimes of ivory. The handles being painted and varnished, are bored, on the good workmanship of which the principal appearance of the brush depends. After this the feathers are taken in bunches large enough to fill the holes bored in the handle, and pitched in with a peculiar mixture, chiefly consisting of pitch. Next, the leather cap, which is pinked and gilded or stamped by the manufacturers themselves, is put on, and the brush is ready for sale. For colored brushes, great care is necessary to produce a good color—the dyeing of feathers differing entirely from dyeing woollen, silk or cotton goods. There are at present four manufactories in this city. The goods which we have noticed in the Fair of the American Institute, are from that of L. G. Hansen & Co., 176 Front street, of this city.

The Dusters are at present sold extensively in this city, and also largely exported to other States and countries. The feather duster manufactured in America is altogether a different article from those made in France, and imported here to some extent. The "American" are made on a better plan, last longer, and are far better to use as a dusting brush. There is so much competition in the trade, that prices run quite low. P.



Wright's Patent Excelsior Water-Filter is better, in our judgment, than any filter we are acquainted with. It is so arranged as to cleanse itself from every impurity merely by changing the current of water from one discharging pipe to the other. A is the shell of the filter. The filtering medium consists of a piece of felt or flannel, or other suitable substance placed between a perforated disk, B, and a barred ring, C. The water enters through D. If filtered water is needed, the lower stop-cock is closed, and the water rises and passes out through the upper faucet. Unfiltered water can be had at any time, by opening the lower faucet. The bars in the ring, D, serve to direct the water across and against the bottom of the felt or other filter, when the lower cock is opened, and thus to sweep off the matter separated by the filter. The form here shown is chiefly intended for city use. Mr. Wright's office is at 835 Broadway. P.

Breech-Loading Cannon.—A Mr. Barnes, of Lowell, Mass., has invented a gun about two feet long and about an inch bore, at the breech end of which there is an arrangement by which a man can turn a crank like a grindstone, and discharge it as often as he can drop a cartridge into a hole. By turning this crank the cartridge is taken from this hole, and forced into the breech of the gun, which opens to receive it, and then closes. The gun is capped, fired, and swabbed out, without the least danger to the gunner from premature explosion. The caps are put on to a wheel that holds fifty or more, and are taken from this as often as needed.

Mr. Barnes has been employed heretofore in the United States armory at Springfield, (Mass.,) where numerous experiments in breech-loading canons were made by himself and others, and is thoroughly posted in these matters. He says that two men, one to drop in the cartridges and one to turn the crank, can manage the largest sized guns that now require from eight to twelve men to work, and that he can discharge any cannon as fast as the powder in its cartridge will burn. He has made five successive shots in twelve seconds. P.

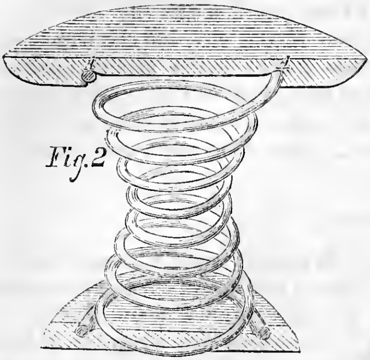


Fig. 2

Wright's Patent Spring Beds.—In contriving and offering these beds to the public, Mr. Wright has done the world a good service. We have alluded to this invention in a previous volume, but we now speak from experience in our own family. They are cheap, durable, and convenient, being easily removed from one bedstead to another, or even used equally well upon the floor. They can be made more or less pliable, to suit the taste or the weight of those who use them; and whoever wants a more comfortable arrangement than is furnished by a good mattress resting upon these springs, is not only hard to please, but we fear will be old and rheumatic before his want is supplied. Fitted for a double bed, the cost is some eight or ten dollars. They are just what is wanted in hotels when they cover the floors of parlors with beds, as on public days.

A Polychromatic Printing Press, for simultaneous printing with several different colored inks, is exhibited by Messrs. A. M. & G. H. Babcock, of Westerly, R. I. It consists of a central revolving block having four level surfaces or beds, each of which receives a sheet of paper for printing. The types are affixed to a platten, and there are as many plattens as beds. As the sheets come in front of the plattens, the latter advance and leave an impression of their types upon the paper. Each platten is inked by a different set of rollers, and thus different colors may be stamped upon each sheet of paper. They may be made to print as many colors as are desired. Price $800 and upwards, according to size.

Saxton's Summator is a marvelously ingenious labor-saving machine for adding numbers. Any series of numbers within its limits being brought successively to a given place, an index points out the sum. This may go on through a whole column of figures. It is quite worthy of notice from all who have work of this sort. An expert will get his result with this machine in much less time than the most rapid accountant could find it.

Wescott's Railway Door-Spring.—This has considerable merit. Its chief points are that it operates with most power at the point where the power is wanted, is without noise, does not *slam* the door, is simple, and not easily got out of order. It may be placed out of sight.

Water Heater for Locomotives.—Magoon & Co., of St. Johnsbury, Vt., exhibit one of their patent smoke stacks for locomotives. By this invention the heat of the exhaust steam and the escape caloric is made to heat the water in the tender, and an important economy in fuel is thus obtained.

Holmes' Patent Threshing Machine is exhibited by Bonnell & Co., 211 Center street, New-York. It is of small size, and may be used by hand or power, as desired. It consists of a few wooden bars pivoted at one end, and lifted by cams arranged on a rotating shaft. They fall upon a platform on which the grain is placed. The straw is carried along under the bars by an endless apron. It is claimed that two men, with one machine, will do the work of six men with common flails.

H. B. Smith's Morticing Machines.—Mr. Smith is a true son of "the city of spindles," *a city* equally skilled in other branches of mechanics as in the machinery used in his factories. He has several valuable inventions on exhibition. We can only refer to them in a general way.

His Morticing Machine is designed for door manufacturers, but is suited to any light work, either of hard or soft woods. It is built entirely of iron and steel, and does its work with great neatness and wonderful dispatch.

His Machine for Morticing Blinds, is another capital invention, which secured a gold medal, at Boston, in one of the best shows we have ever seen. It will make forty or fifty mortices per minute, and can be operated by a boy. It must come into universal use. We hope to exhibit engravings of these machines, hereafter.

Demorest's Magic Miniature Cook-Stove.—This is a capital concern. It occupies about the space of a quart mug, and will boil water, cook eggs, ham, etc., stew oysters, heat flat-irons, and perform similar operations, with perfect ease and almost without cost, as it consumes the gas of only a single burner. It may be attached to a common burner by an elastic tube as it stands on a table, or it may be set directly upon the burner. Cost, with utensils, $1 50.

Newbury's Breech-Loading Gun, is a very effective arrangement. The caps are inclosed; the revolving barrel can be exchanged very quickly; and the priming apparatus is ingenious.

Hickok's Patent Portable Keystone Cider and Wine Mill, advertised in this journal, was patented in Nov., 1855, is a very compact form, easily transported from place to place, is ingeniously contrived and well made, and can scarcely fail to be especially convenient for the purposes to which it is designed. It will make from six to twelve barrels a day. The patentee has obtained a large number of very strong certificates in commendation of it. Price $40. Give him a call, at Harrisburgh, Pa., or at agricultural stores.

Ford's American Window is a very useful and convenient arrangement, by which the upper and lower sashes are moved up and down and the lower ones open also from the center. They do not rattle, and are as cheap as the form ordinarily used in good houses. They will not easily get out of order.

Gunner's Swing Bolt, for shutters and blinds, fastens shutters and blinds, inside or outside, at any desired position, requiring no other fastenings.

Woodruff's Self-Acting Gate is the best arrangement we have seen for ordinary farm purposes, always saving the trouble of opening and shutting. This is done by the wheels as they approach the gate or pass through it.

Westcott's Railway Door-Spring is very well adapted to the object for which it is designed, and is free from many of the objections which may be urged against some other contrivances for a similar purpose.

Littlefield's Railway Coal Burner.—In this stove Mr. Littlefield has undoubtedly combined one or two points that are new, so far as we know, and of no little value. It secures the combustion of the coal on the outside, while the central parts burn very slowly. A good draught, easily controlled, is also secured, and also a large radiating surface. We have never seen arrangements so successful as these appear to be in accomplishing the results. The stoves are manufactured and sold by Erastus Corning & Co., Albany.

Dick's Patent Anti-Friction Machines—*For Shearing, Punching, and Swaging Iron of any Thickness.*—This is a very powerful machine, which does an immense deal of hard work, cutting the thickest plate even, without any noise. It seems difficult to contrive any thing more effective for the purposes in view.

Kuhn's Grand Patent Harp Dulciana.—This is an ingenious attachment of the harp to the pianoforte, or in other words it is a harp, the strings of which are struck by the hammers of a pianoforte. The harp rises from the back side of the instrument, a large portion of the strings being above the case which contains the action. The music is very sweet, but is deficient in power. This would be expected by any one who calls to mind the force with which the strings of a harp are struck by a good player. The name is characteristic of its merits. This combination answers well to the Dulciana of an organ, but lacks the fulness of the diapasons, and the brilliancy of many other stops. It was manufactured in Baltimore.

The Nellisonian, is another new and very curious instrument. This is a pianoforte with a bank of keys on the opposite sides, the strings of which are stretched up and down a hollow cylinder which stands within and above the center of the case or square box, in which the action is placed. This cylinder is divided by a sounding-board which runs through its entire length, dividing it into two chambers. This is an original idea. The plan has its advantages, and may prove of great value. But the exact proportions best adapted to such an instrument, have not yet been ascertained. The tone, so far as we can judge in so large a room, lacks power and volume. This invention was patented in 1852, and was exhibited at the fair of the Institute in that year. This is the second instrument ever built of this description. It may be supposed therefore to be capable of important improvements in its mechanism and proportions, and should have a careful and candid examination and receive all the consideration which is due to anything that promises progress in this, the most popular of the fine arts.

The Descent from the Cross, by Carew of London, is a very large and splendid piece of art, in basso-relievo. It was designed for a Cathedral in Dublin, but the contract was never executed, on account of the death of the bishop, and it was sent to the exhibition in the Crystal Palace in 1853. On its arrival, it was found to be so shattered upon the voyage that the directors refused to receive it. Recently it has been restored in a very perfect manner by Mr. Charles Innis, of this city, who was a pupil of Mr. Carew at the time it was first constructed in London. Mr. Innis deserves great credit for the skill he has here exhibited. It should win for him both fame and money.

The body of the Savior is represented as supported by Nicodemus. Joseph of Arimathea is at his feet. The head of John the Evangelist is reclining against the cross. The three Marys and several persons sent by Pontius Pilate to oversee the work, complete the group. It is perfectly successful as a work of art, in its drapery, postures, etc. No copy of it has ever been taken.

The Baptism of the Savior is by the same talented artist. It is of life size, and is well worth a careful study.

There are many other inventions in this show, worthy of especial notice, for the description of which we cannot now afford room. We shall refer to some of them in our next number. Among these are an atmospheric hammer, a capital affair; gas stoves, and other new stoves; shears for cutting sheet and plate iron; carpenters' tools; machines for making barrels; a stone-dressing machine; a racket handle, for tools, by which one can bore in corners and with great rapidity; marble-sawing machinery; machine for picking and opening cotton and other fibrous materials; a folding machine, etc., etc. Indeed, there is collected in this exhibition, very little useless, but a vast amount of excellent machinery and tools. We never saw a better show. P.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

TO FIND THE SIDE OF AN OCTAGON.

Rule.—Multiply the *least* diameter by $\frac{12\ 1\text{-}50}{29}$

Merchant Kelly.

Bentonville, Ind.

HOW TO CALCULATE THE POWER OF A LOCOMOTIVE.

The *Railroad Advocate* gives instruction on this point as follows:

Suppose thirty cars weighing 30,000 lbs. each, (loaded,) to be drawn at the rate of ten miles an hour, up a grade of 40 feet.

On a level, at ten miles an hour, the entire resistance to the motion of trains is safely estimated at about ten pounds per ton, although under the best circumstances it may not exceed eight pounds. Here are 450 tons of loaded cars, whose friction resistance is thus 4500 lbs.

The resistance of gravity in going up the grade, is found by the following rule:

Multiply the number of feet rise of grade per mile, by .3787. Point off four figures for decimals, and the product is the gravity in pounds of one ton of 2000 pounds on that grade.

The rise of our supposed grade being forty feet per mile, 40 multiplied by .3787 is 15.148, or little over 15 pounds gravity per ton. Hence 450 tons, at 15 pounds per ton, is 6750 lbs. of gravity; a total of 11,250 pounds of friction and gravity of the loaded cars alone. Now what will be friction gravity of the engine and tender?

But we cannot know the resistance of the engine and tender without knowing the size, and their size is the very thing we are after. We can guess nearly enough, for entire accuracy is not required. We can say safely that the engine and tender which will carry thirty loaded eight-wheeled cars, ten miles an hour, up a forty feet grade, will weigh not less than forty tons. Here, then, is an additional gravity resistance of (40 tons by 15 lbs.) 600 pounds; and a friction of probably 1000 pounds for the engine and tender. To insure sufficient power, it is probably safe to provide an engine with 13,000 pounds of tractive power. How large, then, must be the engine which will give this power?

This power depends upon four elements, viz.:

1st. Diameter of cylinder.

2d. Length of stroke.

3d. Size of wheel.

4th. Pressure of steam.

To find either one of the above elements, the other three must be assumed. Suppose, then, an average of 80 pounds per square inch on the piston, and 22 inch stroke, and 4½ feet wheel. Now all we want is the diameter of the cylinder.

Let us take the rule for finding the tractive power—the rule by which we should have to find the power of the engine, whose power we now know to be 13,000 lbs. The rule is this:

Multiply the diameter of the cylinder, in inches, by itself; multiply this by the pressure of steam, in pounds, per square inch; multiply this product by the length of stroke, in inches, and *divide* this entire product by the diameter of the wheel, in inches. This quotient is the tractive power of the engine, in pounds.

Hence, to find the size of the engine from its power, we have only to use this rule backwards. Suppose, then, we had just found the power of an engine to be 13,000 lbs. of traction; we should have got that number by dividing some other number by the diameter of the wheel (54 inches). That number must have, therefore, been 13,000 times 54, or 702,000. This number must have been obtained by multiplying some other number by the length of stroke (22 inches). Hence, this number was 702,000 divided by 22, or 31,909. This number, too, was found by multiplying still some other number by the pressure per square inch, (80 lbs.) Hence, that number must have been (31,909 divided by 80) 400, nearly.

Now, this last number was the square of the diameter of the cylinder, or the number obtained by multiplying the diameter of the cylinder, in inches, by itself. By extracting the square root, or by referring to a table of squares and cubes in any mechanic's hand-book, or even by a brief trial, we find the required diameter of cylinder to be 20 inches.

Briefly, then, having found the tractive power required to pull any given train (by simply calculating its resistance with the approximate resistance of the engine and tender), find the size of the engine by the following

Rule.—Multiply the tractive power required by the diameter of the wheel, in inches. Divide the product by the length of stroke, in inches; divide, also, this quotient by the pressure of steam per square inch. The last quotient will be the product of the diameter of the cylinder into itself. The diameter must be found by extracting the square root, or by reference to a table of squares and cubes, or even by trial.

Pinching to Promote Fruitfulness.—Those who have never practiced this, or observed its results, may have seen, if experienced in tree growing, that a shoot of which the point was broken, bruised, or otherwise injured, during the growing season, frequently becomes a fruit branch, either during the same or the following season; and this, especially if situated in the interior of the tree, or on the older and lower parts of the branches. The check given to the extension of the shoot concentrates the sap in the part remaining; and, unless the check has been given very early in the season, or the growth very vigorous in the tree, so that the buds will break and form shoots, they are certain to prepare for the production of fruit. It is on this principle of checking the growth, and concentrating the sap in the pinched shoot, that pinching to induce fruitfulness is performed; and its efficiency may be estimated from the fact that trees on which it has been practiced have borne fruit four or five and perhaps seven years sooner than they would have done without it.—*Barry.*

Senior Editor's Table.

Owing to a mistake between us and the printer, without blame on either part, our correspondence from the West has got into the body of this number, in Long Primer, instead of being pushed into fine print, near the end, where only, if anywhere, it deserves a place. It there occupies more space than it is worth; and yet does not contain half we wished to say. In this less pretending corner, we want to say a few of the things there left unsaid.

This is a great country. Now don't laugh at us, as if we had never been much from home before. It is true we have not. We had a tender mother; we have always had kind friends; and we never have roamed far from the smoke of the home chimney. This crossing the western line of New-York, was a new thing to us; and if one inured to the rocky hills of New-England would not stare at the first sight, he must be a stupid fellow. In England, Scotland, Belgium, France, and some other countries, we have seen husbandry that we thought was well worth seeing—broad fields beautifully tilled—enviable crops. But if the rolling prairies of Illinois and Wisconsin should a few years hence be cultivated as we think they will be; if they should be studded here and there with plantations of trees, as they can be almost without trouble, so prolific is the soil; if the farm buildings, the gardens, the orchards, should indicate such comforts as the wealth of the soil will certainly warrant—the proudest cultivation of the Old World will be eclipsed. Illinois itself is two thirds as large as the united kingdom of Great Britain and Ireland, the one containing fifty million acres, the other seventy-five million. Its agricultural capabilities are at least as great, probably much greater. Of its mineral resources we cannot speak comparatively, but they are great. It amazes us to think what this State will become in a century, if only half its present rate of progress should be continued, and we know not why it may not continue to advance as fast as now.

Something practical.—J. C. Capron, a successful stock breeder of Alden, McHenry Co., Ill., told us on the show-grounds, at Milwaukee, that clover seed is the only manure he can afford to buy. He thinks it enough, together with the ordinary manures of the farm, wherever land is plenty and is judiciously cultivated. We drew him out, on the comparative value of clover and herdsgrass. He sows herdsgrass for the improvement of the quality of the hay crop—sows it with the clover—but believes it is the clover, by means of its deep tap-root, drawing up the salts from below, that benefits the soil for succeeding crops. He has spent much of his life South; and if we understand and remember him correctly, his opinion is, after great experience in various latitudes and soils, that clover is good, everywhere, if the soil will produce it, and for all crops, as cotton, tobacco, wheat, and all cereals. Not five minutes after, we met a first-rate farmer from the State of New-York, who gave us an opinion directly the reverse, that herdsgrass not only gives better hay, but prepares the land better for succeeding crops. Why will these farmers—good farmers too, intelligent, successful—differ so? It sometimes seems as if there was nothing to be learned from them. Is it owing to inaccurate observations? or is it due to difference of soils? It may be ascribed in part to both causes. But we believe in clover. On a good clover lay—where clover and herdsgrass have been sown together, and the ground has become thoroughly permeated with the clover roots—you are pretty sure of a good crop, other requisites being had. Mr. Capron exhibited (we are not certain how many, but we believe) thirty pure North Devons. One would need to go far to see a finer stock.

There were four pair working oxen, brought there, as we understood, to show that the Devons are not a small breed, and they certainly went far to show it, though more remarkable for perfection of form than for size. They were exquisitely beautiful, as were also four cows of his herd and many young animals, the cows bearing the names respectively of Margaret, Adaline, Jane, and Strawberry. Mr. Capron is an old breeder, has bred other races, but thinks the Devons, if not the best for all parts of the country, best for all northern latitudes and many Southern. We have little doubt he is right, though we have supposed that for mild latitudes and rich pastures, the larger Herefords and Durhams were preferable. It is certainly an advantage of the Devons, that their blood is intensely strong, holding fast their peculiar characteristics of form, color, and hardihood. Mr. Capron's views corresponded with those we have often expressed, that whatever be the object in keeping cattle, *they should be kept well.* We would say, keep no more than you can keep in the best manner ; have warm sheds and plenty dry bedding in winter, and plenty of food always ; they should be always growing ; there is no profit in feeding animals so that they will barely hold their own. We would say to our readers now just before cold weather comes, calculate for a pretty severe winter; not that we expect such, but we may have it, and it is safe to be prepared for it. Prepare comfortable quarters for your cattle, and see that you do not commence the winter with too many. There is more profit in wintering fifteen well, than twenty badly. Starving cattle, or leaving them to suffer with the cold, is an unprofitable, as well as a cruel business.

Another Herd.—H. N. Washbon, Esq., of Morris, Otsego Co., N. Y. also exhibited a herd of twenty-seven cattle about half pure Devons, and the rest grades, in which the Devon blood was so predominant that none but a good judge would have suspected a mixture. We do not recollect to have seen an Ayrshire or an Alderney at the Michigan or the Wisconsin shows; but the Durhams and the Devons at both fairs were numerous, and many of them of a high order. Fast horses and trials of speed—not races—occupied too exclusively the attention of both gatherings. The subject, we admit, is important, worthy of the consideration of an intelligent people, but we do not want it, like Aaron's rod, to eat up all the other rods, and we very much fear that a wrong direction is being given to our National, State, and County fairs, in this respect.

Promiscuous.—We were politely shown over the implement factory of Messrs. Warner & Wakeman, of Dexter, Mich. Among other labor-saving implements, they manufacture a threshing-machine, capable, as they say, of easily threshing and cleaning nine hundred bushels of wheat per day. It is a heavy, strongly-built, and we should think durable machine, is on wheels, and capable of traveling from farm to farm. H. Boutwell, Esq., of Racine, Wis., is the manufacturer of chain pumps, portable mills, and a broadcast grain-sower. The latter spreads the seed perfectly even, any desired quantity to the acre, covers it at the same operation, and is easy of draft for a span of horses. After seeing its operation, we should not hesitate to commend it to any who prefer broadcasting to drilling. It would hardly be possible to spread grain more evenly, or to cover it more equally, than is done by this machine. We noticed also at the Wisconsin fair another broadcast sower manufactured by Wm. Sampson, Chicago, and exhibited by C. C. Bellows, Mineral Point, Wis., which seemed to possess great merit. The manufacture of agricultural machinery has become an immense business at the West. If we do not misremember, John S. Wright, of Chicago, told us that he would manufacture five thousand of Atkin's Automaton Reapers at his shop in that city, and three thousand at another establishment at Dayton, O., within the coming year, and that indications were favorable for selling them as fast as he could make them. Other instances of Western energy and enterprise we would mention, but must stop for want of space. American skill in mechanics and manufacturing cannot fail to be a matter of rejoicing to the American agriculturist, if he rightly estimates its bearing on the national prosperity, and especially on his own employment. The agriculturist must have a host of mechanics and manufacturers for his customers—consumers of his produce—or he cannot prosper.

Recent English Patents.

SELECTED AND PREPARED BY M. P. P.

Improvements in Manufacturing Artificial Stone, and in giving Color to the Same. By Wm. Hutchison, of Tonbridge Wells.

This invention relates to a peculiar preparation of sand, loam, chalk, gravel, shingle, plaster, cements, lime, or other similar loose and friable substances, combined with coal-tar, common resin, or other suitable resinous or similar bituminous material, whereby a new compound is produced, which may be molded into blocks of any desired shape, and colored according to taste. These blocks, when completed and hardened, are perfectly impervious to wet and vermin, and durable in the highest degree. To manufacture an artificial stone of a dark color, coal-tar is used, but if a light artificial stone is required, common amber resin is employed.

The tar is freed, in the first place, from all aqueous and some of its oleaginous constituents by boiling it, and distilling and condensing the same through pipes, until it becomes so consistent as not to give off any oily or fatty substance to the touch. If properly prepared, it will set perfectly hard when cool, and will not yield to pressure. Previous to submitting the materials to pressure, they are dried on metal plates, heated by hot air or water, or by placing them on any surface of brick or stone heated by furnaces or otherwise. The proportions used are about one gallon of sand or other friable substance to one quart of coal-tar prepared as before described; or one gallon of sand or other friable substance to about one pint and a quarter of resin in a boiling state. These materials are mixed, in a heated state, until they become thoroughly incorporated; the mass is then compressed in a warm metal mold, of any desired form. The molds employed should be made in two or more pieces, so as to be capable of being thoroughly secured together, and yet readily disengaged when desired. When composed of metal, the molds should be perfectly smooth inside, and the pressure applied gradually. Every thing used with the aforesaid process should be kept warm, but the materials, when compressed, should be relieved from the molds as soon as moderately cooled.

In order to obtain colored artificial stone, the resinous or bituminous substance may be colored while in a boiling state, or the sand or other material may be colored previous to its incorporation with the aforesaid ingredients.

According to one mode of operating, the tar or resin, after having been treated as before described, in place of being reduced to a liquid state by boiling, may be reduced to a fine powder and mixed with the sand or other material, also reduced to a powder, over a hot plate; and when sufficiently heated, so as to become incorporated together, the mass may be compressed into molds.

The artificial stone, prepared by any of the methods hereinbefore described, may be again crushed into a fine powder, and mixed with about twenty-eight per cent., more or less, of lime or other plastic material, and used, when cold, as a cement for internal or external application.

IMPROVEMENTS IN THE APPLICATION OF SILICATE OF POTASH TO HARDENING AND PRESERVING STONES AND CALCAREOUS MATERIALS. By WM. ARMAND GILBEE, of Finsbury.

This invention consists, firstly, in the process of impregnating stone and other calcareous materials with a solution of silicate of potash. Secondly, in determining the different degrees of strength to be given to the solution of silicate of potash, which varies according to the nature and state of the stone, and the conditions of the atmosphere. Thirdly, in the means of drying the stone either before or after the saturation, to insure a favorable result.

When treating calcareous materials by the above-mentioned operations, a certain quantity of carbonate of lime is converted into silicate of lime. The silicatization also of siliceous materials, such as sandstone, is effected by the introduction of a solution of pure silicate of potash, which, in setting, causes the disintegrated particles of sand to adhere—thus hardening the stone to a considerable extent. Before proceeding to the silicatization of the materials, it is necessary, if they are new, to dust them, and if old and decayed, to clean them—carefully avoiding the use of acid. If the monuments or materials to be treated have been previously coated with a water-proof composition, it is requisite, after the removal of this coating, to wash them with an alkaline solution of from two degrees to seven degrees Beaumé, according to circumstances, and afterwards wash them with pure water.

The solution of silicate of potash is applied to the stone in the form of fine rain, by means of suitable pumps furnished with spreaders. In treating hard stones, this process is continued for three or four days successively, but for soft stones four or five days are necessary. The process is discontinued when small crystals of quartz appear on the surface of the stone, this state being a proof of sufficient impregnation. The quantity of the solution of silicate of potash may vary from two pounds to fifteen pounds per superficial yard, according to the nature and decay of the stone or calcareous material.

On account of the variety in the quality of building stones, the inventor divides them into three classes, so as to indicate as clearly as possible the degree of concentration of the solution requisite in each case. First, hard stones (sandstone, rock lias;) second, soft stones (large grains and open pores;) third, soft stone with close grains, such as calcareous stone, obtained from the bed of the Loire.

The stones of the first class are treated with a silicate solution of the strength of seven degrees to nine degrees Beaumé. A solution of five to seven degrees Beaumé is applied to those of the second class—gradually diluting it, so as to finish with a solution equal to from ten degrees to twelve degrees Beaumé. The materials of the third class are treated with a solution from six degrees to seven degrees Beaumé, which is gradually lessened, so that in completing the operation the strength of the solution is not more than three to four degrees Beaumé. In all cases the complete stoppage of the pores of the stone is avoided.

The treatment described for materials of the first class is also applicable to new or decayed statuary marble; that for stones of the second class for all kinds of sandstone. When they are much decayed, a more concentrated solution ofthe silicate of potash is used.

In cases where, by reason of the condition of the atmosphere or the position the stone occupies, it fails to attain a sufficient degree of silicitization, the stone is dried by means of ventilators (that of Combe's being preferred,) employing heated air, according to circumstances. To dry stones by heated air previous to silicitization, a temperature of 104° Fahr. is first used, and gradually raised during the necessary time to 318° Fahr., and even higher, according to circumstances. This temperature is gradually reduced to the original degree of heat. The same operation is performed after silicitization.

The inventor also employs heated air for joining stones, for which purpose good hydraulic cement is used, mixed with silicate of potash from eight to ten degrees Beaumé. Detached portions of stone are replaced by a paste or cement formed of the same kind of stone, broken and sifted, and mixed with a silicate solution of twenty-five to thirty degrees Beaumé, afterwards properly compressed so as to assume the exact color, grain, and density of the natural stone. The same process of joining and restoration can be applied to sandstone and statuary marble.

When joints made by the ordinary process of lime cement give way, they may be strengthened by impregnating them with successive coatings of silicate of potash of ten to twelve degrees Beaumé. This impregnation is effected by means of pressure continued during a day or more. The result may be improved by applying, after the last application of silicate of potash, acetic or pyroligneous acid of 2° B., succeeded immediately by showers of clean water.

IMPROVEMENTS IN DRAWING WOOL AND OTHER FIBROUS SUBSTANCES OFF THE COMBS OF COMBING MACHINES. By WM. DENTON, of Addingham, Yorkshire.

Heretofore in drawing wool and other fibrous substances from the combs of combing machines, it has been for the most part usual to employ rollers set at an angle to such combs in such a manner that the rollers seize, first the longest wool which projects furthest from the comb, and afterwards take the shorter wool which projects a less distance from the comb; thus is the long wool taken hold of at a distance from the comb, and it is liable to be broken in the drawing off. This invention consists in placing the drawing rollers parallel, or nearly parallel, to the comb, and in tapering the ends of the rollers in such a manner, that the wool enters between them at their tapered ends, and the longer and shorter wool are both taken hold of alike close up to the comb, and all drawn off together.

IMPROVEMENTS IN MACHINERY OR APPARATUS FOR COMBING WOOL, COTTON, AND OTHER FIBROUS SUBSTANCES. By WILLIAM HENRY BULMER, of Queen's Head, near Halifax, and WILLIAM BAILEY, of Halifax.

This invention of improvements in machines for combing wool and other fibres, relates to that class of machines where the fibre to be combed is fed, by suitable feed-rollers, through gill-combs, to nipping instruments; by which it is conducted into position to be taken by a carrier or porter comb, by which it is laid on to the circle or other passing comb, thence to be drawn off.

And the improvements consist in so arranging the parts actuating the nipping instruments and the porter or carrier comb, that the improvements of the nipping instruments may be increased in speed from the point of receiving fibre from the gill-combs to the point of delivering the fibre to the porter comb, and again diminished back to receive a fresh supply; whilst the movements of the porter or carrier comb are diminished in speed from the point where it receives fibre from the nipping instruments to where it lays that fibre on to the circle or other passing comb, and then increased back to the point for receiving a fresh supply; by which, in working such machinery, considerable advantage is obtained, by increasing the speed of the parts when they are required to exert least power. These variations of speed are effected by connecting the movements of the parts with a shaft, to which an irregular motion is given by its having affixed thereon eccentrically an elliptical toothed wheel, which is taken into and driven by another similar wheel, also placed eccentrically and upon another shaft, which receives its motion from the main axle, or in any suitable manner.

And the improvements also consist in obtaining progressively increasing speed to the gill-comb bars in their traverse from the point of receiving fibre to the point of delivery to the nipping instruments, by a varying speed given to the gill-screws—they being driven from the axle, to which a varying velocity is given, as above explained.

Miscellaneous.

INAUGURATION OF THE STATUE OF BENJAMIN FRANKLIN.

Our Boston friends have a way of their own, of "doing up" their public celebrations, which other cities have not yet learned to imitate. This fact was emphatically illustrated at their recent inauguration of the statue of Franklin. We find the following account of it, by "Cultivator Mary," in the *Ohio Cultivator*, beautifully written, we are quite certain by a true lady, of refined taste, and well able to communicate her own ideas of things. But let her speak for herself:

"Wednesday, Sept. 17th, was a day that will ever be memorable in the history of Boston, as the inauguration of the statue of Benjamin Franklin. The weather was all that could be desired, and the bright morning was ushered in by the loud booming of cannons and the chiming of bells. The streets were bountifully and beautifully decorated, and the mottoes of Franklin everywhere beheld. The Armory of the Independent Cadets was draped in flags and national ensigns. The Tremont House was elegantly festooned across the entire front. The Museum was dressed in splendid regalia, consisting of the flags of all nations displayed in six rows, reaching to the opposite side of the street. The motto, extending along the whole front, read, 'He snatched alike the lightning from the heavens and the sceptre from the hands of tyrants.' A building at the corner of Court street and Franklin avenue was elaborately festooned, and the motto read, 'Benj. Franklin, when he was twelve years old, was apprenticed as a printer to his brother James, whose office was on this spot.' The locality was of course one of great interest. The corner of Hanover-st., where Franklin worked as a tallow-chandler, was beautifully decorated. On Haymarket Square, at the Maine R. R. Depot, were suspended two magnificent American flags, so arranged that the stars blended in a double and beautiful constellation. The Corn Exchange, on Commercial-st., was appropriately decorated, the windows being filled with flour barrels, corn and rye sheaves. The gilded eagle on the front, bore proudly the stars and stripes, with the motto, 'It is hard for an empty sack to stand upright.' A splendid display of national flags was exhibited around the old State House, and on the front balcony was the record, 'First settlement of Boston, Sept. 17, 1630.' Opposite the old South Church rises the Granite Block, on the site of the birth-place of Franklin. It was arrayed in gorgeous style. A grand triumphal arch projected from the front, its fluted columns hung with bunting. Surmounting the arch was the motto, 'He took the lightning from the heavens.' A painting of the house in which he was born, was shown in the arch, with the inscription, 'Benj. Franklin born on this spot, Sunday, the 17th of January, 1706.' For some distance from this spot was a uniform display of magnificent arches and double festoons, reaching from side to side, so that the whole area resembled a fairy grotto. From the Catholic Cathedral waved a row of flags with the words, 'Franklin, we all unite to honor him.' At the junction of Franklin and Washington streets was displayed the motto, 'Washington and Franklin—as the streets which bear their immortal names are here inseparably connected, so are their memories joined in the universal affection and homage of mankind.' The residence of Hon. Moses Kimball, Wash. st., was tastefully trimmed, and bore the inscription, 'Honor to Franklin—the Man—the Mason—the Statesman—the Philosopher!" Also the dwelling of Henry W. Dutton, Esq., was the center of much attraction. The balcony was beautifully festooned, bearing the words, 'By the Press we can speak to nations.' On one flag spanning the street we beheld Poor Richard's warning, 'Don't give too much for the whistle.' The decorations of Dover-st., were inspiringly beautiful. The splendid streamers, flags and festoons, arches and statuary, and long rows of windows filled by ladies, was animating in the extreme. Among the multitude of inscriptions and maxims, we saw, 'A ploughman on his legs is higher than a gentleman on his knees.' 'The genius which gave freedom to America, and scattered torrents of light upon Europe.'

"At ten o'clock commenced the forming of the procession, and Boston resounded with the strains of martial music and the din and clatter of the marshalling hosts. And an animated mass of humanity did the streets present, all interested and excited as the magnificent pageant moved along, representing a perfect panorama of all the trades and professions.

"First in order came a body of mounted police, military escort consisting of the light Artillery, National Lancers and Boston Light Dragoons. First brigade of Massachusetts Militia, first and second regiment of Infantry. Then came the fire department in neat uniforms of red, white and blue, with their gaily decked engines. Then followed the first Division, embracing the City Government, invited guests, and official personages—flanked by the Ancient and Honorable Artillery company in uniform with side-arms, under command of your venerable friend Col. Marshal P. Wilder. Then followed the Independent Company of Cadets, acting as escort to the Governor of Massachusetts. Clergymen, Senators, Judges, and other distinguished gentlemen, with Revolutionary veterans, and veterans of the war of 1812.

"The 2d Division composed of the mechanics and mechanical trades of Boston. The car representing a baking establishment was very amusing. It contained a machine for making crackers, back of which was an excellent painting of a brick oven. And there were the bakers in their white aprons, kneading the dough, as though all the honors of the day depended on their exertions. In this Division were two elegant pavilions of Chickering & Sons. The first containing the first grand piano made by the Messrs. Chickering in 1824. The second car, equally magnificent, contained the last grand piano made by that firm in 1856. The farriers were busily employed in shoeing a horse, in a car for that purpose. The pyramids of gold and silver ware glittering in the sunlight made a splendid show. The car of Nourse & Co., agricultural implement makers, was drawn by six noble yoke of oxen. In the car were all articles of farming utility, the most pleasing of which was a *churn* at which a sturdy young farmer was quietly at work, and the busy little wife in her white sunbonnet and clean blue apron, occasionally lifting the lid to see if the butter was about ready to *come*.

"The 3d Division comprised the mechanical profession, artists, manufacturers, &c. The Franklin Typographical Society and Printers' Union, added marked interest to this division. The press which Franklin himself worked was borne in a car, in which were printers setting type. A fac simile of the first paper ever issued by Franklin, was plentifully distributed among the crowd. The *Traveller* establishment was a prominent feature here, being a complete outfit of a printing-office.

"The 4th Division embraced the Masonic Fraternity of Mass., and encampments of Knight Templars.

"In the 5th Division were the representatives of the Bunker Hill Association, Board of Trade and Ag. Societies, and Pupils of the Public Schools, wearing Franklin medals. The Franklin Lodge of Odd-Fellows, bearing gay banners, brought up the rear of this division.

"The 6th Division embraced several literary societies, with the students of Harvard College, Mercantile Library and Young Men's Christian Associations. The 7th and 8th for charitable and Marine Societies.

"Each Division was headed by a band of music and military escort, bearing beautiful banners and emblems. Altogether the procession was at once novel and imposing, surpassing anything of the kind ever before witnessed here. At two o'clock commenced the exercises of Inauguration. The devotional service was performed by Rev. Dr. Blagden, and the oration by Hon. Robert C. Winthrop. Thousands assembled in the evening around the City Hall to witness the Illumination, which consisted of 8,000 gas-burners, arranged in arches and inscriptions. And so closed the memorable 17th, with honors becoming the high character of Boston, and a splendid tribute to the memory of Genius."

The New-York and Erie Railroad.—We have often commended the management of this road. Its chief, Mr. McCallum, in our judgment, has no superior. He has a due regard to economy, while his chief aim is to unite with this the safety of his freight and passengers. In this he ought to receive the hearty coöperation of the public. This management has recently been the occasion of a general strike, and an excited resistance on the part of the engineers. We have no doubt that these engineers think themselves aggrieved, and that they have some sort of ground for their opposition. But this ground was improperly granted to them by too loose a construction of their duties at the opening of railways in this country. Taking past practice as the guide, they are right. They have not been held responsible for going over a misplaced switch, when their speed was ever so slow, and it is their chief complaint that these engineers are now held to this responsibility, at places where they are required to stop. But the past practice was wrong, and should be changed on all roads. Reason says so. The history of railroad accidents says so. Will not the public say so? When going at a moderate rate, they *can* see obstacles ahead, whether it be a turned switch or something else, and having in our control this means of security in addition to a careful switch tender, who does and will sometimes mistake, causing much loss of property and life, can we, the public, safely dispense with it? The past says No. We believe both the public and the general practice through the country will respond in the same emphatic No.

Of any other cause of complaint than that above referred to, we have no knowledge, and therefore express no opinion. This one is made the occasion of the strike, and is no doubt the moving cause of the difficulties which have proven so injurious to the interests of all parties. P.

India Rubber in a New Shape.—*The New-England Farmer*, always conservative and always progressive—by which we mean "going ahead" safely—comes to us for July, uncommonly rich in matters of importance to the farmer and of general interest. The following, originating with the *Boston Journal*, we cut from its pages:

Among the recent applications of India Rubber, none are so remarkable as the manufacture of what is called "Hard India Goods," into which the rubber enters most largely. We have in this city a company called the Beacon Dam Company, which is devoted to the manufacture of this class of goods. By a process that originated with Mr. Chaffee, coal tar is mixed with the rubber, and the compound makes one of the most solid, elastic and elegant articles that can be found in the market. It resembles polished stone, is as black as coal, needs no finish, and has of itself a hard and exquisite polish as it is possible for any metal to bear. There seems to be no end to the articles into which it can be made. Canes of the most elegant form and appearance are constructed out of it, and are as tough as so much steel, while they have all the elasticity of whalebone. Cabinet work, inlaid and mosaic, ornamental to the parlor and the chamber. Spectacle bows and glasses for the eye are made so light as to be no annoyance, while their elastic character causes them to sit firm to the head; opera glasses, castors, sand stands, ink stands, brushes for the hair, that cannot be harmed by hot water, tape lines, pen holders, pencil cases, cigar cases, government boxes for the army and navy, government buttons, and an endless variety of articles, are thus made, and the articles are of a most elegant character; syringes of a novel form and character; machines for oiling cars and engines, on a new principle, indicate that this new use of rubber is to work a complete revolution in the arts and manufactures.

But one of the greatest applicatious of this new rubber manufacture is the new telegraph wire that is made from it. It needs no poles, as it is laid in the ground. It needs no covering; a trench of a few inches is dug; the rubber telegraph wire is put in and covered up; the wire is enclosed with the rubber; no storm renders the wires inoperative; no insect severs; no rust corrodes. It would appear fabulous if I should state the miles of this wire that have already been engaged, and the goods cannot be made to meet the demand. The government of the United States is now the best customer of the Beacon Dam Company. The call for the navy and army button is immense; the article is elegant; the naval button has on it the motto, "Don't give up the ship." And so tough are these rubber buttons, that if one is placed on an oak plank and pressure applied, it can be sunk clear into the plank, and will come out unharmed: and the government shaving boxes, which are about three inches in diameter, are so strong that a man weighing 200 pounds can press his whole weight on one of them, and not break them. Gun handles, sword handles, and other military implements are constructed from this material. They are cheap, elegant, enduring. A walk through the sales-room of this company is one of the marvels of New-York, and if any of your readers have the least curiosity to see one of the most wonderful plications of India Rubber that the world has ever seen, they can be gratified by visiting the wholesale rooms of the Beacon Dam Company, located at No. 63 Maiden Lane, and they will be gratified. The Company retail no goods, but keep full specimens on hand, and the President of the Company, Col. I. H. Rich, so long known in

Burlington, Vt., as one of the most enterprising of the citizens of that beautiful city, will show the curious the marvels of this new trade.

Since reading the above, Col. Rich has politely shown us, as we are fond of peeping in where improvements in any of the industrial arts are exhibited, "the marvels of this new trade." At his suggestion, we also called on Mr. Beecher, 39 Maiden Lane, where a still larger assortment of these articles are shown. The useful and ornamental purposes, which the India Rubber, in the hands of the Beacon Dam Company, with Goodyear's patent, is made to answer, is truly astonishing. A pen-holder and pencil case, kindly presented us by Mr. Beecher, are A No. 1, in point of beauty and convenience; and we are quite sure they will last for a lifetime, and then be fit to go down to other generations. No one, who feels the least interest in the advance of the mechanic arts, would fail to be gratified with these exhibitions of the India Rubber ware.

Raise and Use more Fruit.—The *Life Illustrated* concludes an excellent article on the "Right Use of Fruits," as follows:

"Who but must feel, in view of what has been said, that we *use* too little fruit—that we *raise* too little fruit? Let every man who has an acre of ground plant *one tree more.* Those who are destitute of fruit may have a most excellent sort the first year by setting out the strawberry; and by watering freely after the commencement of blossoming the duration of the bearing season will be greatly prolonged. Meanwhile cultivate the raspberry, currant and grape, which, in from two to four years will yield a most luscious harvest. At the same time, too, let the cherry, peach, pear, and apple be growing, and the greatest variety may soon be made to crown the board, while not a year need pass without a share of these natural and health-giving luxuries."

Our Own Matters.—We are happy in being able to announce that the "Plough, Loom and Anvil," since under the combined direction of its present editors, is receiving such demonstrations of public favor, in the shape of new subscriptions, as will enable us at the end of the current volume, July, 1857, to reduce the terms to the uniform price of $2 00, with a liberal discount to clubs. This we *desired* to do at the beginning of this volume; we *will* do it at the commencement of the next—we will give not only as *good* a Journal of Agriculture and the Mechanic Arts as any other, but on as *favorable terms.*

In the meantime, we ask our readers to favor our objects, by making the work known to their friends, and securing their coöperation. Thousands of neighborhoods would be immeasurably benefitted, if such a Journal were placed in nearly every family. It now goes mostly to single subscribers, at $3 00 each, a large price, as it appears to many, but really the least it can be offered at, without a very large number of subscribers. Would not those who now pay us $3 00, from whom, by the way, no dissatisfaction is intimated, except that a few do not send on in advance according to our terms, prefer to pay $2 00, or even less in case of clubs, as they may do, by associating a few neighbors with them? We think they would, and they would promote our interests as well as their own by doing so.

Any subscriber now paying $3 00, may associate with himself two others, and send us $6 00 for the three; or if he is willing to act for us on a larger scale and will form a club of more than three, he may retain one-fourth of the money (at $2 00 each) as a compensation for his collecting and forwarding the money; or he may transmit the whole and receive back one-fourth in books, as we before proposed; or if he prefers to divide the benefit of his agency among his neighbors and friends, he will get his copy and enable them to get theirs for $1 50 each. Other subscribers may do the same; those in clubs now paying $2 00, may reduce this to $1 50, by enlarging the

the club, if they will work their own agency, that is, if some one of them will collect and forward the money, without charge to the rest. And new subscribers who desire this journal, and are willing to do a little work, may get it and help their neighbors to get it at $1 50 each, by clubbing, and by doing the work of collecting and forwarding themselves, instead of paying a commission.

If we are understood, it will be seen that all have their choice; to pay $3 00, as single subscribers, $2 50 in clubs of two, (see page 2, cover,) $2 00 in clubs of three, or $1 50 in clubs of more than three. Now, farmers and mechanics, if you take the first course—remain single subscribers—we get few subscriptions at a pretty good profit, and you pay for the work, not more than it is worth, for no candid man will say it is worth less than $3 00, but more than you need to pay. If you take the last course—send on in clubs of more than three—we get a great many subscribers at a very small profit, but enough, because a great many littles make a living; and in this case you get the work at just half the price in the other. Which is best? The latter is best for us, and we believe it is for you—for us, because it gives us enough additional subscribers to make up for the reduced price, and for you, because it gives you the work at half price, with a little pleasant labor, which some one of a club can do on an autumn evening or two, without feeling it, otherwise than as he will feel that he is doing a good thing for his neighbors.

There is another consideration;—if you form clubs on your own account, it enables us to dispense with agents; and agents are after all, only a class of *between-men*, whom neither you nor we like much, because they eat up the profit and prevent the worker, whether at growing wheat, manufacturing goods, or publishing useful journals, from getting for his *wares* anywhere near what the consumer pays. If we send an agent to you, he will tease you, perhaps beyond all endurance to pay three dollars for what we offer you for half the money. He has traveling expenses to meet. He must have a large commission or he cannot live by it. And who pays the commission? We nominally, but you really. All that is paid to the agents of a journal comes at last out of the subscribers, for they support the whole thing.

Now then, will you do your own agencies, no traveling expenses, no agent's salary, no hotel charges, no teasing you out of your good nature—all voluntary? If you will, we think *you* will be glad and we know *we* shall.

Book Notices, Etc.

GEOLOGY OF THE PACIFIC AND OTHER REGIONS VISITED BY THE U. S. EXPLORING EXPEDITION UNDER C. WILKES, U. S. A., IN THE YEARS 1838–1842. BY JAMES D. DANA, Geologist of the expedition.

This report consists of a quarto volume of text of 750 pages, illustated by several maps and numerous wood-cuts, and a folio atlas of 21 plates. It treats of the Structure, Growth, and Distribution of Coral Reefs and Islands; of the Geology of the Sandwich Islands; the Society Islands; the Fejees; the Navigators; of the Phenomena of Volcanic Action; Changes of level in the Pacific, and origin of the general features of the Globe; of the Geology of New-Zealand, Chili, Peru, and Fuegia, and of a part of Oregon and California.

The folio atlas contains figures of fossils of the Coal and inferior formations of New South Wales, and of the tertiary rocks of Oregon.

Only 200 copies of this Government Report have hitherto been printed. The author proposes to have 250 copies published for the benefit of those who are interested in the subjects. The copies will be furnished to subscribers for $12, the text bound in cloth, the payment to be made on delivery. A copy was recently sold in New-York City for $40.

Should the subscription list reach 500, the edition would be increased accordingly, and the price reduced to $10. The work, if undertaken, will be ready for delivery in the course of the coming year.

Any person desiring one or more copies for himself or his friends, is requested to send his name and address by an early mail to the author, at New-Haven.

Principles of Chemistry, embracing the most recent discoveries in the science, and the outlines of its application to agriculture and the arts. Illustrated by numerous experiments, newly adapted to the simplest apparatus. By John A. Porter, M. A., M. D. Prof. of Agricultural and Organic Chemistry in Yale College. New-York: A. S. Barnes & Co., 51 and 53 John-st. 1856. 477 pages.

A text-book much needed, by one as well qualified for the task as any other man living, well-planned, carefully prepared, and skillfully executed. Is not this enough? If so, take our word for it, and buy it forthwith. If not, we should like to see a better one. Our only objection to it is, that there is not enough of it. There is enough, however, for the uses for which it is designed. It is a capital work for pupils of all grades, at home and at school.

Bibliotheca Sacra and American Biblical Repository. E. A. Park & S. H. Taylor, Editors. Andover, Mass.: Warren F. Draper.

The October number of this Quarterly, the very first of its class on the continent, is on our table. The learned editors are assisted by a corps of writers, who for ability and learning are not excelled in any similar publication. If it has not a very large circulation, (about which we are not informed,) it is by no means complimentary to the taste or attainments of the theologians of this country. We trust its list of subscribers is somewhat proportioned to its claims. Price $4 00; or $3 00 a year, *in advance.*—A new volume commences with the January number.

New Music.—Wm. Hall & Son among other fine pieces have published Il Trovatore, by R. Hoffman, very beautiful. Valse de Concert, and a Grand Military March, by Wollenhaupt, both superb, and Bring me my Harp, a song by Wallace. All these are of the highest order.

List of Patents.

FROM AUGUST 19TH, TO SEPTEMBER 23D.

Wm. G. Clough, Newark, N. J., evaporating salt.

Wm. C. Chambers and T. S. Hargraves, Brooklyn, N. Y., windmill.

J. H. Jones, Rockton, Ill., hand seed-planter.

John Leiblong, assignor to Ed. Brown and Jas. R. Case, Waterbury, Ct., preventing liquid from boiling over the sides of vessels.

Wm. Fosket and Benj. J. Stedman, assignors to Julius Pratt & Co., Meriden, Ct., sizing comb blanks.

A. F. Johnson, assignor to himself and F. A. Houghton, Boston, Mass., sewing machine.

Jos. Thomas, Brooklyn, N. Y., felting hat bodies.

Silas Woolson, Moodna, N. Y., potato digger.

Wm. H. Whitman, Bailey Hollow, milking cows.

Richard Ward, Edinburgh, Ind., grain cleaner and separator.

Caleb Winegar, Union Springs, N. Y., farm gate.

Dan'l. M. Baird, Warrensville, N. Y., assignor to Nathl. Potter, brace.

Elias Howe, Jr., Brooklyn, N. Y., bedstead.

John Liddle, New-York, air-heating furnace.

A. R. Marshall, Stratford, Ct., automatic attachment to gas-burners.

P. Miles, Hartford, Ct., curtain fixtures.

Cornelius Matsall, Albany, N. Y., hand corn-planters.

John T. Denniston, Lyons, N. Y., condenser for steam engine.

Henry L. de Zeng, Geneva, N. Y., self-adjusting fog bell.

Harvey D. Ganse, Freehold, N. Y., cultivator.

Wm. Goddard, New-York, seamless hosiery.

Charles P. Ariail, Roxbury, Ct., applying one stream of water to raise another.

Legrand Crofoot, Syracuse, N. Y., laying out rafters.

Charles B. Carpenter, St. Johnsbury, Vt., hay-rake.

Enoch A. Crandall, Friendship, N. Y., measuring distances.

Charles B. Carter, Ware, Mass., apple-parer.

Lucius Page, Cavendish, Vt., gauge for steam boilers.

Henry B. Ramsay, Indianapolis, Ind., brick machines.

Alva M. Stetson, San Francisco, Cal., amalgamator.

John Robertson, Brooklyn, N. Y., manufacture of lead pipe.

Jacob J. Smith and Jonathan H. Pugh, Philadelphia, bedsteads.

Nelson B. Slayton, Madison, Ind., fountain pen.

Simon F. Stanton, Manchester, N. H., machinery for filling seine needles.

Reuben Shaler, Madison, Ct., bilge and leakage water indicator, for vessels.

Marvin Smith, New-Haven, Ct., apple-parer.

Geo. and J. W. Gibbs, Canton, O., dynamometer.

Loyale Gillotson, Thompson, O., cupping.

Judson Knight, Newark, N. J., ball castor for trunks and furniture.

Peter C. Guion and Paul K. Wambaugh, assignors to P. K. Wambaugh, Cincinnati, O., lamp.

Edwin Allen, Glastenbury, Ct., improvement in calendar clocks.

Homer Adkins, Plymouth, Ill., improvement in harvesters.

David Babson, Croton, Ct., machine for feeding sheets of paper to printing-presses.

D. J. Bucher, Greenville, Miss., improvement in seed-planters.

P. D. Carmichael, Le Roy, N. Y., improvement in rotary steam engines.

Cummings Cherry, Pittsburgh, improvement in apparatus for purifying oil obtained from mineral coal.

Cummings Cherry, Pittsburgh, improvement in apparatus for distilling crude oil from mineral coal.

Cummings Cherry, Pittsburgh, improvement in the preparation of drying oil, from oils extracted from bituminous minerals.

Hezekiah Chase, Lynn, improved apparatus for arresting carbon in chimneys.

David N. B. Coffin, Jr., Newton, Mass., improved filter.

John F. Driggs, New-York, improved street sprinkler.

Chas. H. Gould, Concord, for bedsteads.

Josephus P. Harris, Bybelia, Miss., improvement in plows.

Andw. Hartupee and John Morrow, Pittsburgh, assignors to Joseph P. Haigh, Andw. Hartupee and John Morrow, same place, improvement in adjustable cut-offs for steam engines.

Jno. M. Hathaway, New-York, improvement in charges for shot-pouches.

Henry Hays, Quincy, Ill., improved method of boring and morticing hubs.

Hankles Heaberlin, Scipio, Ind., improvement in hay-rakes.

Benaiah C. Hoyt, Fort Washington, Wis., improvement in ploughs.

M. G. Hubbard, Penn Yan, improved raking attachment for reapers.

Warren Hunt, East Douglas, Mass., improved machine for testing axes.

Charles Ketchum, Penn Yan, improved fountain ruling pen.

Wm. H. Kimball and Andrew J. French, assignors to themselves and Amos K. Noyes, of Lynn, aforesaid, spring bedsteads.

Wm. A. Kirby, Buffalo, improvement in harvesting machines.

John H. Knapp, New-York, pen and pencil case.

Loomis Lamb, Berlin, Ct., improvement in churns.

Jas. Mackintire, Somerville, Mass., improvement in ale and beer coolers.

David Matthew, Philadelphia, improvement in condensers for steam engines.

Jos. McCracken, Brooklyn, improved process of stiffening hat-bodies.

John T. McCully, Gonzales, improvement in the manufacture of black bottle glass.

Edward Parker, Plymouth, Ct., improved buckle for wearing apparel.

John Robingson, New-Brighton, Pa., improvement in rotary steam engines.

John Robingson, New-Brighton, Pa., improved candle-moulding machine.

Joel Y. Schelly, Hereford, Pa., and Joseph Stauffer, Hosensack, Pa., assignors to Wm. Watson, St. Paul, Min., improvement in harvesting machines.

N. N. Selby, Fairview, Pa., improved whiffle-tree for detaching horses from carriages.

Wm. Shade, Gum Creek, Ga., improved buckle for wearing apparel.

Oren Stoddard, Busti, N. Y., improvement in grain and grass harvesters.

C. L. Falliant, New-York, invalid chairs.

Shelton W. Thompson, Glasgow, Ky., improvement in straw-cutters.

Abdelah Watson, Falmouth, Ky., self-waiting table.

Ferdinand Wietorich and Konard Haga, New-York, improvement in curtain fixtures.

C. Wheeler, Jr., Poplar Ridge, Ind., improved cutting device for harvesters.

Samuel H. Yocum, Shelbyville, Ind., improved method of boring hubs for boxes.

Isaac N. Forrester, Centreville, Pa., improved method of hanging and straining reciprocating saws.

Samuel Arnold, Green Hill, Tenn., fly-trap.

Hosea Ball, New-York, improvement in ovens.

Isaac Boss, Brooklyn, improvement in reefing topsails.

Malender Bates, Carlton, N. Y., improvement in corn-planters.

George Craine, Fairfield, Iowa, improvement in method of feeding and sawing shingles.

A. A. Crozier, Oswego, N. Y., improved stave-jointer.

Beneiah C. English, Hartford, improved mode of adjusting slats of window-blinds.

S. B. Fuller, Worthington, Mass., machine for painting carriage-wheels.

A. M. George, Nashua, improved explosive shell.

Alexander Gordon, Rochester, improvement in feed rolls of straw cutter.

George W. Griswold, Carbondale, improvement in metallic braces for heels of boots and shoes.

Henry Gross, Tiffin, Ohio, improved device in machines for manufacturing bed-pins.

Charles W. Hackett, Elmira, hand-straps.

James Jones Johnston, Alleghany, Pa., improvement in corn-shellers.

Wm. A. Gordon, Thibodeaux, La., improvement in brick machines.

David B. Kerr, New-York, improvement in manufacturing ingrain carpeting.

Daniel Lamson, East Weymouth, Mass., improved machines in notching hoops.

D. O. Macomber, New-York, improved omnibus.

Robert Moor, Westport, Ind., improvement in securing spokes to the hubs of wheels.

Thos. McDonough, Middletown, Ct., improvements in the air engine.

O. W. Minard, Waterbury, Ct., improvement in making brass kettles.

Albert S. Nippes, Lower Mertion, Pa., improved machine for grinding saws.

Stewart B. Palmer, Tully, improvement in blow-pipes.

Norman W. Pomeroy, Meriden, Ct., improved lubricator.

George M. Ramsay, New-York, improvement in cast iron pavements.

Isaac J. Robbins, Penis Manor, Pa., improvement in hay-rakes.

Ethan Rogers, Cleveland, Ohio, improved hydraulic brick-press.

Josiah A. Royce, Lee, Mass., self-regulating draught for chimney-tops.

Jos. Sawyer and Sylvester Sawyer, Fitchburg, Mass., improved hoop machine.

A. D. Shattuck, Grafton, Mass., improvement in carding-engines.

Sinclair Shannon, Buffalo, improvement in lanterns.

Thos. Slaight, New-York, improvement in lock for freight cars.

Hamilton Smith, Philadelphia, improvement in grain separators.

Isaac S. Spencer, Guilford, improved grain-threshing machine.

Frank Thorpe, Shelbyville, Ill., improvement in churns.

Wyllys Avery, Salisbury Center, N. Y., improved saw set.

Anson Atwood, Troy, improvement in dress of metallic hemispherical grinding.mill.

Henry Adams, New-York, ladies' riding-saddle.

G. W. Bishop, Brooklyn, improvement in breech-loading ordnance.

John D. Brown, Cincinnati, apple-parer.

Israel F. Brown, Columbus, Ga., improvement in washing-machines.

Wm. A. Clark, St. Louis county, improvement in steam engines.

Wm. B. Carpenter, Brooklyn, extinguisher for fluid lamps.

Joseph D. Cawood, Marshall, Mich., improvement in repairing railway bars.

Robert Courtney, Albany, improvement in artificial fuel.

Calvin Dikes and Geo. S. Dikes, Allowaystown, N. J., improved method of feeding saw-mills.

Geo. W. Daugherty, Crozerville, Pa., and Thos. G. McLaughlin, Philadelphia, improvement in lubricating throttle spindles.

John Fordyce, Morganstown, improvement in seed-planters.

Geo. H. Gray, Clinton, Miss., improved mode of attaching horses to vehicles.

Albert W. Gray, Middletown, Ct., improvement in links of horse powers.

Samuel H. Gilman, New-Orleans, improvement in pans for evaporating sugar.

Charles R. Gardner, Detroit, improvement in sewing-machines.

Heman B. Hammon, Bristolville, O., improvement in hand corn-planters.

Geo. Juengst, New-York, improvement in reversing gear.

Danforth Johnson, Chicago, improvement in metallic car-spring.

John Kulinski, Charleston, improvement in collision apparatus for railroad cars.

James W. Lyon, Brooklyn, improved screw-cutter.

Wm. P. Maxon, Albion, Wis., improved grain and grass harvester.

Thomas Mitchell, Lansingburgh, improved machine for manufacturing the wooden part of brushes.

John Marland, West Bridgewater, Mass., improved process of manufacturing delaines.

Christopher N. Nixon, Barnsgate, England, improvement in hanging ships' rudders. Patented in England, May 12, 1854.

F. Noette, Brooklyn, improvement in cutting and drawing wire.

Jno. L. Newell, Binghamton, improvement in artificial tooth plates by the electrotype process.

Julius Riedel, Pleasant Hill., Ky., improvement in cartridges.

Henry D. Russell, Naugatuck, improved lock.

John R. St. John, Lockport, improved windmill.

Robert A. Smith, Brooklyn, for machine for sweeping streets.

Riley Smith, Towanda, Pa., improvement in washing-machines.

George Trott, R. H. Coles, and Wm. A. Clark, St. Louis, improved mode of suspending, by hydraulic pappet valves.

Jose Toll, Locust Grove, O., improvement in marble-sawing machines.

Ephraim Whitmon, Abington, Mass., improved windmill.

D. G. Wells, New-York, improvement in machinery for forming hat-bodies.

Robert F. Brower, Bloomfield, N. J., assignor to Sam'l A. and J. L. Brower, of same place, improved method of drawing from manufacturing inclosures, waste gases, steam, etc.

James C. Cook, Waterbury, Ct., assignor to the Hotchkiss & Merriman Manufacturing Co., of same place, improvement in jacquard looms.

L. A. Dole, Salem, O., assignor to Dole, Silver & Felch, of same place, improved saw-gummer.

Jos. Goodridge, Boston, assignor to the Boston Faucet Co., of same place, improved faucet.

Lewis A. Goodsell, Southington, Ct., assignor to himself and Daniel H. Holt, of same place, improved shingling bracket.

Wm. H. Seymour and Henry Pease, Brockport, N. Y., assignor to himself and Dayton S. Morgan, of same place, improvement in harvesters.

John Faggart, Roxbury, assignor to himself and Vernon Brown, Boston, Mass., improvement in furnace smoothing-irons.

Salmon Bidewell, Rochester, improvement in lamps for burning fluids.

Cyrus W. Saladee, Columbus, O., improved mode of adjusting carriage-tops.

William Bremwell, Newport, R. I., improved chimney-cap.

William M. Bullock, Marcy, Ind., improved machine for dressing felloes.

John Broughton, Chicago, improved feed motion for shingle machines.

Ebenezer Coleman and Philemon Coleman, Philadelphia, improvement in heading bolts.

John G. Coates, Big Lick, Va., improvement in dentists' forceps.

Abraham Casey, New-York, improved saw set.

Joseph S. Foster, Buffalo, improvement in reefing ships' sails upon extra yards.

John Feix, San Francisco, improvement in granulating metals.

Edmund H. Graham, Manchester, N. H., improvement in fire-arms.

William Gage, Buffalo, improvement in harvesters.

George W. Hatch, Princeton, Ill., improvement in the preparation of hides for tanning.

George Kenny, Milford, N. H., improved mode of attaching shafts to sleighs.

Harvey Law, New-York, machine for cutting paper.

J. W. Mahan, Lexington, Ill., improved carpenters' bench.

A. Newbury and B. Newbury, Windham Center, N. Y., for printing-press.

Albert Pease, Weston, Vt., improvement in churns.

W. B. Parrott, Boston, improvement in locomotive and steam boiler furnaces.

Edwin A. Palmer, Clayville, N. Y., improved clevis.

Pascal Plant, Chicago, Ill., improvement in riding-saddles.

Charles H. Reynolds, Lewiston, Me., improvement in variable cut-offs for steam engines.

Benjamin G. Shields, Martin, Texas, improvement in cotton-pickers.

Philo O. Sherwin, Jamestown, N. Y., improved shingle machine.

George W. Tolhurst, Cleveland, O., improvement in harvesting machines.

David D. Tupper, Boston, Mass., improved shingle machine.

John B. Wickersham, New-York, improved construction of iron fence posts and ties.

Jesse Whitehead, Manchester, Va., improvement in self-acting rakes for harvesters.

Jos. Adams, of Cleveland, improved fire-arms.

Henry Brad, of Greencastle, Ind., improvement in brick machines.

Wm. Bennett, New-York, improvement in gridirons.

George W. Coppernoll, Ohio, N. Y., improvement in locks.

W. D. Cummings, Washington, Ky., improvement in self-heating smoothing-irons.

Mills P. Espy, Philadelphia, improved mode of hermetically sealing bottles.

David H. Fowler, New-Orleans, improvement in steam boilers.

John Fidler, New-Albany, improvement in journal-box alloys.

Marcus Frisbie, Rensselaerville, improved windmill.

Isaac Gattman, Philadelphia, improvement in mixing wheat flour with paints.

John Greenleaf, Lowell, improvement in machines for softening leather.

Jos. A. Hill, Greencastle, Ind., improvement in brick machines.

Daniel J. Kellogg, Rochester, photographic instrument.

B. Kuhns, Dayton, O., and M. J. Haines, Delaware City, Del., improvement in seed planters.

Sam'l J. Lewis and Wm. Alston, Bordentown, N. J., improvement in saw-gummers.

G. R. McIlroy, Oakdale, Ind., improved portable fence.

S. G. L. Morrow, Linn., Mo., improvement in excavators.

M. M. Manly, South Dorset, Vt., improved machine for sawing marble in taper form.

John Percy, Albany, improved steam wagon.

Jos. Pyle, Wilmington, Del., improvement in machines for finishing leather.

John M. Riley, Newark, improvement in means for lubricating the sheave-pin of ships' blocks.

John M. Riley, Newark. improved mode of attaching hubs to axles.

Luther Robinson, West Cambridge, Mass., improvement in cultivators.

John Robingson, New-Brighton, Pa., improvement in locomotives for roads, etc.

Benj. D. Sanders, Holiday's Cove, Va., improvement in many-wicked candles.

John F. Seaman, Wolcott, N. Y., improvement in seed-planters.

Isaiah Rogers, Cincinnati, improvement in bridges.

Amos Stocker, Rome, improvement in tailors' measures.

Asbury M. Searles, Cincinnati, improvement in steam boiler grates.

Stephen F. Summers, St. Louis, improvement in trunks.

Samuel Thomas, Allentown, Pa., improved ore washer.

David B. Tiffany, Xenia, improvement for putting pillows and bolsters into their cases.

Thomas Varney, San Francisco, improvement in hydrocarbon vapor lamps.

Samuel Wetherill, Bethlehem, Pa., improvement in furnaces for zinc white.

O. D. Wilcox, Easton, Pa., improvement in artificial legs.

Richard Wells, Baltimore, improvement in furnaces.

Joab Buck, Fitchburg, Mass., assignor to Joab Buck, H. S. Buck, J. W. Kimball, and D. H. Thompson, improvement in disconnecting railroad cars and applying brakes.

Henry F. Shaw, Woburn, Mass., assignor to H. F. Shaw and George F. Shaw, of same place, improvement in regulating valves for steam engines.

Henry Walsh, Philadelphia, assignor to Henry Walsh and M. N. Espy, of same place, improvement in machines for separating green corn from the cob.

James Wallace, Jr., Glasgow, North Britain, improved use of the dash-wheel for washing and bleaching. Patented in England June 26, 1855.

The Plough, the Loom, and the Anvil.

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Agricultural.

SOILS:—FORMATION OF—DETERIORATION—AMENDMENTS—CAPABILITY.

The *mineral* condition of soil is due to the great geological transformations, which must have taken place mainly before the earth was inhabited by man or any of the present races of inferior animals.

Some portions, also, of the *organic* matter in soils are due to causes, almost, or quite, as remote. They are remnants of an older state of things. Witness, for instance, the coal formations, so extensive in this country and in Europe. The coal measures of England seem to have been formed under a condition of soil and atmosphere, in which ferns grew to the size of considerable trees; and the coprolites of that Island, now being ground up and used as manure, are but the excrements of enormous animals, which existed in other geological periods but are extinct in ours. It is not improbable that every portion of the earth's surface was impregnated more or less, from the very beginning of the present order of things, with the remains of animal and vegetable life previously existing. The world, as it now exists, was clearly made of old material—matter which previously existed in other forms.

The richness of virgin soils in organic matter is to be accounted for mainly by the growth and perishing of forests, and in some small part by the perishing of animals and insects on its surface, while in the forest state. Forests, and their countless tenants, seem to have been the divinely appointed predecessors of man in preparing the earth for a high cultivation. The trees were destined to draw the carbon from the air and deposit it in the soil; fish-devouring birds, to gather phosphates from the sea and scatter them over the land; and all that lived, to die, and enrich the earth with their blood and flesh and bones. Thus prepared by these predecessors—plants and animals—our remoter forefathers found Great Britain, and our late ancestors, this country.

A higher cultivation commences. The trees fall; the rubbish is burnt from the surface; the ashes are left on the soil; the seed is put in; the crops grow luxuriantly, for there is plenty of inorganic matter;

the grain ripens heavily, because the needed mineral ingredients are all there. But what *are* the ingredients of which this virgin soil consists? The specimen which we select for an analysis may contain 90 per cent of silica (sand); 2 of alumina (the basis of clay); $1\frac{3}{4}$ of oxide of iron (a sort of iron rust); $\frac{1}{4}$ of oxide of manganese (the rust of a metal resembling iron); 1 of lime; $\frac{1}{2}$ of magnesia; $\frac{1}{4}$ of potash; $\frac{1}{4}$ of soda; 1-8 of phosphoric acid; 1-16 of sulphuric acid; 1-16 of chloride of sodium (common salt); and the rest, making some three or four per cent of the whole, is organic matter, mostly of vegetable, but in some small part, of animal origin. If such should be the result of the analysis, we see that of 100 lbs. of this soil, 90 lbs are sand, 2 lbs. alumina, $1\frac{1}{2}$ lbs. oxide of iron, $\frac{1}{4}$ lb. oxide of manganese, and so on; and we see that several ingredients which are important to the success of crops, exist in very small proportions. They are quite sufficient to promote the growth of forests perpetually, if the leaves, and eventually the trees themselves, are left to perish on the soil. So it would be with the esculent roots and the cereals. They might grow long on this soil, if they were to be plowed into it each year, instead of being removed. But if the crop were to be carried off and nothing returned in its place, $\frac{1}{4}$ of a lb. of potash, in 100 lbs. of soil, would not suffice for many crops of potatoes; nor 1-8 of a lb. of phosphoric acid for many of wheat; nor 1-16 of a lb. of sulphuric acid for many of corn. If either of these crops were cultivated for successive years, the land would be deprived of the favorite, rather of the essential ingredient, for that crop. Or, if the land were to be pastured by milch cows, yarded at the barn, the result would be similar. The phosphoric acid, carried off in the form of phosphate of lime, in the milk and in the yard manure, would soon be exhausted. This shows how lands *may be deteriorated.* It is by carrying off in the crop ingredients of which they have none to spare. It shows also the advantage of rotation in crops. Suppose a field to possess in abundance all the requisites of fertility except phosphoric acid, sulphuric acid, and potash. If it has but a little of each of these, it is evident that, if you were to grow wheat upon it year after year, you would soon exhaust it of the first; if you were to grow corn crops in succession, you would exhaust it of the second; and if you were to grow potatoes, you would very soon exhaust it of the third. But if you were to grow one wheat crop, one corn crop, one potato crop, and to pasture it two years in five, you would then draw more equally upon the scanty ingredients; and the land would not so soon be exhausted of any one of them; and while pasturing it two years, you would allow it to be accumulating organic matter. It is true, that if land is highly manured with barn manure, which contains all the ingredients of the crop, it will bear the same crop perpetually. But with lands which cannot be highly manured, the more varied the crop, the longer will the land continue to produce; and there cannot be much doubt, that the most highly manured lands even, will give a greater value of several crops than of any one, though it appears that some, who ought to know, are beginning to dispute this, especially with regard to particular crops, as onions for instance; and we are inclined to believe there may be exceptions, of which the onion crop may be one.

With regard to *amendments*, if it were possible to obtain accurate analyses of all our soils, at a moderate expense, so as to settle the question what ingredients are deficient and what are not, manifestly we could amend them at a cheaper rate than to apply manures which contain all the wants of our crops, as is the case with barn manure. You might wish to grow on a piece of land a succession, of corn the first year, clover with oats or barley the second, clover the third, and wheat the fourth. The analysist might tell you, that with the barn manure which you intend to apply to the corn crop, there is enough of everything required for these crops except one; and you might supply that one by means of a special manure at a cheaper rate than by putting on great quantities of barn manure. Suppose the missing ingredient were phosphoric acid. He might tell you that there is more of this ingredient in one dollar's worth of bone dust than in ten dollars' worth of your barn manure; and so for all present purposes you may supply for one dollar the place of what is worth ten dollars for other parts of your farm. But we are not yet prepared to advise farmers to procure analyses of their soil, except in case of large extents of land all of a similar character. For small extents, and especially where the soil varies every few rods, it will not pay. Should the time come when the analysist can tell the farmer with anything like certainty, what is the best and the cheapest application for this or that soil, with due reference to the desired crops, and when the information can be communicated at an expense which the farmer can conveniently pay, of all which we do not despair, it will be a new era in the affairs of the farm, and we shall rejoice in it. But that time has not yet come.

At present, the farmer should read, think, inquire; should observe carefully the results of his own and others' doings; and after all, must be contented, for aught we can see, to work on without being absolutely certain whether what he is doing, in each case, is the best that could be done. Guided by the best judgment which his experience and observation enable him to form, we see not but that he must undertake the amendment of his soils in more expensive, and consequently less profitable ways than might be necessary if more were known on the subject. It may be said that soils are to be amended in two respects, *physically and chemically*. These, however, cannot be regarded as wholly distinct operations; for it often happens that what betters the physical condition of a soil, improves it chemically, and the reverse. Soils which contain standing water, for any considerable portion of the year, within thirty-six inches of the surface, should be under-drained. The operation is laborious, but then the labor will be better paid than that expended in the cultivation of these without draining. As the water is drawn off, the air permeates the soil; it becomes warmer, because less evaporation takes place from the surface; inert vegetable matter is decomposed, and becomes food for plants; physical and chemical changes go on conjointly, as the result of the same cause, that of drawing off the water and letting in the air.

If land is to be tilled, the soil should be deepened by deep plowing and heavy manuring. The two should go together. It would be folly to plow up cold soil without warming it with manure. If the land is stony, it should be cleared of stones to a depth of at least eight or ten inches; sixteen would be better. This too is expensive of labor, but it is cheaper than to plow among rocks; and there are thousands of acres in some portions of our country, having a strong soil, but so full of stones as to preclude the possibility of tilling, now regarded as worth but a trifle, but which, high as labor is, could be cleared to the depth of a foot, for about half the price per acre of the best lands in the same neighborhoods, and yet would be as good as the very best when this was done. And there are other thousands of water-soaked lands, from which the water could be taken at an expense less than the increased value of the land.

Clay lands may be amended by the addition of sand; sandy lands, by the addition of clay; and peat may serve as an amendment to both clayey and sandy lands. Before being at the expense, however, of removing large quantities of clay, we should inquire into its character; for if it contains a considerable portion of marly or calcarious matter, so as to act both as a fertilizer and an amender of the soil physically, rendering it more compact, it will be likely to pay well for the labor; whereas, if it is nearly a pure clay (silicate of alumina), with no alkalies, no phosphates, nothing that can supply food to plants, it is doubtful whether it will compensate the labor of transportation more than short distances, and that under the most favorable circumstances, as when it can be loaded easily, and carried down instead of up hill, or at least on a level. Careful experiment on a small scale, will always decide the question, whether you can afford to do it on a large one. So it is with regard to the removal of sand on to any clayey soil. Try the effect before doing too much on uncertainty. It is so also with regard to peat or swamp muck. No two swamps are alike. The peat, or muck, should be tried. Some swamps yield a substance which may be carried directly to the field. That from others, would injure the first crop, if applied before it had been exposed a long time to the sun, air, and rain. The product of other swamps seems to be of little value any way. Hence, we suppose, the endless disputes about the value of muck, one thinking it of great worth, another regarding it worth nothing, and both being about right, it may be, as regards the particular muck which each has in his mind. Any muck, however, must be of considerable value to put in the barn in a dry state for an absorbent of the liquids of the yard and stable. If you double the amount of the stable manure by adding dry muck enough to absorb all the urine, you double the value. So we should think, from reasoning on the subject; and so the very best farmers tell us; while we know of no one, who has tried it thoroughly, who thinks otherwise.

We should like to speak of the capabilities of soils, but we fear we have already wearied our readers. We will, however, just say here, what we may attempt to illustrate at another time, that as population increases, we believe the productiveness of soils will increase; that the very worst soils, under the hand of industry and intelligence, will become good; and that there is hardly a limit to the capabilities of soils. The population of the earth is now about equal to one person to thirty-two acres of land. If men should leave off killing each other in war, and would behave passably well otherwise, the population of the globe would double once in twenty-five years; in which case there would be thirty-two persons to one acre within less generations than from the Pilgrim Fathers to us; and yet we have no fear that our descendants will starve. It seems to us, that this globe is yet in the very dawn of its present geological period; that teeming millions—thousands to one for all that have been—are yet to dwell upon it; that mother earth, under the Providence of an All-wise Ruler, can and will feed and clothe them all, and give them habitations.

ROTATION OF CROPS.

It is always better to prevent special exhaustion of land than to cure it. It is often difficult to discover what the land really requires, and, therefore, to cure the evil when it exists. The only method of preventing it with which we are yet acquainted, is by the introduction of a skillful rotation or alternation of unlike crops. In adopting such a rotation, we only copy from nature. In the wide forest, many generations of broad-leaved trees live and die, and succeed each other; but the time comes at last when a general pestilence seems to assail them; their tops droop and wither, their branches fall off, their trunks rot. They die out, and a narrow-leaved race succeeds them. This race again has its life, of centuries, perhaps: but death seizes it too, and the expanded leaf of the beech, the ash, and the oak, again cheer the eye—playing with the passing zephyrs, and glittering in the sun. So in the broad meadow, the old pasture changes, and new races of humble grasses succeed each other as the fields increase in age. The alternation of crops, therefore, asserts to itself something of the dignity of a natural law, and man is evidently in the right course when he imitates nature in a procedure like this. But upon what do its good effects depend? Why do the broad leaves alternate with the narrow in the ancient forest? Why do the grasses change in the old meadow? Why does the farmer obtain a larger produce, and for a greater number of years, by growing unlike crops alternately, than by continuing year after year to grow the same? The reason is not merely that one crop carries off more, and another less, of all those which all our crops derive from the soil, but that one crop carries off more of one thing, another crop more of another. The grain carries off phosphorus, the straw silica, the bulb alkaline matter.

After, perhaps, fifteen or twenty successive crops of the same kind, the surface soil through which the roots are spread becomes so poor in those substances which the crop especially requires, that the plant cannot obtain from it a sufficient supply to nourish and bring to maturity the full-grown plant, within the time allotted to it in our climate for its natural growth. The roots do their best; they collect as diligently as they can, but winter comes on, and the growth ends before the plant is fully matured. In the case of corn, the first effect of a scarcity, say of phosphoric acid, is to make the ear smaller and the number of grains less; the next to continue the growth into the winter, and only when a very fine season occurs to ripen the ear at all. But suppose we alternate the corn crop, which in its grain carries off phosphoric acid, with a hay crop, which requires much silica, or a root crop to which much alkaline matter is necessary—then the one crop would live upon and remove what the other had left in greater abundance. Instead of robbing the soil every year of the same substance, we should be exhausting it more equally of all, and we should be able, for double the time at least, to crop it without the risk of its ceasing entirely to give us a profitable return. We should gradually work up every available substance in the soil, whether such as are naturally present in it, or such as we have ourselves added in the form of manure. What is true of the simple alternations of corn with a green crop, is more true still of a longer and more complicated rotation. The greater the variety of crops we grow, the more perfectly do we avail ourselves of the benefits which an obedience to the suggestions of this principle is fitted to confer upon us. No rotation, it is true, however skillful, will alone prevent the land from becoming ultimately exhausted. Nothing but regular and generous manuring will do this, unless there be, in springs from beneath, or in the decaying fragments of rock mixed with the soil, or in substances brought down from higher grounds, or in the nature of the rains that fall upon the land, some perennial source of those substances which the crops always carry off from the soil. But in a skillful rotation there is this virtue, that land which is subjected to it cannot be ruined in so short a time.—*Farm. Jour.*

SWAMP MUCK AND WOOD ASHES.—INDIAN CORN.

We have said otherwhere that swamp muck, which has been dug six months or a year, and washed and sunned—it should be in low, broad piles, that the sun and rains may affect the whole, and is better in the barn-yard, to be mingled with the droppings of cattle, than anywhere else, provided that do not require too much carting—is almost precisely the same as well-rotted barn manure, with the exception of a few active salts which the manure contains more largely than the muck. We here add, that wood ashes supply the very ingredients in which the muck is deficient as compared with manure. If added to the former, they make it the same as the latter *in composition*, as is shown by analysis, and about the same *in effect*, as is shown by the experience of thousands of practical agriculturists.

Now then, as manure is the universal want, and as accumulations of black swamp muck exist almost everywhere, why are they not more used? If a load of muck, that has lain from August to May, in a sunny exposure, so thinly spread as to have been thoroughly washed of its acids and warmed, is as good as a load of well-rotted barn-yard manure, minus a bushel or two of ashes, or a like value in other ingredients, why do not farmers avail themselves of it more? Is it because they have carefully compared the labor of preparing it with its effects, and find that it does not pay? We think not. Theory would say, it will pay, and give a handsome profit on the labor. Practice, so far as we know, confirms the decision. That some have applied swamp muck, cold from its bed, reeking with acids, and injured their crops, is not to be taken into consideration. The fault was in the manner of application. Its good effects, when properly applied, settle the question. It is not as good as guano, not as good as phosphate of lime, not as good as stable manure, nor as good as those rich green sand-marls, on the Jersey shore; but *it is worth something more than the cost of getting it out*, if not too remote, or in places difficult of approach. So much is settled.

Farmers know the worth of a load of well-rotted manure. They generally value it somewhat beyond its real worth as compared with green manure. But it is good; and it ought to be, for it takes two or three loads of green manure to make it; and we do not recommend letting the manure lie over a season to become thoroughly rotted, but rather to incorporate it with the soil, that the return may be had the first season. But for the purpose of comparison we speak of well-rotted manure; and we believe that a load of well-cured muck, with two bushels of ashes, is worth just about as much for any and all the purposes of ordinary farming; and if so, then those farmers who have abundance of it, but seldom use it, do not husband their home resources of fertility as well as would be for their interest. But our object is, to suggest the most effectual and economical ways of applying it.

There can be no reasonable doubt, that swamp muck improves by exposure to sun and rain for a number of years. This might be conjectured from its absorbent nature, by which it might be expected to take in and condense within its pores various aërial gases, as well as retain ammonia coming to it in rain-water. It is fully proved by accidental experiments, where piles of it thrown up from ditches, have been removed to uplands, after lying fifteen or twenty years, and found to be remarkably efficacious. We do not, however, recommend the digging of it long years beforehand, both because we think nobody would follow our advice, and because we are not certain that it would be well, as the improvement might not equal the interest on the value of the labor. We will only say, that should any one dig out more of it in a season, than he should care to use the next spring, he need not be very sorry, for it will be growing better till he wants it. If the swamp muck is near the farm buildings, there is no better way than to spread it in the barn-yard, at odd spells, during the summer and autumn; and it is well to put a considerable quantity, in a dry state, under cover, to be thrown about the stalls and yard through the winter, as an absorbent. It thus retains portions of the manure which would otherwise escape; and instead of being offensive, as some might suppose, it has a reverse effect—rather absorbs and retains foul odors, thus purifying the air and making it healthier for the animals. It receives from the excrements of the stall or yard, nearly the same active salts which would be communicated to it by a mixture of wood ashes; nor does it rob the excrements of these in an equal degree, for much of what it receives from them is just what would otherwise escape, either in a liquid or a gaseous form—is not so much taken from the manure, but so much saved. This accounts for the testimony of many excellent agriculturists who have often and after long experience, declared to us, that if their manure consists in one half of muck mixed within the yard and stalls, the quality is not thereby reduced, although the quantity is doubled. This is a remarkable instance of harmony between the explanations of science and the testimony of stable, observing men. We remember a farmer, who told us that his manure heaps were equally good, if not better, load for load, when doubled in quantity by the addition of muck. He was famous for raising great crops, and ought to know; but we did not believe him at the time, though we do now; and we asked him if his rum would not be reduced by the addition of half water? His reply was, that he did not deal in rum, but that he *knew* the manure was full as valuable, per load, so treated. We now believe him fully; and we believe that the fertility of land can be increased by such means, more economically than by the purchase of any portable manures in the market.

When the muck cannot conveniently be carried to the barn, take it to a level or gently sloping plot of ground, any time from July to October, for the next spring's use, or later if to be kept till one year from that time. So much as is to be composted the next spring, should be spread out not more than a foot in thickness; and the pile may better be two or three times as long as wide, for the sake of turning it with a plough instead of spading it over. If occasionally stirred with the plough, the whole will be more perfectly exposed to the sun, air, and rains. Late in the fall, let it be thrown into a more compact form, say seven or eight feet wide at the bottom, three or four high, and as long as the quantity will make it, and let one bushel of slacked stone lime, or one and a half of shell lime to each load, be mixed with it, the influence of which will be to keep it warm, at least to prevent its freezing much through the winter, and to secure its being in a fit state for composting early in the spring. Any time in April, or early in May, (a few days before it is to be used,) let it be composted with barn manure and wood ashes. We will not say how much of each. The more is used, the better will be the compost, of course. But we have no doubt, and our opinion is the result of many experiments carefully conducted under our observation, that one load of manure and two bushels of ashes to each load of muck, will make a compost as valuable as the best stable manure, and we suspect more valuable, by nearly the cost of the lime and ashes. As any one will see, it should not be applied to peaty land. On any other, and for any crop, it is a good manure, and cannot fail to give good results. On the corn crop, we have seen it applied with very great success, giving, when applied at the rate of nine cords to the acre, yields of from sixty to ninety bushels, (shelled corn,) on land not the best, but which might be considered fair corn land.

Some have added a sprinkling of plaster and a peck of salt to each load of the muck. The latter cannot be of very much consequence; and as plaster does not suit all soils, we suppose it should not be recommended indiscriminately. The value evidently consists mainly in the barn manure, the muck, and the lime and potash, to bring the latter into an active state. If we were preparing this compost for corn, on land known to be favorably affected by plaster, we would add a little of it, not more than 100 lbs. to compost enough for one acre. It might be of some service to prevent the escape of ammonia by fermentation, though we believe the muck would be sufficient for that purpose—that while the lime that was put in the fall before, would tend to dissipate the ammonia of the barn manure, the muck would prevail and hold it fast. But as it is well to guard strongly against the loss of ammonia, and as plaster is believed by most, though not all, to be a retainer of ammonia in manure, (we believe it to be strongly so, as long, at least, as the manure is moist)—from these considerations, we would add as much plaster as we have mentioned above, unless our land had obstinately refused to be benefited by it. In other words, if we were convinced that plaster had shown itself of no use to our soil, then we would not add it. So with regard to salt: if we believed, as many do, and we rather think rightly, that it is a good fertilizer, always paying the purchase-money, and especially if we thought, as some do, and here again we think rightly, that it is in some measure a protection against worms, then we would add salt, say five or six bushels to compost enough for an acre, but otherwise we would not. The plaster and salt are no essential part of the compost. They are to be used or not at discretion. The question with each farmer is, do they pay, on *his* soil? If they do, douse them in. If not, leave them at the plaster-mill and the shipper's loft.

We have been thus particular, and have run the risk of obscurity and apparent contradictions, to avoid any thing like a prescriptive, authoritative, or grain-and-scruple mode of writing on agriculture. When any one sets up, especially if it happens to be some young sprig of the quill, who never held a plough, or ordered a farm or a plantation, to prescribe the hour and day and mode of every agricultural operation, by a sort of quasi-authority, as if the husbandman had no judgment of his own, or no right to exercise it, we can only say, it is not to our taste. We wish to be as far from such an attitude as San Francisco is from Jerusalem. The farmer is unwise, if he does not listen to us, agricultural writers, because we can often aid him to form a correct opinion; but he is a fool, if he does not exercise his own judgment in spite of us. The object of the agricultural press *should be*, not to make the farmer a *book-farmer*—there is a sense in which we want no book-farmers; there is another, in which all ought to be book-farmers—not to make him dependent on somebody in Philadelphia or New-York for a knowledge of what he is to do this hour or next, to-day and to-morrow, month in and month after, but to enable him to be the most independent man living. With these explanations, we give below a sort of recipe for seventy-five bushels of Indian corn an acre, more or less according to the season, on fine corn land, say a medium loam, neither very sandy nor very clayey; and in good but not extravagantly high condition from past culture; and we wish that many of our readers would try it next year, varying the proportions, as in their judgment, better undoubtedly on their own land than ours, may be desirable. We give it for a single acre, as thus it can easily be applied to a field of any number of acres.

Here it is:

Fourteen loads (say forty bushels each) of fine black muck, up as much as three months beforehand, sunned, washed, and aired, to fourteen bushels of slacked stone lime, or twenty-one bushels of shell lime, mixed in December, and thrown into a high, compact pile over winter.

Fourteen loads (one-third cord or thirty-four bushels each) of stable manure, twenty-eight bushels wood ashes, five bushels salt, one hundred pounds plaster, to be added about the first of May, North—sooner, of course, South; the whole to be intimately mixed.

The ground to be carefully prepared, the compost to come into an active fermentation, and the best time for planting to come about, as nearly simultaneously as can be secured by timing things with judgment.

The compost to be applied in its heated state, and buried under the soil as fast as removed to the field; either the whole to be plowed in by a shallow furrow, (but more or less shallow, according as the soil is a heavy or light one,) or twenty loads thus plowed in and eight left for the hills.

If the latter course is chosen, that is, if eight loads are put into the hills, put the seed on instantly and cover while the manure is yet hot, to secure a rapid germination, so that the sprouts may appear in five or six days after planting.

If the former course is chosen, (that of plowing in the whole,) some other preparation should be applied in the hill, as a small handful of ashes, a sprinkling of poudret, or something else that tends to give the seed an early start, especially if the season is backward and the ground cold.

The application of about one third of the compost to the hill in a fermenting state, would be the safest and the best, were it not for the extra labor, about which every one must judge for himself.

It would be well, after plowing in the compost, or a part of it, to harrow pretty thoroughly, in order to incorporate it more evenly with the soil.

EXPERIENCE IN CORN-GROWING.

A Delaware corn planter, who has not failed in twenty years to make a good crop of corn, gives the following as his method of management. He plants always on a sod two or three years old. This is turned down as deeply as three strong horses can turn it, rolled and harrowed well. The ground is laid off for planting *as deeply as possible* without turning up the sod. The corn, lying at the bottom of this furrow, is covered with two or three inches of earth. Its first roots strike deeply into the ground, where the rotting sod keeps up a continual moisture. The corn being set deep in the ground, the furrow is filled up by the working, the plant is well sustained against storms, and there is no occasion for "hilling up." He works the surface thoroughly and quickly, and finishes by the time it is as high as his hips.—*American Farmer.*

Nothing is said of manure, in this account. We know not how it is with this Delaware planter's land; but our own experience is, that sod of two or three years, though containing in itself the main requisites for a corn crop, requires warming into action by some sort of manure, in order to give a large crop. It has seemed to us also, that seed planted thus deeply in the bottom of the furrow (we like the mode, if the necessary conditions are complied with) would sprout much sooner and be forwarder all summer by the application of a little warming manure in the hill, and that the crop would not only be earlier and safer from fall frost, but much larger for it. But we presume the gentleman referred to takes care of this matter in a way best suited to his land. On such soils as we have been more accustomed to, and in a colder climate than his, we have found it all-important that the crop be thrown forward by a suitable application, as otherwise the plants do not become sufficiently vigorous and healthy to appropriate to themselves the food contained in the sod; and the result is a crop of twenty or thirty bushels to the acre, whereas, if such a dressing of compost as we have recommended otherwhere, had been applied, the same land would have given seventy or eighty bushels, with a handsome margin for profit on the manure, besides leaving the ground in excellent order for an after crop.

There is great importance in the last assertion of the *Farmer*, viz.: "He works the surface thoroughly and quickly, and finishes by the time it is as high as his hips." That is the way, beyond all doubt; and not be breaking down the tall stalks and bleeding the roots in August, just when it is setting and beginning to fill its ears. No stories about weeds or any thing else will ever reconcile us to the late working of surface among corn. N.

GOOD AND BAD INVESTMENTS FOR FARMERS

Some, perhaps we might say many farmers, when they find themselves in possession of a little capital, neglect to avail themselves of the *safe* and profitable mode of investing which is ready always on their own premises, and which is subject entirely to their own control, and too often seek an investment for their spare funds in the stock of some railroad, banking, or other company. This is turning aside farmers' profits from their *natural* channel, and the consequences are the loss of the profits which judicious improvements in fields or implements, or stock or buildings, would certainly have yielded them, and sometimes the loss of principal as well as interest, by an injudicious investment in stocks.

We have upon a late occasion, as well as upon many former ones, submitted to our readers some suggestions in reference to this subject, intended to persuade them that their safest and most profitable mode of investment lies within the compass of their own legitimate pursuits. Our columns, also, are at all times abundant in hints as to methods in which capital may at any time be invested to good advantage, as in draining, manure-saving, composting, digging and drawing muck, and other modes of increasing the fertility of the soil; in purchasing improved and really useful and labor-saving implements; or, to name no more, in improving the quality of the stock of all kinds, and enlarging and making more convenient the buildings of all kinds upon the farm. In these and many similar ways may a farmer, at almost any time, make a better investment at home, and in his own business, than he can do by the purchase of almost any kind of stocks, or even of bonds and mortgages.

To add confirmation and force to what we have already said on this subject, we give the following remarks from *The Ohio Farmer:*

"How many a farmer has lost the avails of ten years' prosperity by buying railroad stocks! Let him do so no more. The farmer cannot trade in stocks with success. This is a species of venture for which his training disqualifies him. Let him throw no more hard-earned gold into this greedy vortex. He will pronounce our advice good if he will notice facts."—*Country Gent.*

PLASTER FOR PASTURES.

THAT *plaster is not a fertilizer*, that *it does not enrich the soil* directly and by virtue of its own ingredients, is true. Hence it must not be relied upon alone, but should be used in conjunction with other manures, either as existing in the soil in some form of organic matter, or as applied by the farmer in connection with the plaster, or in the form of green crops turned under, or as furnished, in the case of pasture lands, by the droppings of cattle.

It is true also, we believe, that "plaster increases the green portions of plants—stalks, leaves, etc.—more than it does the grain." This is an argument for its use on pastures. Here the increase of the plant, not of the seed, is the thing sought. The plaster, acting on the organic matter in the soil, produces three effects: 1st, the direct increase of feed; 2d, the consequent increase of manure left by the cattle; and 3d, an increased retentiveness of the soil for manure; so that, although plaster is not in itself, strictly speaking, a manure—does not, like barn manure, afford all the elements of food required by plants, nor more than a small part of them, as sulphuric acid and lime—yet its action is to render the soil *permanently* more productive, on all those lands where it is found to operate well; and those, we believe, are more extensive than is generally supposed, embracing a very large portion of all uplands.

It may be said, that if plaster causes a luxuriant growth of plants, and yet does not furnish the food out of which they grow but in small part, as we have admitted, it must necessarily exhaust the soil. This does not follow of course; because, in the case of pastures, what is taken from the soil is immediately returned to it; and besides, it should be remembered, that more than ninety per cent. of the grass growing in a pasture, comes not from the soil, but from the air. If, then, the sprinkling the surface of a pasture with plaster enables it to retain more of the manure dropped by animals, and to draw more nutritious gases from the air, it is so much saved on the one hand, and so much gained on the other.

We would earnestly commend more experiments with plaster on pasture lands. Do not be deterred by the statements that plaster was tried on lands thirty years ago and did no good. All that may be true, and yet be no guide for the present owner of those lands. The lands were then comparatively new. They may have produced well without plaster, possibly as well without as with in the state in which they then were, and yet in their present state plaster may be of great service.

As to the quantity. For present effect, 100 lbs. to the acre is as good as 400. If, after thorough trial, it is found to be of little or no use, then the extra application will be saved; but if its effect is demonstrated to be good, then, after that, apply 100 lbs. to the acre yearly, or 400 lbs. once in four years, as you find to be most economical. N.

THE UTILITY OF DRAINING.

I HAVE had a peach orchard for some thirty years on high land. I generally planted it with potatoes. In the dry seasons they were always very small, and the ground so hard it was next to an impossibility to get a spade or dung-fork into the ground to get out the potatoes. In a wet season they were large enough, but the greater part of them rotted, and sometimes the whole. The trees in the lower end of the field were unthrifty, and died out in a few years.

You know I think draining the radical cure for all the ills that land or its products are heir to; and a few years ago I went at draining it by laying out a drain across the lower end to empty into a drain in the field adjoining, and then parallel drains up to the higher end of the lot, twenty feet apart, and put a man to digging the same in a dry season. After he had been at work a few hours, I went to see how he was getting along. When asked how he got on, he said, "Shure, sur, this land don't want draining—'tis too dry entirely, and so hard that water could never get into it at all." I told him when he got that drain the whole length, and about three feet deep, I expected signs of water. About four hours afterward I asked if he got any water. He said no, but it sweats in the bottom. Next morning there was a run of water; and so it was in all the drains.

Now for the result. First, I have never had a rotten potato in it since. In a wet season they come out clean. Before draining, in a wet season, they were so coated with clay, one scarcely knew whether they were potatoes or stones. We have seldom had a greater drought than this season, yet my potatoes are very large, and you can pull a stalk, and then put in your hand and bring out the fine, white potatoes, without using spade or fork. I am sure the excess of produce the first year, paid all the cost of dramage; and the improvement in the peaches is equally marked. I feel confident that every man that could see the improvement would go and do likewise.—*Litchfield Enquirer.*

UNDERDRAINING WITH STONE.

I HAD twenty acres of land which was so very wet that it could be used only for pasture land. I was told by the person I bought it of, that it had been in this wet state for thirty years to his knowledge, and it could never be drained. I bought it with the intention of draining it. In the summer of 1833, I ditched it with over 1000 rods of ditch; this ditch was only two and a half feet deep, eighteen inches on the bottom, slanting down. This ditch I filled with small stone to the depth of fifteen inches, then covered the stone with a light covering of pine shavings so as to prevent the earth from running down between the stones and thereby filling up the drain with dirt, which is the cause of all the trouble in draining in this way. Then I filled the ditch with fifteen inches of earth, leaving twelve inches for the plough, and three inches covering on the stone and shavings, which will never be disturbed, and the ditch will remain in good order always. This completely drained the lot, so that in the fall of 1834 it was plowed, and in the spring of 1835 it was plowed again and sowed to oats, and it produced forty bushels to the acre, and has been in cultivation ever since. The water runs out as freely now as it did the day it was finished, twenty-three years ago; from all appearance it will stand good one hundred years longer.

This manner of draining I learned by reading the *Genesee Farmer*, published by Luther Tucker, in Rochester, in 1831.

J. B. D., *in Country Gentleman.*

The above mode of draining may be highly recommended in specific cases; where there are plenty of pebble stones (it takes an immense quantity) on the same or adjoining fields, and where the surface soil is of such a character that the water of sudden, copious rains will lixiviate through slowly, instead of forcing a passage and rushing into the drains in torrents, carrying in soil and filling up the openings among the stones, so as to render the drains ineffective. We have no doubt that these conditions existed in the case of J. B. D. If he had plenty of stones near by, that needed to be removed, that was an economical way of getting rid of them; whereas, if he had them to bring any considerable distance, his drains must have been far more expensive than tile drains. And if the soil of his field was uniform and fine, calculated to promote a slow percolation of showers, instead of a sudden bursting through, that accounts for his drains having stood so long, and still promising well. We again commend his mode. It is good where the requisite conditions meet. But let no one adopt that or any other mode at random. Draining is too costly a business to be undertaken without being pretty reliably assured that you have got the best mode, not for some other man's field, but for your own. It is impossible to give general directions that will not be liable to mislead, unless you are yourself an artist in draining, or take the personal advice of some one who is. Three men in different parts of the country may copy J. B. D.'s drains precisely; and yet it may turn out that the first has made an excellent job, the very best that could have been done in view of all the circumstances; that the second could have effected the object cheaper and better in another way; and that the third has lost all his labor. N.

PRESERVATION OF MANURES.

The plain truth is, that exact practice has clearly settled the following facts, viz.: That manures should never be exposed to the sun and air, as in an open barn-yard.

That they should be kept under cover, and the heap so arranged with a cistern at its lowest end, supplied with a pump, that the fluid drainage may be pumped back on the heap twice each week, or oftener if required, to prevent *fire-fanging*. That the fluid manures should be led from the stables through inclosed gutters to the drainage cistern, and when the heap is so dry as not to supply the necessary amount of drainage to keep it thoroughly wetted, that water should be added to make up this deficiency.

"That when manure is giving off its odor the owner has a hole in his pocket."

That manures are most retentive of ammonia when thoroughly moist throughout, and if any escape of ammonia is then perceptible, that a small quantity of sulphuric acid added to the drainage of the heap and then pumped back, so as to diffuse itself through the mass, will effectually prevent such loss.

That manures should never be carted to the field until the farmer is ready to spread and plow them under.

That heaps of manure exposed to the sun and air in the field, are continually losing ammonia, and during high winds this is carried away, despite the power of colder portions to retain it.

That during winter rains, when the ground is frozen, the washing of the manure cannot be received by the soil, and thus the volatile portions are carried off by the agency of the sun and air.

That the fluid manure of three animals is worth as much as the solid manure of four. That the value of barn-yard manures are materially increased by being composted with charcoal dust, swamp muck, pond and river bottom, head-lands, etc., before their fermentation.— *Working Farmer.*

We should have put the estimate of liquid, as compared with solid excrements, a little lower than Prof. Mapes has in the above, though we are quite sure he is not far, if at all out of the way; and we have supposed, that the placing of dried swamp mud in the stalls, enough to absorb the liquids, then throwing the whole under cover, and occasionally adding more mud, and throwing on water, if necessary, to keep the pile quite moist, and yet not enough to drain, would, in general farm practice, be more convenient and equally as preservative of all the fertilizing properties in manure, as the cistern and pump plan commended by him. Of this, however, we are not as confident as Solomon's man who "rages," etc.; and we have introduced the above for the purpose of assuring our agricultural readers, that with the two exceptions, it is all true and important to them. There is, on a moderate-sized farm, a hundred dollars difference in the year's crops, whether you manage the manure as above recommended, or let it go to waste as too many do; and that difference is one which, like compound interest, goes on increasing from year to year. If the farmer who manages the home fertilizers rightly, gets better crops by a hundred dollars this year, he will get them better, by more than a hundred next, and by still more the third. The effect of fertilizers, rightly managed, is to reproduce themselves in continually increasing quantities, and to increase the crops in the same ratio. N.

EXHAUSTING THE SOIL.

We read in America much of the "exhausted soil of Europe." I have seen none of it. So far from being exhausted, I think the soil of Europe is now better than ever. How can soil be exhausted, which has, for centuries, received plentifully of manures, and manures made upon the best possible systems? I think a little reflection, coupled with the proper observance of European agriculture, must lead to the conviction that the soil of Europe is constantly receiving more back in manure, etc., than is taken away in products. Of all farm products, the atmosphere and rains furnish the larger quantities of its component parts, and whenever a proper system of manuring exists the ground must become constantly enriched.

In Europe, manure is the ever-present idea of the farmer; and by gathering all offals, and making manure in any conceivable way, he does not only by green manuring, such as plowing clover under, but by stable, factory, street and dwelling manure, take good care to return to mother Earth the rental she requires, and to do it without grudging, and with compound interest. Soil is only there exhausted where crops are raised which are entirely removed, and of which nothing is returned to the soil—for instance, tobacco. This is very little the case in Europe. The fine wheat crops, which smile upon the traveler, as he is rushed past them by railroad speed, would be an impossibility, if the idea of exhaustion were true. The meadows, too, which are mown thrice every year, and each time give a good crop, have been mown for ages, contradict this exhaustion theory. No! the European farmer and his land are always on good terms with each other. The man yields good husbandry, and the land yields good crops.

CHARLES REEMELIN. [*Ohio Farmer.*

There is reason to think that the earth, as a whole, is growing better agriculturally; and we have scarcely a doubt, that this progress in the development of agricultural capability will continue so long as it pleases the Supreme Being to uphold the present order of things.

Our reason for taking this cheering view for future generations, we would give, were it not for occupying too much space, with what might seem to some mere speculation. Our moral would be—don't be too anxious to lay up mammoth estates for your children. When you have got *enough*—and enough is less than a million—drive the business still, for that is your happiness; you have got so used to making money, that you can't be happy without making it; but let the surplus "*slide*"—it will do you no good; it will spoil your children. Posterity will take care of themselves; they will have a better world than we are having *physically*—more productive, more easily cultivated. Its agriculture, its commerce, its manufactures, its mining, all its industries are receiving and will receive new facilities. Do, therefore a *present*, not a future good, with the surplus of the money-getting that makes you so happy that you cannot live without it; make somebody else happy with the surplus now—it may be misapplied after you are dead; the same shrewdness that gathered it, ought to have the pleasure of scattering it. Feed the hungry; clothe the naked; educate the ingenious child of want; help the deserving inventor; spread light, science, education, Christianity; fill your own bosom brim-full of blessings. What a happy man you might be, if you only knew how!

WILLIS' IMPROVED STUMP MACHINE—Manufactured at Orange, Mass.—The above machine, which seems to stand without an equal for power and speed in pulling stumps, has a wonderful sale abroad as well as at home. We are told the inventor has just answered an order for sixteen for the Valparaiso market; these, together with others, make some fifty or more shipped for that region within one year. It argues well for those semi-barbarous regions that they are ousting their stumps.

PROGRESS.

PEABODY'S NEW SEEDLING STRAWBERRY.

THIS engraving represents, life-size, the seedling grown by Mr. Peabody, at Columbus, Ga., as advertised in our last number. It is no doubt a very splendid berry. Mr. Peabody requires one thousand orders, for a dozen plants, at $5 per dozen, through the whole country, before any plant leaves his grounds. Whenever an order is received, he sends a colored engraving of the plant and fruit, one of which may be seen at this office, and also directions for its culture; and when the number is made up, will notify each subscriber, who may then remit the amount and receive his plants.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

UPLAND CULTURE OF THE CRANBERRY.

SOUTH DANVERS, Nov. 13, 1856.

GENTLEMEN:—The receipt of the November number of your journal brings to mind your kind request for an occasional contribution to the Agricultural department. I therefore contrive to sketch the progress made by Mr. E. Needham, of Danvers, in the culture of the cranberry upon uplands. That the natural position of this plant is upon low, moist land, is evident from its usually being found in such places. Occasionally, we hear of its being grown successfully on *sand banks* near the margin of the ocean, but never to any considerable extent. That it can be successfully and advantageously grown on what is called *upland*, is clearly demonstrated by the experiments of Mr. N., steadily pursued by him for half a dozen years last past. He gathered, the present season, *one hundred bushels* of as fine fruit as I have ever seen, on about as many square rods of land. My family say they are worth, for domestic uses, twice as much as those commonly gathered upon wet meadows. They have more substance, and a higher and superior flavor, and are less liable to decay. In fact, as I see them now before me, they are entirely free of rot.

I yesterday examined the bed on which they grew, and it appeared to be a complete mat of vines, entirely free of all extraneous substances, such as *grass*, *weeds*, *sticks*, etc.—it being the first object with the cultivator to keep the vines clear of all these. He says nothing can be done by way of cultivating the cranberry, without such care.

Mr. N. commenced the culture by transplanting vines taken from the neighboring meadows. He has several times attempted to grow vines from the seed, but without success. His vines, thus transplanted, acquire a firm position the second year; and put forth fruit worth gathering in the third year; and continue to increase in substance and products. They have now been planted five years or more. At first, he thought they needed protection from the frosts of winter, and consequently he covered the beds with coarse hay and straw; but he has discovered this, finding the inconvenience from the diffusion of *bad seeds*, greater than the benefits otherwise expected.

Mr. N. is accustomed to take mud from the meadows and swamps, in the autumn, and when it has been frozen, and become pulverized, to spread it about among the plants, for the double purpose of checking the growth of weeds and grasses, and to absorb and retain moisture. The cranberry delights in having a reservoir of water near, and wants nothing stronger.

Mr. N. says he has applied ashes, plaster, and other like fertilizers to his vines, but has never witnessed any benefit from such applications. In some seasons, his plants have been much injured by the drought; but the past season, especially the months of August and September, being quite moist, was very favorable to the growth of the cranberry. He has never known the plants injured by a superabundance of water, except when it washed so much as to disturb the roots and the tender fibers of the same, which extend far, and are very sensitive.

Mr. N. says he has repeatedly furnished of his plants to others, and told them how he proceeded in his culture, but has not known any one that has succeeded to any considerable extent. He has repeatedly known fruit sold in the market *as cultivated*, that had no pretence of being such. Truly yours, J. W. Proctor.

SALMON IN THE CONNECTICUT.

We cut the following from the *Homestead*, published at Hartford, Conn.:

Keep it before the people that this noble fish can be propagated by artificial methods. The thing is done in Ireland and England, in rivers that have not a tithe of the prime pasture ground for fish that our river has. This is a matter of great importance to the State, and is worthy of the attention of our enterprising citizens. Companies are formed and capital is invested every year in enterprises that promise not half so well as this. Can nothing be done this fall to start so hopeful an enterprise? Who will talk it up, inclose the ponds, procure the ova, and deposit them in the boxes? Shall we have a few thousand of these young salmon to turn into the Connecticut next fall?

The following facts were presented in a meeting for a similar purpose in Scotland.

Artificial Propagation of Salmon.—A meeting of the salmon fishing proprietors in the river Tay, was lately held at Perth, for the purpose of considering the question of the artificial propagation of salmon. The chief speaker was Mr. Thomas Ashworth, from Ireland, who stated that his brother and he have, at the present time, about twenty thousand young salmon in ponds, produced by artificial means, which are daily fed with suitable food. His brother and himself having purchased the Galway Salmon Fishery in Ireland, they determined to try an experiment there for the artificial propagation of salmon. A suitable place having been fixed upon at Outerard, operations were commenced between the 20th December and the 1st of January last, which was about a month too late, yet boxes were prepared in which the spawn of the salmon were deposited. These boxes were about eighteen inches square and six feet in length, with a zinc grating in the sluice at either end. There were twenty boxes in all, which were filled with gravel or small stones to the depth of six inches. To procure thé ova and the milt of the female and male salmon, the fish were taken by small nets on the spawn fords at night, and instantly and without injury put into a tub one fourth full of water. The female fish was turned on her back, one man holding the tail, another running his hands down each side from the head, and, pressing lightly with his thumbs, the ova was readily discharged into the tub; a similar course readily discharged the milt. About three hundred and seventy salmon were treated in the same manner, and again returned to the river. Mr. Ashworth explained how the ova and milt were mixed in the tub, and then taken out of it with a cup and deposited in the boxes, when it was covered with additional gravel. There were at present about twenty thousand young salmon alive and thriving in these ponds, from two inches to three inches in length. The fine zinc gratings were used to prevent both trout and insects from getting into the ponds, as they were destructive to the salmon fry. The ponds were about twenty yards in length, and twelve to thirteen yards in breadth, and it was intended to keep the young salmon in them for ten months, when they will have grown to about four inches in length. They would then be able to take care of themselves on their way to the sea. He stated also that it was indispensable that the young salmon should be fed daily with chopped flesh-meat. The current of water running through the boxes must be pure and free from mud, and great care was required to be taken during the periods of incubation, when the rivers were flooded by heavy rains, to divert the muddy water from the boxes. It took about one hundred days until the spawn gave indications of life. The expense of this plan of artificial propagation he did not estimate to exceed a pound a thousand, which was at the rate of a farthing each salmon. After some discussion, it was resolved that the experiment should be tried in the Tay; and a committee was appointed to adopt the requisite measures.

AGRICULTURAL LITERATURE.

Self-Government—Mission of Agricultural Societies.

Our *agricultural newspapers* and *magazines* reach numbers and produce effects which are unequaled. Their literary character is alike creditable to their conductors and to the farmers by whom they are read. The great benefits flowing from their extended circulation, are not confined to the improvements in agriculture, which are a sure concomitant of their perusal. They create and inspire a taste for reading, enlarge the sphere of observation, and educate in literature and science a large class who are inaccessible to other influences. They have already taken a high place among the scientific and literary periodicals of the day, and may very favorably challenge a comparison with them. They are worthy of most extended patronage. Their evident effect is to elevate the character of labor.

The problem in self-government which this nation is now working out, is not yet entirely solved. We have, in comparison with other nations of the earth, barely entered upon our existence; and although we were strong at our birth, and our early youth gives evidence of great power and vigor; yet looking with a proper sense of the instruction to be derived from the history of other nations, we can write no future for ourselves: our course is, to a great extent, untried; we came into existence upon great principles, and we must stand and be built *up* upon such principles, or we must fall; we rely upon the patriotic intelligence of the masses. The laboring classes do, and ever must, form these masses. To give them a clear and intelligent view of their rights, of their privileges and immunities, is to give permanence and stability to our institutions, and to prepare us for a perpetuity of those rights, which shall be a blessing to all "the dwellers on earth."

I shall in this connection be pardoned for saying, that any system of government which disparages the producing classes, must in the end be bad government. It will necessarily contain elements of corruption and dissolution. I need not go further on this point than thus to state the question, for I am sure of a hearty response to the position that for this nation, the true policy of patriotism is to create and multiply intelligent, well-educated laborers.

I have adverted to the influence exerted by the fairs of this and kindred societies, but I have not referred to the greatest and most effectual instrument for elevating labor which is now, or hereafter can be, called into operation.

The cause of agricultural labor is the cause of our common humanity. The onward progress of civilization, of arts, of science, and of all that elevates and adorns society, essentially depends upon its character and the estimate in which it is held. In all the Free States, it sends its contributions of members and influence to every avocation and profession. It claims support. It demands honor. It is to be protected and defended against all assaults, either from an aristocratic pride and feeling at home, or from degrading, servile influences from abroad. Its fruits of industry require the protecting, fostering and expanding care of the government. Its hardy youth demand al those appliances of education which shall amply qualify them for fulfilling their duties as farmers, and carrying out their obligations as American citizens; and our mission—the mission of this and affiliated societies—will not be ended until these objects are accomplished.—*Judge Jessup's Address before the New-York State Society, at Watertown.*

VEGETABLE PHYSIOLOGY.

THE *structure of plants* is exceedingly various. In order to prepare the way for understanding the structure, circulation, and mode of growth in vegetables, we will examine a common tree.

The tree consists of three parts—the *stem*, the *roots*, and the *branches*. Viewing it as *one*, we may regard the roots as the elongation of the stem downwards and laterally; and the branches as the elongation of the stem upwards and laterally. Could we take a full-grown tree—one that has grown in open land, with no obstructions near—we should find it to have much the form of an hour-glass, the stem forming the neck, the top constituting the upper bulb, nearly round, the roots composing the lower bulb, much wider than the upper, and greatly flattened at the bottom. A tree may be conceived to have grown in so deep and rich a soil, that the roots would be found to have penetrated the ground nearly as far as the branches reach into the air. But such is not generally the case. The roots, loving light soil and warmth, are more inclined to extend off than downwards.

Still, if the subsoil is at all favorable, they descend to considerable depths; and this is one of the reasons why an old soil, with an exhausted surface, but a tolerable subsoil, is improved by the growth of forest upon it—the roots bring up various salts from an unexhausted subsoil, at the same time that the leaves take in carbon from the air; and then both are deposited from falling leaves and decaying branches on the exhausted surface soil. This is God's way of bringing the resources of fertility, in earth and air, together, and placing them within the reach of ordinary cultivation.

If one quarter of the cleared land in the older States, selecting the poorest, now little productive of *anything*, were put to the growing of *timber*, and the rest were better cultivated, it is possible that they would in the long run, produce more food than now, as well as more timber. We should be glad if some one who has studied the influence of forest-growing on the permanent productiveness of a country, would give us his views on this subject. It is an important subject, and one that has not been duly considered among us. If a State would grow an extra million or two of acres of timber once in thirty years, and yet produce as much food and clothing as now, and perhaps more, it is worth knowing; for the cost of growing timber is little more than the interest on the small value we attach to our poorest lands, whereas, a million acres of timber will be worth something thirty years hence, and by that time the land would have become renovated—capable of affording good pasturage.

The stem of a tree consists of four parts—the *pith*, the *wood*, the *bark*, and the *medullary rays*. The functions of the *pith* are little known, and it would seem as if they could not be very important, since if it be entirely destroyed, as in hollow trees, still the tree lives on and sometimes even flourishes. The *wood*, carefully examined, is found to consist of a countless number of hollow tubes running longitudinally. It is of two kinds—the *heart-wood* and the *alburnum*, or white wood. The former is generally somewhat colored; and the tubes of which it consists are closed up so as no longer to transmit the sap. The latter is white; the tubes of which it mainly consists are open, and the sap flows freely through them.

The *bark* also consists of two parts—the *liber*, or inner bark, and the *epidermis*, or rough, outer covering. The *medullary rays* are a sort of division planes running up and down the tree and extending from the bark to the pith. In splitting wood, these division planes may often be seen, forming a smooth, polished surface, especially in beach and maple, and they are imitated by painters in graining for these kinds of wood. If a tree be cut horizontally, they may be traced as lines running from the pith to the bark, like the spokes of a wheel, from which circumstance they are called *rays*.

Regarding the roots of a tree as its elongation downwards we find them consisting, for some distance, of the same parts as the stem; but if we trace them farther, we find the medullary rays first terminating, and then the pith, so that the root beyond that point consists only of the wood and the bark; and, at the extremity, it does not terminate in a point, but abruptly, the end having much the appearance, when viewed under a high magnifying power, of a collection of fine hair or fur, with an envelope around it, and cut off with a sharp instrument. These blunt ends of the rootlets are supposed to be the mouths, by which all or nearly all the food obtained from the soil, as well as much which is obtained from the air *through the soil*, is received. So exceedingly small are these rootlets, and so numerous are the divisions, that nothing, it is believed, can enter them unless in either a liquid or gaseous state. If so, then the various solids of which wood, bark, and leaves are composed, must have entered the tree either in the form of a limpid solution in water or of an invisible gas.

Looking at the branches as an elongation of the stem upwards, we find them made up, much like the stem itself, of pith, wood, and bark. The *leaf stems*, like the wood, are a collection of tubes placed side by side, through some of which the sap passes upwards into the leaf, while in others it flows back from the leaf to the twig. The leaves consist of a skeleton or frame-work, with a double membrane covering it on the upper and lower sides. Both of these membranes are fitted with countless pores or openings. Those on the lower side of the leaf act as so many mouths to take in food from the air; and those on the upper or smooth side, give off water, in the form of invisible perspiration, and such other matters as the tree no longer requires.

The tubes of which we have said that wood is mainly composed, commencing in the larger roots, pass upward through the stem, through the branches, the twigs, and the leaf-stems, into the upper membrane of the leaves. From the lower membrane of the leaves other tubes commence, running downward through the leaf-stems, through the bark of the twigs, through that of the branches, and through the liber, or inner bark of the stem, to the roots, and probably, though we believe that is not known certainly, to the ground.

Some have supposed that plants, in their returning sap, send back into the soil substances which they had taken in but which are not required to form their living textures, very much as animals void those portions of their food not required to build up the body. They have supposed that this renders the ground unfit for the same species of plants, but improves it for the production of other species; and they seek thus to account for the fact, that in nature, a growth of no kind of tree is followed perpetually by the same; but that land, left to itself, changes its crop from pine to certain kinds of hard wood, then to others, and so on, taking a somewhat extensive rotation. The fact that nature loves a rotation is evident, and this should be imitated by man; but the above way of accounting for the fact seems not as plausible as another, of which we shall have occasion to speak hereafter. N.

GREEN SAND MARL.

We have had a conversation with Charles Stearns, who in company with others, it appears, is working the Green Sand Marl of Southern New-Jersey into a more portable manure, by first grinding it to an impalpable powder, and then incorporating with it such requisites of vegetable growth as it does not contain in sufficiently large proportions, as compared with others. Thus, he would say, the marl contains the ingredients A, B, and C, and so of all the others required in a first-rate fertilizer, but not in the best relative proportions. A, for instance, is deficient as compared with B and C, so that in order to apply enough of A, you would have to apply an excess of B and C. In other words, he thinks the marl very strong in some points, as potash and the mineral ingredients generally, but not as strong in others. His views, in this respect, are fully authorized by analysis. Now his idea is to bring up the weak points, and make them equal to the strong; and we think it a most sensible idea, perfectly in accordance with the teachings of science; and we have no doubt that he will succeed, to the great benefit of agriculture. But whether he will succeed, as he hopes, in making as good a fertilizer as the best Peruvian guano, ton for ton, is to us doubtful. That he will make one vastly better than guano, in proportion to what it need cost the farmer, we have not a single doubt; because the marl is inexhaustible in quantity, and contains nearly all the requisites of a first-rate manure, while the others, we think, can be added cheaply. We the more readily believe this, because the green sand marl is in itself, in its raw state, an excellent fertilizer. As now sold by the New-Jersey Fertilizer Company, (see advertising sheet,) it costs the consumer less than half the price of guano for an equal value, provided he can get it to his place with little land carriage. We are confident that half the outlay of guano, in this marl, at seven cents a bushel, will increase the crops as much, and leave the land in better order. This New-Jersey marl is to be a great thing for agriculture; but we would say to both these companies—one represented by George W. Atwater, 16 Cedar street, and the other by Charles Stearns, 132 Water street—put your prices so as to make it a good business for the companies—no one should find a word of fault with that; but put them and keep them such that the farmer may have a fair proportion of the profit. Too many fertilizer companies are built on the expectation of gouging the farmer. It won't do. We are bound by every obligation to protect the farmers. They ought to make at least half the money that is made on manures. Be willing that they should do it, and the business of furnishing them manures will be an honorable, a useful, and still a sufficiently profitable business. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

SHEEP AND FARMING.

Messrs. Editors:—Some farmers there are who deal very extensively in sheep. They keep a large number, from one hundred and fifty to three hundred, on a farm of one hundred and fifty acres. With such farmers we must dissent, for we believe that there is no animal in the world that bites so closely as the sheep; and hence they are apt to kill grass, or very much impede its growth. But sheep are profitable animals at present prices. We believe a farmer can keep fifty or sixty on a farm of one hundred acres, and do well with them. Now, *first*, you get their growth, if they are young sheep; *second*, you are sure that their wool is also increasing every day in weight; *third*, you know, with kind care and attention, many fine lambs can be raised in the course of a year, and you get the growth of these.

Besides, sheep afford the very best manure for wheat lands. This we have tried, and have found by trial, that wherever they have "laid down" the most, there you would find the best wheat, plump and luxuriant. But in the mean time, we must acknowledge that they are very industrious animals around your pastures, and never will leave them until the last remnant of vegetation is gone. They bear exorbitant prices this fall. You are astonished to have to pay \$2 00 to \$2 50 apiece for lambs, and from \$2 75 to \$3 50 for ewes. Wethers demand very large prices, say from \$3 00 to \$6 00 per head. These figures, be it understood, are applicable to Central and Western New-York, where sheep are now very scarce and high. And men who have brought sheep down from the West this season, have not made very ample fortunes; a very clear evidence that they are not very cheap in the Western country.

We apprehend, also, that wool, for some time to come, will be high. Hence farmers are encouraged to keep sheep. By the way, cattle are not low, and this fact prevents many farmers from keeping sheep. It is certainly more profitable to winter sheep than cattle, for only see, you get the growth of the wool on the former, while the latter only increase in weight. Then again, should you be successful in raising your lambs, they will bring you at from $2 00 to $2 50 per head when from eight to nine months old.

Now, in connection with farming in general, we believe, and know by experience, that keeping a few sheep on your place, you are a gainer instead of being the loser by the operation. It is not now evident that they will be very low in price for years to come; nor is it clear that cattle will be valueless in the future, for see what a mighty Eastern avenue is open for their annual—ay, their daily escape.

If you are anxious to raise a good piece of wheat, summer-fallow, and in the mean time, let the sheep of your farm have a chance at it too—we mean, at the fallow. They will remove foul weeds, gnaw down the grass in the corners of the fences, manure your lands, and when you harvest your wheat, you will be astonished, with other good culture, to find that you have got a fine, indeed a large crop of wheat. But soil and climate always have "*their say*" about raising wheat, though, nevertheless, sheep will help you on to success, even sometimes it be granted, that circumstances, etc., do not favor you in all respects.

We would like to hear your opinion, Messrs. Editors, on the prospective prices of sheep and cattle; also on wool and keeping sheep, etc. Suppose you give us a little information on these very important subjects. You know the whole country is deeply interested upon these points, and eagerly guzzle down all the information they can get upon matters relating to sheep, cattle, swine, etc.

Meanwhile we want to mention (having noticed your notes on Western travel, and on sowing herdsgrass,) that we are now ratified in this part of the country, that Timothy seed is one more profitable seed. Clover will "heave out" with us, and *Ned* himself cannot prevent it. Last winter we were fortunate, for the snow was deep, and therefore it did not heave very materially.

We sow our herdsgrass-seed in the fall as frequently as at any other time, and prefer that season of the year, because the grass gets a firm hold, and is not apt to give out. We regard clover as of much value as a manure, but give us herdsgrass for hay and profit.

Very respectfully, W. Tappan.

It will depend a little upon the powers that be and are to be, what shall be the profits of keeping sheep. Should the protection of wools, both *coarse* and fine, remain as it is, we see not why sheep-growing might not be a paying business for some years to come. We believe with our correspondent in keeping a few sheep, if circumstances favor. But no rule will apply to all places nor to all times.

Would not clover and herdsgrass (the clover to predominate the first year, the herdsgrass the second) better answer the double purpose of producing forage and of drawing up minerals from the subsoil? The decision of the farmers in a region is not to be lightly disputed. We only ask.

ON INSECTS---

With Descriptions and Directions useful to the Farmer, Gardener, etc.

We would be glad to know how to write on this great subject so that we shall be read by those whom we design to benefit. There is a repugnance felt by most people to all elementary treatises. And this is not strange. A paper full of technical terms, a succession of strange words, interrupted only by poor attempts at definitions, surely presents very slight attractions for any one. We take as little satisfaction in reading such essays, as in looking at the bare timbers of a frame that may, by and by, become a house. As it is, it is no house. It has neither the beauty, the comfort, nor the value of a house. And even when it is *finished*, if the staging and various scaffoldings employed in its structure still remain the most prominent features of the pile, the view excites no emotions in any body but the architect and owner. So it is in elementary treatises on scientific subjects, both in our journals and in volumes. It is a much more difficult task to enlighten the public as we would, on such topics, in essays that will be read, than to prepare ever so good a manual of the science for the use of those familiar with it. And yet we are bold enough to attempt just such a task in the months to come. We have been over most of the ground, in a certain form, in the year past. We now purpose to attempt a new thing, or the same thing in another shape, more popular, more extensive, and probably, if we do not utterly fail of our object, more useful to the general reader. Our former essays were written, many of them, in unfavorable circumstances. Now, we can allow the ground and the crops, the trees and shrubs, to be cultivated without our care. They have one to attend to them, the correctness of whose opinion on such matters we should no more think of doubting than of withholding our confidence from that of a cashier on the genuineness of a bill of his own bank. By and by, if not now, our readers will agree with us. But this is a digression, though it shows the reader why we can now write with more care than in months past.

We quite agree with our much-respected friend, Breck, in his "Flower Garden," when he asks, "Who can help feeling a little ruffled when some insect has destroyed a favorite plant? and even, like justifying good old Jonah, who 'thought it well to be angry for his gourd,' which a worm had destroyed in the night. What insects were made for, is a matter which has puzzled many a one smarting under their attacks, though, we doubt not, there is an answer that should satisfy us all. But this is not the question for us to settle. Our province is to destroy those which are harmful, and to preserve those which are useful. The impatient housekeeper, with her broom and napkin, making war on everything with wings, except that little fellow poets write about so much, may need more light to enable even her to discriminate as she should; and when she goes into the garden, with a spirit of extermination to all the race, she may, if untaught, do as much harm as good. In fact, we think skill in this department almost as important to the gardener, and other more extensive agriculturists, as the advice of a physician is in respect to those other ills which '*flesh* is heir to.'"

There are various "schools" in medicine, but there is one grand idea which, in one form or another, pervades them all, and that is, that some disease must be produced which shall counteract that already in the system, the new one curing itself. This is what we would do. We would excite a *fever*, but not in the plant. We would excite the student, the physician. It is said that no one ever became a botanist without having a high botanic fever, and we are sure that this is true; and, still further, our own experience and observation both show us that even this may not be enough. The fever must last for several successive years. So it is with a knowledge of insects. The pupil must be, to some extent, an enthusiast, or he will fail to become an adept in the science. He cannot become such as a duty; it can only be with the spirit we have described. We wish this fever was fastened upon many of us, and could become an epidemic. But

WHAT IS AN INSECT?

The true insect is an articulated animal, having six legs, two antennæ, two compound eyes, a small brain at the anterior of a double medullary chord. Their circulation is effected by a pulsating dorsal vessel (answering to the heart of mammalia), provided with numerous valves. Respiration is sustained by tracheæ, or tubes, which form two lateral trunks, and ramify through the body. They are oviparous, of two distinct sexes, and attain an adult state only by passing through a series of metamorphoses. They generally have two pairs of wings.

The name *insect*, seems to have had its origin from the idea that the animals of this class are "cut," or divided, into separate and distinct parts, as head, thorax, and abdomen. It is derived from the Latin *seco*, to cut.

According to the definition just given, spiders are not insects. So, also, many worms are not included in it. Some worms, commonly so called, are insects in a transition state. The potato worm is an example of this kind. The appearance of such an individual, in a single condition, is not decisive of its proper place in Natural History.

There is one point which is often of no little practical importance, which yet, perhaps, requires some practice to give one confidence in his own judgment. It may often be desirable for the farmer or planter to know the sex of the nuisance which he discovers upon his crops. If he finds what he supposes to be a female insect, and, perhaps, an abundance of eggs on a given plant, he may know that he has discovered an enemy too dangerous to be suffered to exist, and he should use every means in his power to destroy her forthwith. Females of many insects multiply so abundantly that by killing one he prevents a thousand, and killing two puts ten thousand beyond the power of flight. The following points will determine this matter:

1. The size of the insect. The male is always smaller than the female. 2d. The brightness of the color, that of the male being much more brilliant than that of the female, especially in Lepidopterous insects, which include butterflies and moths. 3d. The form and number of the articulations of the antennæ, those of the male being larger and more numerous. 4th. The presence, and the form and size, of the wing, the males being frequently furnished with wings, while the female is not. And 5th. By the presence or absence of a sting. The female bee, for example, has a sting, while the male has none. The males of some insects are also furnished with sharp prominent points, resembling horns, while such organs are not perceptible, or are feebly marked, in the female.

P.

TRIALS OF SPEED AT FAIRS.

Last month we published some remarks on this subject, of Senex, (*an old man*, if our Latin does not grow rusty). Below we publish from one, who has a Jr. appended to his name, somewhat younger, no doubt, but old enough, we think, to comprehend the truth and express it strongly but kindly. After speaking in terms of general commendation of the late U. S. Show at Philadelphia, this writer says:

We have one word to say with reference to the "trials of speed," which formed the great attraction of this show; and in the outset we desire it to be distinctly understood that we intend no disrespect to the officers of the Society. We know, and freely say, that they have labored well and efficiently to place the Society on a firm footing, and to give it a secure establishment in the favor of the people. On the point in question we think that they err, not intentionally, but in judgment. They do injustice to American farmers when they require them to give their endorsement to horse-racing—whether under the name of "trials of speed," or whatever else they may choose to call it. Fast horses are *not* an agricultural necessity, nor even an agricultural product. No practical farmer need be told that the rearing and training of such horses is at utter variance with agricultural success; and no hard-working, intelligent farmer sees his son turning his attention to the development of speed in horses, especially for competition on the track, without trembling for his success as a farmer. Strength, docility, and power of endurance, are qualities which should take precedence over speed; and the encouragement of attention to this latter will never produce one benefit, pecuniary or otherwise, to any young farmer whose fortune is to be that of an earnest, intelligently industrious man. Fast horse-flesh has no practical value since the introduction of railroads and telegraphs. Its only appeal is to feelings which are, to say the least, not conducive to strict attention to business.

We do not go so far as those who say that the Agricultural Societies of this country are gotten up by those who, being professors of religion, cannot with propriety attend the races which are given by the jockeys, and that consequently they invite jockeys to attend *their* "trials of speed;" but that there may be, hereafter, a division between the horse-trotting and the agricultural portions of these exhibitions, is our most earnest desire. If we cannot have Agricultural Fairs without this accompaniment, let us wait until we can. We believe that the trial of implements, which is to come off next year, (we hope,) will prove that American Agriculture is able to walk alone.

On the subject of the banquet and its attendant speeches, we have little to say, though we did wish that some of our farmers' wives and daughters could have superintended its management. Two or three of the speeches were good; but when three political parties are actively engaged in "saving the Union," it appears to us that that subject need not be *dragged out* at an agricultural banquet. If the Union should ever be in any real danger, the farmers will show our political gentlemen a short way to settle the matter; but when we get up a dinner on our own account, and for our own advancement, we would respectfully suggest to them that we do not care to listen to such subjects.

In conclusion, we only ask our friends of the United States Agricultural Society to give us a chance to have an *agricultural* show, pure and simple, and, in our opinion, it will prove at least as useful to the country as the one which has just transpired.

G. E. W., Jr., *in the Working Farmer.*

Horse Power.—The power of a horse is understood to be that which will elevate a weight of 33,000 pounds the height of one foot in a minute of time, equal to about 90 pounds at the rate of four miles an hour.

APPLE POMICE.

We are often asked whether this is of any worth for the land, and if so, how it can be used. The value cannot be great, especially since the new way of making cider without straw. But if composted with lime, it would in no very great length of time crumble down into a black mould, in which state it might be worth something—a little more, perhaps, than the cost of the lime; and what would otherwise be a lasting nuisance would be got rid of. It would be well first to let the pigs root among it, and eat the seeds and other parts, as they would. If composted with lime, it should hardly be permitted to lie where the family would breathe the fumes arising from it. N.

SINK WASHINGS.

These should always be applied to the land. Wherever the ground about the buildings is such that it can be done without offending against neatness and health, they should be directed to a tank, or, what is quite as well, an excavation, for the purpose, to be filled half or two thirds full of some rich vegetable matter in the spring, more of the same to be thrown on from time to time through the season, and the whole to be carried off the next spring and applied to the soil. From ten to twenty loads of as good manure as the farm affords may be thus manufactured at little expense; and it is worth considering, that the carbonaceous character of the peat or mould used renders it a good retainer of the foul gases that would otherwise infest the premises. N.

FARMERS SHOULD WRITE.

We would request a careful consideration and faithful regard for the following remarks of the *Germantown Telegraph* on the subject of furnishing matter for the Agricultural department:

"We thank the cultivators of the soil for their communications; and as the evenings are now becoming long, and the labors of the field abridged, we hope to enlist many others, not now upon our list, as contributors to the Agricultural department. There is scarcely a farmer, however limited his operations, but who can jot something down from time to time, of interest to others in the same line of business; while there are others, experienced, experimenting, and scientific farmers, who always have it in their power to send us articles which would be read with avidity by their brethren. As we have mentioned many times, communications sent to us in the rough, will be carefully corrected before printing, so that no one who has any fact to make known, need be afraid that it will not be fit for the public eye." —*N. Y. Observer*.

So with us. It is a difficult matter to correct an article, which needs correction, so as to make it clear and concise, and yet not do violence to the writer's thoughts. We can often write two new ones more easily. But we will cheerfully make all needful corrections, if farmers will send us short articles, expressed in their plain, right-to-the-point way, on matters of their every-day experience, and about which they are supposed to know more than any others.

BREADSTUFFS.—EXPORTS, ETC.

From De Bow's Review.

THE returns from the wheat harvest of the United States are now complete, and it is settled that the crop is of most excellent quality, and if not the largest ever gathered since the settlement of the country, is at least above the average, and will yield a large surplus beyond the supply of our domestic wants. With the certainty of such abundance, the probable reliance to be placed upon an active export demand is a subject of much importance, and deserving serious attention. Our imports of foreign goods and merchandise for the eight months of the current year, are larger than for any similar period in our history, the total being upwards of $150,000,000; and although much of this increase has been in consequence of large exports of domestic produce to this date, yet if these exports are to cease with the in-gathering of the present harvest in Europe, it might take a larger portion of the receipts of gold than we could conveniently spare, to balance the account. Great Britain has always been the best customer for our surplus breadstuffs. To most other countries which take breadstuffs of us, our shipments of flour have been comparatively uniform, whether the crop was large or small, but to British ports the shipments have varied with the quantity we have had to spare, although averaging nearly half the total clearances for all foreign ports.

Brazil and the West Indies are regular customers for our flour, as they purchase about the same quantity every year, and after Great Britain, take the largest quantity in a series of years; but a large portion of our shipments of grain (with wheat and corn) go to British ports. Thus of 18,583,151 bushels of wheat shipped to all ports from July 1, 1849, to June 30, 1855, 14,061,212 were sent to Great Britain; and of 43,757,597 bushels of corn exported to all ports within the same period, 36,563,951 bushels had the same destination. We annex a tabular statement showing the exports from all ports of the United States to all foreign ports, of wheat, wheat flour, and Indian corn, both in quantity and value, from 1849 to 1855, inclusive, with a comparison of the quantity of each sent to Great Britain. The totals are all taken from official documents, and may be relied upon as authentic, although it must be noted that of many direct clearances to Great Britain for orders, there are sometimes considerable quantities directed from thence to Continental ports. The "famine" of 1847, led to large shipments of breadstuffs, and to the inauguration of free trade in England, and we commence therefore with 1848–9, when the business had become settled under this system. The periods noted are the fiscal years, ending June 30:

Exports from the United States, of Wheat, Wheat Flour and Indian Corn, from 1849 *to* 1855, *inclusive, for the year ending June* 30.

1849.	To Great Britain. Quantity.	To all For. Ports. Quantity.	Value.
Wheat, bush. - -	1,072,780	1,527,534	$1,756,848
Flour, bbls. - - -	953,815	2,108,013	11,280,582
Corn, bush. - - -	12,396,242	13,257,309	7,966,369
1850.			
Wheat, bush. - -	316,926	608,661	643,745
Flour, bbls. - - -	370,777	1,385,448	7,098,570
Corn, bush. - - -	5,957,206	6,595,092	3,892,193
1851.			
Wheat, bush. - -	592,583	1,026,725	1,025,732
Flour, bbls. - - -	1,004,783	2,292,335	10,524,331
Corn, bush. - - -	2,760,329	3,426,811	1,762,549
1852.			
Wheat, bush. - -	2,049,557	2,694,540	2,555,209
Flour, bbls. - - -	1,532,094	2,799,339	11,869,143
Corn, bush. - - -	1,894,700	2,627,075	1,540,225
1853.			
Wheat, bush. - -	3,574,248	3,890,141	4,354,403
Flour, bbls. - - -	1,388,065	2,920,918	14,783,394
Corn, bush. - - -	1,653,840	2,274,909	1,374,077
1854.			
Wheat, bush. - -	6,058,903	8,036,665	12,420,172
Flour, bbls. - - -	2,026,121	4,022,386	27,701,444
Corn, bush. - - -	5,965,850	7,768,816	6,074,277
1855.			
Wheat, bush. - -	396,215	798,884	1,329,246
Flour, bbls. - - -	189,712	1,204,540	10,896,908
Corn, bush. - - -	5,935,284	7,807,585	6,961,571

The ordinary shipments in the past have not included any thing direct from France. In the first year named above (1849) there were no exports of flour to French ports, and only 108 bushels of wheat; in 1852 the total includes 2700 bbls. of flour, and in 1853 only 8784 bbls.; but in the year ending June 30, 1854, there were shipped direct to France 1,041,086 bushels of wheat, 728,279 bbls. of flour, and 39,400 bushels of Indian corn. In the following fiscal year (1854–5) the shipments of flour to the same ports had dwindled down to 8557 bbls., and there was no shipment of wheat, but the exports of corn increased to 312,740 bushels. During the year 1855 the partial failure of the crops on the Continent of Europe, led to large direct shipments, and the total exports to France for 1855–6, not yet officially compiled, have been larger than ever before recorded to the same ports. As soon as the threshing of wheat commenced in the west and north of France in 1855, its bad quality and light weight created a general panic, and prices continued to advance up to the first of January. The abundance caused by the large receipts from this country, Spain, and other sources of supply, caused a downward tendency in prices throughout January, 1856, and every thing was promising for the next harvest until the inundations in May. These checked the decline without wholly arresting it, but as the harvest approached, the hopes of an average crop became less sanguine, and it is now generally admitted that the supply will be deficient from five to ten millions hectolitres, that is, from fourteen to twenty-eight millions of bushels.

The quantity of arable land in France, is set down at 56,810,000 acres, of which fourteen millions hectares, or 34,580,000 acres are devoted to the culture of grain. The average annual product is 495,000,000 bushels of wheat, oats, rye, maize, and meslin—of which about one fourth are oats, and two fifths, or 198,000,000 bushels, are wheat. With an average crop, France has heretofore been able, not only to supply her own wants, but to furnish about 5,500,000 bushels of wheat (or its equivalent in flour) for the consumption of Great Britain. It is evident that this export trade must be cut off or greatly reduced during the current year, as the crop in France is below the wants of her own people. Indeed, the total exports to Great Britain from all French ports, for the year 1855, amounted to an equivalent of only 880,000 bushels, or about fifteen per cent. of the usual shipments, and this was all foreign produce, shipped from bond.

In Great Britain, the crop this year is very good, but it is never sufficient to supply the wants of the people. The total imports of breadstuffs into the United Kingdom for the last three years, (reckoning flour, &c., at its equivalent in grain,) are as follows:

Calendar Year.	Equal to bushels wheat.
1853,	84,419,632
1854,	63,267,240
1855,	50,227,608

The high prices have contributed to reduce the imports into the United Kingdom during the last two years to the lowest possible point; but for the first six months of the current year the total imports amounted to 1,859,000 quarters, showing an increase of 161,000 quarters, or 1,248,000 bushels, and must continue at about this rate throughout the remainder of the year. Even with a good harvest, the kingdom must need at least 40,000,000 bushels grain, or its equivalent in flour, for its own consumption. Of this amount Russia, (Northern and Southern ports,) whose supplies were cut off during the war, can now furnish 10,000,000 bushels; Prussia (whose harvest is this year below the average) 10,000,000 bushels; all other countries, 5,000,000; leaving 15,000,000 to come from the United States. If prices rule at a comparatively low rate, the consumption will be increased and the quota from this country may reach twenty or twenty-five millions of bushels. Spain and Portugal have hitherto exported to both France and England, the shipments to the latter, last year, being upwards of 4,000,000 bushels. This year, the harvests are there so poor that the export is prohibited, and supplies for consumption in the Peninsula are going forward from this port.

We see, therefore, that in addition to the demand for the breadstuffs from regular customers, we are likely to have an increased export trade to Europe, making the aggregate probably more than 40,000,000 bushels wheat and corn, or its equivalent in flour.

It is difficult to ascertain the exact production of the United States. The total arable land under actual cultivation is given in the census of 1850 at 113,032,614 acres, of which 51,700,000 acres were producing breadstuffs. The following was the total production of grain as given in census returns for 1840 and 1850:

	1840.	1850.
Wheat, bushels, - - - - -	84,823,272	100,485,944
Rye, - - - - - - -	18,645,567	14,188,813
Oats, - - - - - - - -	123,071,341	146,584,179
Corn, - - - - - - - -	377,531,875	592,071,104
Barley, - - - - - - -	4,161,504	5,167,015
Buckwheat, - - - - - -	7,291,743	8,956,912
Total, bushels, - - - - -	615,525,302	867,453,967

A very large amount of arable land has been brought under cultivation since 1850, and those most conversant with the West and its increased resources, think that the product of wheat has increased at least, 50 per cent. since the date last given, while other grain has increased 20 to 25 per cent. The total yield of wheat being computed at 150,000,000 bushels, it is easy to see that the export demand can be filled without creating any extraordinary excitement throughout the country. Last year the farmers anticipated such high rates, that many of them refused to sell in time, and thus, to their great chagrin were obliged to dispose of their stock at the close of the season far below the average price. This year early sales promise to be the best, but there appears to be a limit below which foreign orders would rapidly diminish any home accumulation. At present good white wheat is worth here about \$1 60, and good red about \$1 50. We scarcely expect to see a decline of twenty cents from these rates during the current season, but within that range an active foreign business may be expected. The prospects for Indian corn cannot be given until nearer the close of the harvest. Flour will fluctuate more than wheat in price; sales have been made to arrive in England at a price which would nett here about \$5 00 for standard superfine, but this is generally thought to be an inside price. We have compiled from the official records a statement of the average export price of flour in each year since 1800. The highest was \$14 75 per barrel, at which all the shipments averaged in the year 1817. The lowest was \$4 24, which was the average of 1852. The following is the average of the total shipments to all ports in each year for the last twenty years:

Yearly average price of the Exports of Wheat Flour from the United States to Foreign Ports from 1836 *to* 1855.

Year.	Price.	Year.	Price.	Year.	Price.	Year.	Price.
1836..	\$7 50	1841..	\$5 20	1846..	\$5 18	1851..	\$4 77
1837..	10 25	1842..	6 00	1847..	5 95	1852..	4 24
1838..	9 50	1843..	4 50	1848..	6 22	1853..	5 60
1839..	6 73	1844..	4 75	1849..	5 35	1854..	7 88
1840..	5 37	1845..	4 50	1850..	5 00	1855..	10 10

The periods above noted are the Government fiscal years, ending June 30. The average for 1856 is not yet made up, but will be considerably below that of 1855. If any think we have over-estimated the present production of wheat in this country, we have only to remind them, that the cultivation of this grain for export received but little stimulus until the repeal of the English Corn Laws in 1847, and that the export trade has since rapidly grown into importance. This trade has contributed more to the importance of New-York, as a commercial emporium, than is generally acknowledged, and is likely to increase in magnitude for many years to come.

Editors Prairie Farmer: There is a great fuss, who is to be the man—Buchanan or Fremont. He should be the man who would endeavor to let us prairie farmers have *wire* to fence our splendid wastes free of duty, from England or Scotland, as we then could have wires so very cheap, either in the web or by the rod. We would then have the size for fencing for about $70 per ton. The freight on an article of this kind is merely nothing comparatively. Australia is fenced with wire from England. Wire web, with large mesh, is what is used there for extensive sheep-walks. Is it not too bad to keep us in bondage for want of fencing material?—worse bondage than gathering straw and stubble, to try to buy boards at an extravagant price, and have it to haul twenty miles, perhaps. Should not order be given to the officers to allow this article to pass, without duty, as it would be so much benefit to the country? Should this meet your approval, please send it the rounds with your own remarks.—*Geo. Wise.*

We do not know what the present tariff is on wire or iron, but know that it is much lower than it should be—at least, this is our opinion. There is no political economist but advocates free trade in its most extended sense, but "one hand must wash the other." It *is* policy to reduce the tariff on some articles much below the general standard, but we very much doubt if (although it might benefit a *class* of individuals) such a course with regard to wire would result in the greatest good to the greatest number. We have great mineral resources, and *necessity*—the necessities of our own people—will alone develop these resources. We do not doubt that a low tariff on *iron* would *increase* revenue. It is not with this view—the salvation of our revenues—that we advocate a high tariff, but for our own benefit as a great commercial people, and as an agricultural class. How as an agricultural class? We want the grain, the products of our soil, consumed at home. To do this, there must be more manufacturing labor here, which will consume the surplus of our farms.—*Ed. Prairie Farmer.*

We do not know whether the duties on iron in the particular from of fence-wire are too high or too low; but we do know that, if American agriculturists are to prosper, their fences must be made *in* America, and not in England, *out of* American materials, and *by men* who consume American farm produce.

We know another thing; if Mr. Wise would advocate free trade in iron generally, in its various forms, as well as that of fence-wire, as a measure favorable to American agriculturists, or any other Americans in the long run, he is not what his name would seem to import. We hardly believe he would, and we will not believe so foolish a thing of any man till fully assured of it.

We know another thing yet—perhaps shall find that we know more than we thought we did—that the editor of the *Prairie Farmer* is essentially right in the above. We would not speak of a high tariff. Give us such a tariff as will enable enterprising Americans, willing to work on fair terms, to make that more than a million tons of iron which we now import, or American farmers, and Mr. George Wise among them, will in less than ten years be crying out for a fair price for their wheat, meats, butter, and cheese, *and can't get it.* The husbandman who cannot see that, don't know on which side his bread is buttered.

Education of the Agriculturist.—No man is so high as to be independent of the success of this great interest; no man is so low as not to be affected by its prosperity or decline. Agriculture feeds us; to a great degree it clothes us; without it we could not have manufactures, and we should not have commerce. These all stand together, but they stand together like pillars in a cluster, the largest in the middle—and that largest is Agriculture. We live in a country of small farms and freehold tenements; a country in which men cultivate with their own hands their own fee-simple acres, drawing not only their subsistence, but also their spirit of independence and manly freedom, from the ground they plow. They are at once its owners, its cultivators, and its defenders. The cultivation of the earth is the most important labor of men. Man may be civilized, in some degree, without great progress in manufactures, and with little commerce with his distant neighbors; but without cultivation of the earth, he is, in all countries, a savage. Until he gives up the chase and fixes himself to some place and seeks a living from the earth, he is a roaming barbarian. When tillage begins, other arts follow. The farmers, therefore, are the founders of human civilization.—*Daniel Webster.*

Effects of Drainage.—All the rain that falls upon our fields must be carried away either by natural or artificial drainage, or, having thoroughly saturated the soil on which it falls, be left upon the surface to be carried off by evaporation. Now, every gallon of water thus carried off by evaporation, requires as much heat as would raise five and a half gallons from the freezing to the boiling point! Without going to extreme cases, the great effects of the heat thus lost upon vegetation cannot fail to be striking, and I have frequently found the soil of a field well drained, higher in temperature from 10° to 15° than that of another field which had not been drained, though in every other respect the soils were similar. I have observed the effects of this on the growing crops, and I have seen not only a much inferior crop on the undrained field, but that crop harvested fully three weeks after the other; and owing to this circumstance, and the settling in of unsettled weather, I have seen that crop deteriorated fully ten per cent. in value.—*Journal of Royal Ag. Society.*

THE COTTON CROP OF 1855–'56.

PRODUCTION AND CONSUMPTION TO SEPTEMBER 1.

NEW-ORLEANS.	BALES.	TOTAL.
Exports—		
To Foreign ports	1,572,923	
Coastwise	222,100	
Burned, &c	1,200	
Stock September 1, 1856	6,995	
		1,803,218
Deduct—		
Received from Mobile, Montgomery, &c	73,573	
Received from Florida	5,186	
Received from Texas	23,601	
Stock September 1, 1855	39,425—	141,785
Total, 1856		1,661,433
Total, 1855		1,232,644

ALABAMA.	BALES.	TOTAL.
Exports—		
To Foreign ports from Mobile	485,035	
Coastwise, inclnd'g 37,031 bales from Montgomery to New-Orleans, direct	195,622	
Consumed at Mills	1,936	
Stock September 1, 1856	5,005	
		687,598
Deduct—		
Received from New-Orleans	5	
Stock September 1, 1855	28,519—	28,524
Total, 1856		659,074
Total, 1855		454,595

TEXAS.	BALES.	TOTAL.
Exports—		
To Foreign ports	34,002	
Coastwise	83,515	
Stock September 1, 1856	623—	118,140
Deduct—		
Stock September 1, 1855	2,062—	2,062
Total, 1856		116,078
Total, 1855		80,737

FLORIDA.	BALES.	TOTAL.
Exports—		
To Foreign ports, Uplands	35,858	
Coastwise, Uplands	95,150	
Sea Islands	10,900	
Stock September 1, 1856	74—	141,982
Deduct—		
Stock September 1, 1855	166—	166
Total, 1856		141,816
Total. 1855		136,597

GEORGIA.	BALES.	TOTAL.
Exports—From Savannah		
To Foreign ports, Uplands	177,182	
Sea Islands	8,138	
Coastwise, Uplands	200,426	
Sea Islands	7,346	
Stock at Savannah, September 1, 1856	1,550	
Stock at Augusta, September 1, 1856	1,781—	396,423
Deduct—Receipts from Florida, Upland	386	
Sea Island	2,755	
Stock at Savannah and Augusta, September 1, 1855	3,827—	6,968
Total, 1856		389,455
Total, 1855		375,353

SOUTH CAROLINA.	BALES.	TOTAL.
Exports—From Charleston		
To Foreign ports, Uplands	352,346	
Sea Islands	18,765	
Coastwise—Upland	133,451	
Sea Islands	9,286	
Burnt at Charleston 518 S. I., and 233 Uplands	751	
Stock at Charleston, September 1, 1856	3,144	
	517,743	
Exports—From Georgetown to Northern ports	2,893—	520,636
Deduct—Received from Florida, Upland	578	
Sea Island	6,027	
Received from Savannah, Upland	13,281	
Sea Island	2,689	
Stock at Charleston, September 1, 1855	2,085—	24,660
Total, 1856		495,976
Total, 1855		498,557

NORTH CAROLINA.	BALES.	TOTAL.
Exports—		
To Foreign ports	96	
Coastwise	26,072	
Stock on hand Sept. 1, 1856	150—	26,318
Deduct—		
Stock on hand Sept. 1, 1855	200—	200
Total, 1856		26,118
Total, 1855		27,805

VIRGINIA.	BALES.	TOTAL.
Exports—		
To Foreign ports	70	
Coastwise and manufactured, (from the ports)	20,700	
Stock on hand Sept. 1, 1856	842—	21,612
Deduct—		
Received from Mobile, direct	652	
Stock on hand Sept. 1, 1855	502—	1,154
Total, 1856		20,458
Received at New-York, Philadelphia and Baltimore, overland		13,824
Total crop of the United States		3,524,242
Total crop of the United States. 1855		2,847,616
Increase on laat year......Bales		676,626
Increase on year before		595,103

CONSUMPTION.

		Bales.
Total crop of the U. States as above		3,524,242
Add—Stock on hand at the commencement of the year, Sept, 1, 1855—		
In Southern ports	76,814	
In Northern ports	66,378	
		143,192
Makes a supply of		3,667,434
Deduct therefrom—		
The exports to Foreign ports	2,954,606	
Less Foreign included	3,224	
Stock on hand Sept. 1, 1856...		
In Southern ports	18,383	
In Northern ports	44,157	
		3,013,922
Taken for home use—Bales		653,512

Quantity consumed by and in the hands of Manufacturers North of Virginia—

	Bales.
1855–'6	653,512
1854–'5	593,292

Queries.—Why are not American farmers as social, as rotund, and as hopeful as English? There may be several reasons, some beyond and some within human control. And why are not farmers' wives as robust, as strong-handed, as light-hearted, and as long-lived in this country as in that? If the causes are removable, it is of great importance to this and to coming generations that they be known. Will some philosopher give us the rationale for a future number, if he admits the facts, and if not, convince us that we are wrong; for we should like to think that this most important portion of our countrymen are *physically*, as well as intellectually and morally, equal, at least, to the same class in any other country. N.

We repeat from last month, do not commence the winter with more stock than you can winter well. The winter may be mild, and it may be severe. Be ready for either. Badly fed cattle do not soon thrive afterwards. N.

Now is the last opportunity to put the buildings in warm condition for winter. If your house requires banking to keep the cellar from freezing—it ought not to, and we hope it does not—do not let the earth come in contact with the boards, but place a rough board between. Let the house be made warm in the first place; and then see that the horses, cattle, sheep, hens, pigs, and all the rest, have a warm place to sleep. N.

Mechanical.

THE UNION OF THE PLOUGH, THE LOOM, AND THE ANVIL, THE ONLY SOURCE OF GREAT NATIONAL WEALTH.

We have so often referred to this topic, that we are almost suspicious that our readers will tire of seeing it in our pages. But we are quite sure they will never tire of seeing it in practice. Nor are we faithless as to the general adoption of our sentiments by the people of this country. Our warm-blooded, and now highly excited Southern friends, in their Quixotic plan of secession and "independence," have already confessed their own honest sentiments, when unbiased by party trammels, by declaring that they can create a market, and give value to their annual crops, and strengthen their own government, by calling in mechanics and manufacturers, and thus while they add essentially to their population, increase also their enonomic prosperity. See the *Charleston Mercury*. With such indirect confessions as to the true policy of a State, coupled with the convictions excited by the mere logic of these discussions, who can doubt that such is the true policy of any people, and that without it, independence, in any substantial sense, is impossible!

But when and how shall this encouragement of the arts be exhibited? When does fostering these become oppressive to the agricultural interest? These are important questions. They lie at the very foundation of the subject, so far, at least, as its practical development is concerned.

As to the time, the answer is, obviously, whenever there is opportunity. A nation of slaves is impotent for all such instrumentalities. Our own country was once in such a condition. It was a penal offense to manufacture a hob-nail without the consent of our masters. The British Parliament forbade us even a privilege of that limited nature, in order to force us to sustain the mechanic shops of that country. Did our fathers live contented with that style of government? Did they sit down quietly, resting on their elbows, while their masters "at home" sent over to them, at their own prices, the products of the shops of England, wrought out by the hard work and at the starving prices submitted to by the laborer there, but sold here at such profits as were satisfactory to the lordly monopolists, the modern middle men, of that trading people, the merchants of England?

And is it any better, if now, the dupes of perverted English policy here, in our own country, changing their own position, but not changing the policy they adopt on this subject, themselves echo this same doctrine and reënact it upon our statutes? No! The thing is not changed. Prohibition is prohibition still, however the form of it is changed. A system of legislation which permits the British mechanic, sustained by the help of his government, by the system of laws, by the current of trade, and by the weight of national influence, so weighty on all subjects—a system which discourages and crushes the inexperienced, unassisted, and neglected American mechanic, no matter what its form, is oppression still, as essentially as it was before the Revolution, or when uttered by those *beyond* our own borders. The only change is for the worse. The oppression was then by foreign masters; now, it is by professed friends of our own kindred, our own brotherhood.

We have heretofore used sundry illustrations of this subject, in a form so familiar as to be plain even to the unlearned. Among these we would class the following, and beg, even to its simplicity, a careful consideration:

We remember that, in our boyhood, one of our school-books contained a dialogue carried on, upon the eve of setting out to establish a new colony, between the leaders of the enterprise and various applicants for admission into the company. Among these were the tailor, and shoemaker, and spinner, and weaver, and tanner, etc., and all were gladly received, "because they could make themselves useful." Some of a different sort were rejected, as tending only to promote dissipation and vice.

Who would ever have thought of adopting any other principle in such decisions, unless biased by personal or party considerations?

We will suppose a community of farmers who have settled a new territory, divide the land among themselves, and so draw the lines as best to accommodate all parties. They commence business, but find it impracticable to be so far from their mechanics. Who would not be willing to modify the boundary lines of their farms, and dispose of their right to a lot, here and there, or even to *give* a few squares to sundry artisans and mechanics, for the sake of having the various trades in their immediate vicinity? But this is virtually levying a tax upon themselves on account of particular trades. And yet there is no bugbear about all this. No one's feelings are shocked at such proceedings. The propriety of such a course commends itself to every man's understanding. The only question is, to what extent it would be wise to go in presenting inducements to others to join your society, to identify their interests with yours, and to share in your burdens. And if a farmer offers certain pecuniary inducements to mechanics to settle in his neighborhood, let them come from what quarter they may, and he thereby saves money by the arrangement, we should like to ask, who pays this "tax in favor of particular trades"?

Let us again suppose that the colony of farmers to whom we have alluded, have established themselves in their new territory. As they have no mechanics, when their horses are to be shod, their wagons repaired, their clothes made, or when the services of any tradesman are demanded, they go to a certain island in the river, which flows near them. At every such visit, they consume half a day in going and returning. Each at first provided his own boat, but they afterwards found it more convenient to employ others who kept several boats for general convenience, to take them across to the island, charging a reasonable price for the service; and thus there sprang up a new and distinct occupation among them. The public were relieved thereby of much care and expense. These carriers, too—though they sometimes lost their boats, and now and then the men on board were drowned—on the whole were pleased with their new employment. They sold their lands, and devoted themselves entirely to its interests. Their fears, however, were somewhat excited by an unexpected circumstance which soon occurred.

It appeared that certain members of the community had had a conversation with some of the mechanics of the neighboring island, in which their removal into the territory belonging to the company had been suggested, and the report presumed to say that they had already decided upon adopting that course. So earnest were these farmers upon the subject, (according to the rumor,) that, in the case of certain favorite artisans who had not the means of their own, they had even promised to pay the cost of removal out of their own pockets. Various opinions were given as to the probable result of the measure. Some believed that both farmers and mechanics would be ruined. These were chiefly the class of the boatmen. Some thought that the farmers would lose, while the mechanics would gain. Others believed that none would suffer any thing more than temporary inconvenience. the result of change of circumstances, and that in this view, the boatmen would seem to deserve the greatest commiseration. For a time they would be thrown out of employment.

The event proved these last the wisest. The boats were laid upon the bank, apparently to rot. But what followed? So great was the increase of the business of these mechanics, that they needed more help, and not a few of the carriers became artisans themselves, and thus secured safe, permanent, and lucrative employment. This increase of business roused up their energies, and led them involuntarily, almost, to enlarge their plans. Besides attending promptly to the calls of their own neighbors, they commenced the manufacture of tools and implements for farmers and mechanics, which they sent away to more distant markets. Hence, boats were again in demand, and men to manage them. The only change, as it turned out, in this department of trade, was in the kind of goods which they transported, the terminus of their voyages, and the direction of their cargoes, which formerly was homeward, but which now was outward. They now went much greater distances, carried larger freights, and received a corresponding increase in their profits. P.

AMERICAN INSTITUTE.

We continue our reference to the more noticeable inventions exhibited in the recent fair in the Crystal Palace. Circumstances compel us to be very brief in these notices, and to limit the space occupied by this department in this number, but we shall devote more space to them in the January issue, and shall endeavor to do justice to those whose inventions we describe. P.

Woodruff's Self-Acting Gate.—This has at least the merit of durability, and regularity in its action, for we have seldom seen it when it was not in motion, and it has not, in any instance, refused to yield on the application of the examiner's foot to the moving agent. It opens and closes easily and quickly, and commends itself for all avenues and the like, where there is frequent occasion for its being opened.

Marble-Sawing.—There are several machines, of recent invention, all de signed for sawing taper blocks. They are called into being by an offer of ten thousand dollars for a saw that would accomplish such a result. One of these is Schultz's patent. In this, the sawing is performed with an endless band of iron or copper, continually running in one direction, working the sand through the whole length of the cut. The cutting edge of the saw can be kept in a rough state by means of a steel roller with teeth, pressed against the edge of the saw with a weighted lever.

Any number of saws can be arranged to cut a whole block of stone or marble into shapes or into obelisks.

Bull's Patent, for the same purpose, allows the sawing of any number of tapering blocks, at the same time, and also of "sections of circles, whether serpentine or straight." But as to the comparative efficiency of these two patents, we have no means of judging, other than the statements of the parties in interest.

Gas Stoves.—We have had occasion repeatedly to refer to the combustion of gas as a fuel, and the domestic manufacture of it for lighting houses. If gas can be used to heat our rooms, its manufacture at a cheap rate becomes of greater importance. That gas may be thus used is now an established fact. In the fair of the American institute, Mr. W. F. Shaw, of Boston, exhibited several patterns of stoves for warming rooms with gas, of very attractive forms and appearance, and of great efficiency. They have from one to four burners each. We have had one of these stoves for a year or more, and are satisfied that they are very desirable as a matter of cleanliness and of convenience, and, at a proper cost of the gas, of economy also, especially for occasional use. Four burners will warm a cold room in an hour or so, if of moderate size, and one or two will then preserve the temperature at the point desired.

Mr. Shaw has also smaller apparatus for heating flat-irons, boiling water, and other domestic purposes, that are of very great convenience and economy also, in ordinary domestic affairs. The stoves are to be seen in Broadway, at number 404.

Ormsby's Automaton Wood Sawyer and Splitter.—It is claimed by the inventor, that this machine is capable of sawing and splitting all kinds of wood and all kinds of knots, at the rate of a cord in fifteen minutes, attended by one man and a boy.

Four logs of wood may be placed in the machine at the same time, after which the machine is self-feeding, self-sawing, and self-splitting. A machine with two saws has been in use for months, it is said, without costing a cent for repairs, at the yard of the Metropolitan Kindling Wood Co., in this city. Knotty pieces of wood are somewhat troublesome to this, and to their splitting machines, but they are easily removed, if they are found to hinder the work.

Clark's Patent for attaching Legs to Piano-Fortes, Billiard Tables, etc.—The patentee regards this as a very valuable invention. He says: "In attaching legs to pianos, with the wooden screw, or any of the Metallic Fasteners now in use, great difficulty is experienced in getting the leg to its proper position; this, when the leg is carved, or has canted corners, is indispensable, and when the leg has been made right, it will not remain so, by reason that the bottom being made of kiln-dried pine, when exposed to a damp atmosphere, the side grain of the bottom swells, and sets right into the end grain of the leg, so that it is almost impossible to remove the leg, with all the force that can be brought to bear on it, without injuring the leg, or Piano, or both. These difficulties are entirely obviated by the subscriber's new method, as by removing a wedge the leg drops away. This Fastener is also much cheaper than any other metallic fastening. It has been in use in one of our largest Piano-Forte Manufacturing Establishments for nearly a year, and is found to work very successfully.

Broughton's Cut-off Saw.—This machine is constructed with a sliding saw and stationary table, has no friction pulleys or hanger, and drives the saw in the simplest and strongest manner by the belts passing around none but the actual driving pullies. It will also cut off planks, boards, door-rails, panels, etc., perfectly square and true. The whole of the working parts are before the eye of the operator, and very accessible for the purpose of oiling, and very likely to attract his attention in case of accident.

Broughton's Door and Gate Spring.—This is small, neat, and compact, being attached to the door like a common butt, and entirely concealed from view when the door is closed. The springs, which are similar in principle to the spring of a gun-lock, are attached to the back of the flanges, and work in a small slot morticed in the edge of the door and jamb. Being out of the way and not exposed externally, they are not liable to get out of order. The action of the spring is so modified, that the further the door is opened the less the springs are moved, thus remedying the great objection to most springs. It is simple, cheap, durable, and effective.

Wright's Spring Bed-Bottoms were described and commended in our last issue, but we omitted to state that he uses similar springs for car seats, carriage seats, berths, and other similar uses. They may be seen at 1180 Broadway.

P.

Junior Editor's Table.

Here we are again, near the close of another month; and indeed we believe that twice

"Yon moon has filled her horn,"

since we had a familar chat with our readers. Truly, we are making progress of some kind, whether we know it or not, and this last month of a year which so lately commenced its first bright morning, how soon its progress will be ended. It almost saddens us as we think of it. But these months bear a constant record to all our readers how we are employed from day to day, and by-and-by the entire volume will be bound up, and

We will omit the rest of that sentence. Our readers pass judgment upon us monthly, and we have little occasion to complain of their injustice, (though we do wish some of them would pay a little more promptly,) and we hope they will ever find as just and as merciful a tribunal, when they shall discover that no month has passed over their heads without a record being made of what they have done, of which due examination one day must be made. But we are getting too serious, too real, for a junior, and we only add that we hope that our *lunar* issues will one day be comparatively as clear and lucid as the sun, and all our friends, and patrons sharing alike in *all* the benefits of its instructions. This is no egotism in us, since we are the minority; one thing is certain, if we do not make our readers wiser, they are the occasion of much real happiness to us, and we regard them all, in no insignificant sense, as one family, and we could take each one by the hand as a brother, whatever side of whatever line his lot is cast, and whatever distance from us he may reside. This is no gammon.

But we are here alone, again, and we have half a mind to use hard words, when as of late, repeated applications to our wiser and older half are made, that he, should leave us alone, while he wanders away over farms or fields, directing one how to drain his lands, another how to cultivate them, and a third where to build his house, while a fourth applies for a lecture to the farmers of his neighborhood. During such absences, we can talk and consult only with the errand-boy, or a certain other more dubious character, not to be named in these pages polite, unless some casual visitor enters, which happens, sometimes just as the thread gets running smoothly, when, presto, as we rise to shake hands, and tell him how glad we are to see him, we drop our spool, and the whole skein gets tangled and twisted up, and for an hour after he has gone, we are diligently and delightfully occupied in "getting things to right," as some housewives call it. But never mind. "We" are doing good service both to the public and to ourselves, while he is instructing those who can appreciate a good lecture upon agriculture; and we will cheerfully submit to this partial interruption of our mutual consultations in the quiet of our own sanctum, if you will follow the example of some other communities, and procure and forward to us good lists of new subscribers, accompanied with a genuine bank-note, to form the basis of a regular monthly currency between us and them, through the new year to come.

The outer world has been in a busy, feverish turmoil during this interim, and few know little of the pleasure of the calm and quiet in our little sanctum all this while. It was comparatively like a summer sunrise, disturbed only, at times, by some morning's paper which passed before us for commendation or condemnation. We must say, however, that we don't know what political editors would do if they had not yet future space for repentance. But the battle is over, and the strife is—changed.

The scientific world is doing something for their race. For example, the metal *aluminum* is now manufactured in large quantities, at moderate prices, and will be used in many conditions where gold or platinum only has been applied. This is of great practical value. Another *savan* thinks he has discovered that the poisonous properties of paints do not consist in the lead, but in the turpentine. If so, that horrid disease, now so frequent, the painter's colic, may be guarded against effectually. A third ventures to say that he has learned how to discharge cannon and musket balls by electricity. Very good; but it would be extremely awkward if a shower, or natural electricity, and the like, should render his own "batteries" inactive in the midst of an engagement.

Lieut. Maury, the gentleman and the scholar, *sero in cœlum redeat*, has discovered that calms are less frequent in the South than in corresponding latitudes in Northern regions, and that there is more thunder also. (We suppose he does not include the territory of the United States in these observations.) Dr. Scoresby has discovered how the compass may be preserved from irregularities on board iron ships. It is by keeping them above the reach of the influences of the metal. We think no one will dispute that; but the only inquiry will be, how high this will be, and whether it is always the same on the same ship. We should doubt whether this last point would be answered affirmatively. Artesian Wells, it is found, are capital contrivances for draining cities, and even large districts, where the soil is diluvial, tertiary, or of chalk, or jurassic rocks. Such drainage is said to be perfect and constant. The French are trying to establish it, by law, that horse-flesh is first-rate beef. It is already common in the Paris market. We are quite willing to take this on testimony.

An important trial has just been had in the U. S. Circuit Court, in relation to Allen & Wells' Adjustible Cut-off, which has been in use upon the steamer Metropolis, of the Fall River Line. Our readers who are familiar with such machinery, will understand the point when we say that the decision declared the identity of this patent with that of Sickles. But we have prepared a short statement of this controversy upon another page. The Telegraph line between this city and Newfoundland is now completed, and is in a condition to be connected with the Transatlantic Company, which may, perhaps, be laid next summer. Our friend Fisher is also making some progress with his steam carriage for common roads. We scarcely know of any invention that would prove a greater boon to the entire public, just now, than this. Who will help him with ten, twenty, or fifty dollars, vested in the stock?

Musical, Amusements, &c.—In the line of amusement, our gay city is in rapid motion. The great king of that wonderful box of musical wires, the pianoforte, the great Thalberg, is astonishing every body. We have had great players here, but there has been no Thalberg. We are inclined to adopt the words of another, who had heard all the great orators of the day, except Daniel Webster. At last he heard him, too, and, on being questioned as to his comparative merits, replied, "When the sun rises, all the stars disappear." There is but one Thalberg in the world. We pity the cultivated mucisian who cannot listen to his wonderful touch. Many would be equally pleased, perhaps better, by the fastastics of the dancing master's fiddle. Madame Lagrange, too, remains unequalled by no vocalist we have heard, in some respects, and eclipsed only, in our judgment, in opera, by the much-lamented Sontag. She is worthy of the warm reception she always receives. Extremes meet;—we have never laughed more heartily than when looking upon the manœvers of that *great curiosity*, Little Tom Thumb. He is at Barnum's Museum, acting the part of Tom Tit, in Dred, and other characters suited to his peculiar gifts. P.

IMPORTANT PATENT CASE.

A trial of patent rights has just been had in the U. S. Circuit Court, testing the rights of certain parties in respect to certain forms of a cut-off, which was built by the Novelty Works for the steamer Metropolis, of the Fall River Line. The plaintiff, Sickles, claims that the use of this cut-off is an infringement upon his patent, or, to use the words of his attorney, "the controversy is not about a cut-off, nor yet about an adjustable cut-off—these things are old—but about an adjustible cut-off capable of adjustment while the engine is in motion, and at all points of the stroke." Mr. Allen has claimed this as his own, and he was the real defendant.

It would appear that in this engine, two inventions are combined, the one closing the valve suddenly, and the other regulating the time of effecting the cut-off. Both are claimed as Sickles' invention, but the second only seems to have been in use in this engine in the exact method described in Sickles' patent. It was operated by different means, which were original with Mr. Allen. The defense rested on two grounds—1st, that "Sickles' invention is only applicable for tripping a valve, and that in this engine the valve is not tripped; and 2d, that the patent requires that the valve should be let down by a particular device, while in this engine the valve is cased into its seat by a different device. Allen claims under his patent of 1853, known as Allen & Wells' adjustible cut-off.

The plaintiff obtained a verdict of $750 for the use of this cut-off for sixty days. We should like to give a full history of this question, with illustrations, and may do so hereafter, with its general connections. P.

THE ATMOSPHERIC TELEGRAPH.

A scientific gentleman of New-Haven, Conn., writes the following article in reference to this project. It suggests that some difficulties which it must encounter are greater than we had supposed. It was addressed to the *Scientific American*, in reply to an article in that paper: P.

Messrs. Editors:—A circular has been sent to me, from which it appears that an effort is being made to form a company for the purpose of constructing an atmospheric telegraph from Boston to New-York. In this circular an extract is given from the *Scientific American*, of which the following was the concluding paragraph:

"Suppose a line of two feet tube laid from Boston to New-York, it would contain about 4,000,000 cubit feet of air. Suppose twenty pumps of ten feet diameter and ten feet stroke are located at the Boston end, connected with the cylinder; these twenty pumps contain about 15,714 1-7 cubic feet. Suppose the pumps are worked twenty strokes in a minute, we have removed 313,285 2-7 cubic feet of air. Suppose the plunger was let in at New-York at the commencement of operating the pumps, and the pumps continued to run for fifteen minutes, in which same rate 4,714,279 2-7 feet of air would be removed, and the cylinder only containing 4,000,000, the plunger must reach Boston about as soon as this work could be performed, so far as we can see, and the same result the other way."

In respect to the *time* required to pump the air out of a pipe of the length, and under the circumstances named, the laws of nature have fixed a limit below which it cannot be reduced, whatever be the number, capacity, and speed of the pumps, for the pumps can remove air no faster than it is capable of flowing towards them, by virtue of its own inherent elastic force.

The laws which govern the flow of air by virtue of its own elastic force are given in the *American Journal of Sciences*, second series, vol. v. page 78, vol. ix. page 344, vol. xii. page 186.

Applying the principles which are developed in the articles referred to, to the case in hand, we shall arrive at the following conclusions:

1. If the number, capacity, and speed of the pumps be such as to maintain a semi-vacuum beneath the pistons, (a vacuum say of 7½ lbs. to the square inch), the air will flow in the pipe towards the pumps under half its natural density, and with a velocity of about 650 feet per second.

2. If the number of pumps be increased so as to maintain a greater vacuum

beneath the pistons than $7\frac{1}{2}$ lbs. to the inch, the flow of air towards the pumps will not thereby be increased.

3. After the pumps are put in motion, thirty minutes must elapse before the effect will be felt at the other end of the pipe.

4. Supposing the plunger to move without friction or other resistance, and the air to flow in behind it without obstruction, thirty minutes more will be required to bring it to its destination.

5. Eight pumps of the capacity and speed named will be sufficient to maintain a semi-vacuum beneath the pistons, to drive which will require the power of 4000 horses. Twenty pumps will accomplish the work in no shorter time, and will require the power of 12,000 horses. * * *

New-Haven, Conn., Nov. 8th, 1856.

[The foregoing article is from the author of the articles referred to in the *Journal of Science.*]

Recent English Patents.

SELECTED AND PREPARED BY M. P. P.

The Monster Gun of the Mersey Iron Works.—The paper, on the manufacture of the monster gun, recently read before the British Association for the Advancement of Science, by Mr. Clay, the acting manager of the Mersey Works (under whose immediate superintendence this great feat of welding was performed), coupled as it is with Capt. Vandeleur's report of the practice of the gun, puts us in possession of some details respecting the manufacture of large masses of wrought iron, that are worthy of careful notice. We therefore give a summary of these papers. The manufacture of the gun by the Mersey Steel and Iron Company was undertaken, as is now pretty well known, to prove that what was beyond the power of the government of Great Britain to accomplish, was perfectly within the scope of a single firm. But besides this, in the then aspect of foreign affairs, it was an expression of the calm confidence of England, that, in her unequaled resources, her warriors possessed the means to cope advantageously with a nation whose foresight and skill had accumulated around them the defensive labor of ages, and enabled them to "put their trust in a rock." The failure of the English government to discover, through an inquiry and by experiments set on foot for the purpose, "the best means of ascertaining those properties of metals, and effects of various modes of treating them, which are of importance to the durability and efficiency of artillery," induced Mr. Clay, as the exponent of the Company's wishes, to offer to manufacture a large wrought-iron gun, as large or larger in the bore than the one undertaken at the suggestion of the Government by Mr. Nasmyth, and to present it to the nation, free of cost, and without any condition except that it should, after proving, be immediately used against the enemy.

But let us refer to the manufacture of the gun. To those who are acquainted with the special capabilities of the Mersey Steel and Iron Company, to work up large masses of wrought iron, it could be matter of no surprise that any forging undertaken by them, would eventually be successfully completed; but that at the first trial success should be obtained, was, to say the least of it, extremely creditable. A solid block of wrought iron had to be produced of a diameter exceeding by at least one foot any forging that had heretofore been made, and it was to undergo tests of the severest kind—the service of powder for the finished gun being more than double that used for the largest pieces of ordnance in the service. The chief points to be considered by the manipulator were to obtain sound weldings, to place the iron with its fibres in the proper direction for resisting the greatest strain, and to take care that while working one part of the forging another part was not wasting (under the action of the furnace fire) below the size required. As the operation of forging was necessarily a tedious process, extending, as experience proved, over seven weeks, it was requisite to calculate beforehand the proper allowances for waste; but the chief difficulty to be anticipated was the heating of such a mass without burning or crystallizing it. In the paper above alluded to, Mr. Clay thus describes his operations: "The first thing necessary was to decide of what description of iron the gun was to be made, and I selected a strong clear iron puddled from the strongest pigs I could obtain, taking care that the iron should be worked as little as possible before it came to be put into the gun. A core was first prepared the full length of the gun, and of a certain diameter: this core, be it remembered, was meant to be bored out. A series of bars was then packed around this core, and heated and forged to the proper shape: another series of bars was packed over that, and heated and worked perfectly sound. It still required another layer of bars placed longitudinally, and even then was far from the size required. The forging, although then larger than any ever made, required to be augmented in its diameter at the breech by twelve inches, which was accomplished by two layers of iron placed in such a manner as to resemble hoops, and this being all welded sound, the forging of the gun was accomplished." Having described the mode of boring the gun, which operation presented no particular features of novelty, he concluded his paper by some remarks on the crystallization of large masses of iron by long-continued heating. "It was," he says "asserted, that iron by long exposure to great heat became crystalline in form, and weaker than cast iron, and that it was impossible to manufacture large masses of wrought iron without producing this result. It was also supposed that iron, by long heating in the reverberatory furnace, absorbed carbon from the grate, and became cast iron again. To prove the matter, I detached a portion of iron from an exposed corner of a large forging, in fact a piece of burnt iron having a crystalline appearance, and pronounced to be really cast iron. This I worked by means of the smith's fire, and found that, besides working under the hammer very well, it produced, when elongated by forging, an excellent fibrous iron, perfectly identical with the iron from which it was originally taken."

From this experiment Mr. Clay concludes that, "however iron may be crystallized by exposure to heat (or carelessly burnt, which is the same thing), its fibre may be restored by working either under the hammer or in the rolls."

The official report of Captain Vandeleur, gunnery inspector at the Royal Gun Factories, Woolwich, states that the monster gun consists of a single piece of wrought iron, with the exception of the trunnions; these are fixed to a large hoop, surrounding the body of the gun, shrunk on. This hoop is likewise kept in its position by a "securing" hoop.

The following are some of the chief dimensions: Length of gun, 15 feet 10 inches; diameter of base ring, 3 feet 7½ inches; diameter of muzzle, 2 feet 3½ inches; diameter of trunnions, 3 feet 3¾ inches; diameter of trunnion hoop, 4 feet 2¼ inches; length of bore, 13 feet 4 inches; diameter of bore, 13.05 inches.

The present weight of the gun is 21 tons 17 cwt. 1 qr. 14 lbs.

The mass of wrought-iron of which the gun was made, before turning or boring, and without the trunnion hoop, weighed upward of 25 tons.

Fresh puddled iron was chosen for its construction, in preference to "scrap," as being less liable to flaws. Of this, upwards of 50 tons are said to have been consumed; so great is the loss of metal in the fire and under the hammer at welding heat.

The furnace employed is a reverberating one, the fuel coal, and the hammer that termed "tilt," this being preferred to Nasmyth's "steam hammer;" its weight is 15 tons. The most experienced men in Messrs. Horsfall's employ were chosen for the work, and the diameter is greater than that of any forging ever made by them.

The mode of operation was as follows: A number of small rolled bars, averaging about 6 feet, were first welded together, until the proper length was obtained—the form being circular, and diameter 16 inches. This is the usual mode of proceeding in making the propelling shafts in screw steamers. Two layers of broader and thicker bars were then added—the first taking a diagonal direction to the right, the next crossing the first nearly at right angles, and taking a diagonal direction to the left. This increased the mass to upwards of two feet, the length being about 17; the remainder was made up by adding broad plates, in circles, at right angles to the axis. After each important addition, a "securing heat" was given to prevent flaws. The iron was not puddled from any particular brand, but was composed of a mixture of several, according to the experience of the firm. The forging was accomplished in seven weeks. In turning the exterior, no flaws were found, but in boring, one was found at each end; that at the muzzle was soon bored out; from that to within an inch of the end of the bore the forging proved perfectly sound. A serious flaw was then discovered in the center of the breech, extending several inches into the metal. As boring it out would have weakened the breech too much, it was determined to fill it up; and for that purpose a hole, slightly conical, 8 inches in diameter and four deep, was bored, into which a plug was driven with great force. Another trifling flaw extends from the edge of that plug to the side of the bore, 2 and a half inches in length by 3 and a half in depth; this is the only flaw now visible in any part of the gun. The turning was not carried on without intermission, and therefore occupied about two months. The gun was ready for trial about four months after it was commenced.

A rough carriage and platform, of a very suitable description, was constructed for it by Messrs. Horsfall, on which the gun was placed, at a point of the north shore of the Mersey, about nine miles north of Liverpool, near Formby lighthouse. To get it into position the gun had to be transported over the sand for 300 yards, which, notwithstanding the great weight, and the softness of the sand, was successfully accomplished.

The trial of the gun took place on the 22d inst., at the request of the owners. Two preliminary rounds with light charges were fired. After which the two proof rounds, with charges of 45 lbs. powder and a service shell filled with lead, and one wad. The gun having stood these tests in a most satisfactory manner, further experiments were carried on during the following day, for the purpose of ascertaining its range and accuracy.

Messrs. Horsfall were desirous of ascertaining what would be the effect of such large projectiles as their gun is capable of throwing, against the wrought-iron plates used in the construction of our floating batteries. One round was therefore fired against one of these plates. The dimensions of the plate were 3 feet 9 inches by 2feet 9 inches (weight 17 cwt.) by 4⅝ thick. This was placed at a distance of 120 yards from the gun, and was supported by nine balks of timber, 6 feet long by 14 inches square, against the end of which the plate was fixed. The timbers were secured by nailing cross-planks to them, and piling the sand around.

The gun was laid at point-blank, and loaded with twenty-five pounds powder and a solid shot, weight 282 lbs.: it struck the plate a little to the left of the center, and drove the portion against which it struck to a distance of 300 yards. One third of the plate was broken off; the shot was also broken and the fragments scattered around, some of them falling 200 yards to the left of the target: the timbers were driven to some distance.

On examination, after firing, the gun was found perfectly uninjured; the plug in the breech was slightly driven home, and the appearance of the flaw was unaltered. *The gun is now quite fit for service.*

Owing to the peculiar form of the traversing platform, much difficulty was experienced in altering the direction of the gun: this will account for the deflection, right and left. Had greater facility for traversing existed, I have little doubt that each shot would have struck a target 12 feet square, at a distance of 2000 yards.

This gun has been manufactured by Messrs. Horsfall, at an expense of £3500. As the condition on which they originally offered it to Her Majesty's government, that of being used against the enemy, can no longer hold good, these gentlemen are willing to put it at the disposal of the Government, for further experiment free of all expense. Their only wish is, that Her Majesty's government should declare the gun to be fit for service, and by so doing, acknowledge that Messrs. Horsfall have been successful in their untertaking, and have accomplished that which, by the scientific world, has hitherto been deemed impracticable—the construction of a sound 13-inch wrought-iron gun.

An Improved Safety-valve. By Mr. John Ramsbottom, of Manchester.—Upon the man-hole cover two brass pillars were bolted and bored out at the upper ends to serve as seatings for the conical valves in the ordinary manner. The valves are loaded by the cross-bar, which is elongated at one end, to form a handle, to enable the engine-man to ascertain the working condition of the valves and the approximate pressure of the steam. To this bar is attached, at a point mid-way between the valves (when these are of equal size), and rather lower than the points which press upon them, a helical spring of sufficient strength to resist the pressure upon both valves, and the pressure is regulated by nuts and a bridle that holds down the spring. To provide against the valves being blown away in the event of the spring breaking, the lower part of the cross-bar is passed through a slot in a guard, pivoted into the tops of the main pillars; and a shoulder made on the bridle, being unable to pass through the slot, prevents the valves being blown away. To compensate for the very slight difference that may arise in some cases (in the valves of large steamboats for instance), between the distance of the centers of the valves and the distance of the points of the cross-bar, owing to the greater expansion of the former, the writer proposes to make one of the bearing points upon the cross-bar loose; this is not necessary, however, where the dimensions are small.

A similar arrangement may be adopted with the spring sunk in a well or recess in the man-hole cover, and the chance of failure may be provided against by a cover plate corresponding to the guard above mentioned. It is evident that under any form the valves constructed upon this principle cannot be easily tampered with; and a brass funnel may be placed over them in the ordinary manner.

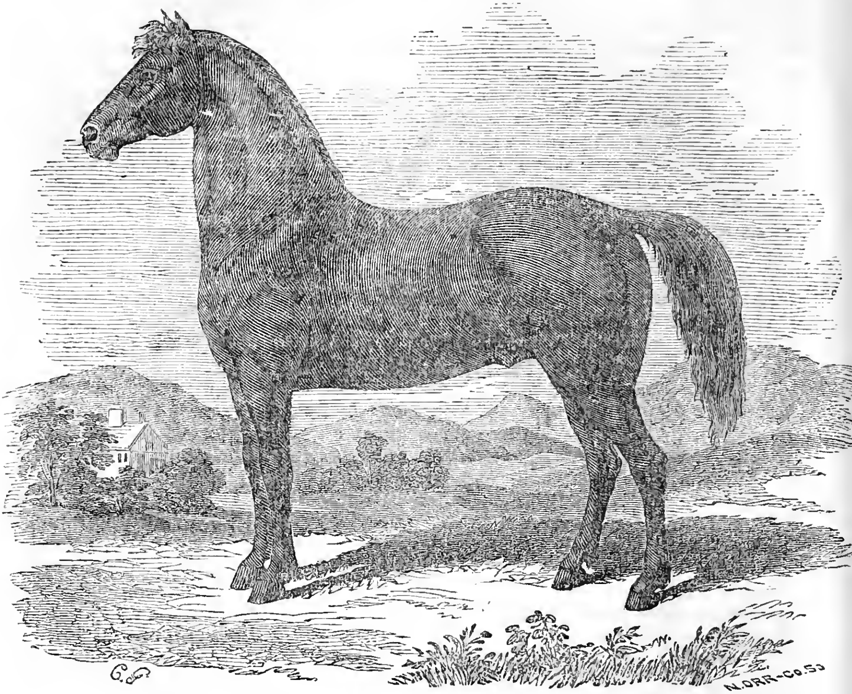
The valves being equally loaded and of equal size will be bodily and simultaneously lifted together with the cross-bar, when the steam-pressure exceeds the proper limit, and the spring will be elongated through a range equal to the lift of the valves and no more; so that, except when the engine-man is testing the action of the valves, there is no movement in the joints of the apparatus, and therefore no friction.

A spring of five-eighths-inch round steel, and about 7 coils, is sufficiently strong to load two 3-inch valves to 80 lbs. pressure per square inch; and in order to load them to this extent, it will have to be stretched about $1\frac{3}{4}$ inch, or .218 inch for each successive increase of 10 lbs. pressure per square inch.

The new valves are found be very sensitive, having such freedom of action as to get into a state of vibration, producing in some cases a musical note when at the point of blowing off; and they allow the steam to blow off more freely than other safety-valves, under a given excess of pressure. The arrangement of the two valves under one lever is the same as in Mr. Fenton's safety-valve, but the object had been to increase the lift of the valves—making it equal to the full extension of the spring, and also to dispense with the spring balances. The point of attachment of the spring is rather below the level of the two points bearing on the valves; so that, in the event of one valve lifting before the other, it is overloaded, the other being proportionately relieved; this tends to secure their simultaneous action.

The Best Ice Cream.—Our best confectioners, in making their creams, use about 8 ounces of loaf sugar to every quart of cream. To flavor 4 quarts of cream with vannilla, requires a bean and a half boiled in a little milk. If with lemon, the outer rinds of three lemons should be grated very fine, or six drops of oil of lemon for every four quarts of cream. Four quarts of good cream will make seven quarts of ice cream, if well beaten; while thin, milky cream will increase but little, and never become perfectly smooth. The ice should be fine, and put in the freezer with alternate layers of salt—say about two quarts of salt to an eight quart freezer—the ice and salt as they work down to be filled up.—*American Farmer.*

Miscellaneous.



MEMOIR AND DESCRIPTION OF THE JUSTIN MORGAN, AS PORTRAYED ABOVE.

The original, or Justin Morgan, was about fourteen hands high, and weighed about nine hundred and fifty pounds. His color was dark bay, with black legs, mane and tail. He had no white hairs on him. His mane and tail were coarse and heavy, but not so massive as has been sometimes described; the hair of both was straight, and not inclined to curl. His head was good, not extremely small, but lean and bony, the face straight, forehead broad, ears small and very fine, but set rather wide apart. His eyes were medium size, very dark and prominent, with a spirited but pleasant expression, and showed no white round the edge of the lid. His nostrils were very large, the muzzle small, and the lips close and firm. His back and legs were perhaps his most noticeable points. The former was very short, the shoulder-blades and hip bones being very long and oblique, and the loins exceedingly broad and muscular. His body was rather long, round and deep, close ribbed up; chest deep and wide, with the breast-bone projecting a good deal in front. His legs were short, close jointed, thin, but very wide, hard and free from meat, with muscles that were remarkably large for a horse of his size, and this superabundance of muscle exhibited itself at every step. His hair was short, and at almost all seasons soft and glossy. He had a little long hair about the fetlocks, and for two or three inches above the fetlock on the back-side of the legs; the rest of the limbs were entirely free from it. His feet were small but well shaped, and he was in every respect perfectly sound and free from any sort of blemish. He was a very fast walker. In trotting, his gait was low and smooth, and his step short and nervous; he was not what in these days would be called fast, and we think it doubtful whether he could trot a mile much, if any, within four minutes, though it is claimed by many that he could trot it in three.

Although he raised his feet but little, he never stumbled. His proud, bold and fearless style of movement, and his vigorous, untiring action, have, perhaps, never been surpassed. When a rider was on him, he was obedient to the slightest motion of the rein; would walk backwards rapidly under a gentle pressure of the bit, and moved side-ways almost as willingly as he moved forward; in short, was perfectly trained to all the paces and evolutions of a parade horse; and when ridden at military reviews, (as was frequently the case,) his bold, imposing style, and spirited, nervous action, attracted universal attention and admiration. He was perfectly gentle and kind to handle, and loved to be groomed and caressed, but he disliked to have children about him, and had an inveterate hatred for dogs, if loose always chasing them out of sight the instant he saw them.

When taken out with halter or bridle he was in constant motion, and very playful.

Originality.—A subscriber—one only, so far as we know—desires more editorial and less selected matter—rather flattering to us, as it implies, in his mind, a higher estimate of our articles than we should dare put upon them, in comparison with our selections, which we make with great care and pains-taking, often with more labor even than that of writing, and that from several hundred of the very best writers in the world. We hope our own articles may be found readable and instructive, but we are not so vain as to wish them to push out all others. We want to avail ourselves of the best thoughts of our cotemporaries, as they do of ours, not for the purpose of shirking the labor of writing, but for that of giving our readers a richer and more varied treat. That is not the best journal, which is written wholly by its own Editor, draining, it may be, a shallow brain to the quick, and leaving little time for study, or, what is more important, for consultation with the working farmers at their homes; nor that which is concocted by a set of paid writers, so paid by the yard, that the longer's the yarn the more's the pay; but that whose editor writes well and selects better, *learns* before he teaches, when he has had his say, lets his cotemporary journalists have theirs—lets them advertise their wares in his journal, yes, generously, by selecting their most tempting articles—thus making the corps editorial a brotherhood, each working for the benefit of the readers of all, and making each journal a reflection, not of one or a few, of many able minds. On these principles the *Plough, Loom and Anvil* has been conducted from the beginning; and its back volumes are among the very best agricultural books yet published. They would not lie on our shelves another week if their real value was known. Whether we shall be able to make the work still better than in those palmy days of its first Editor, the lamented Col. Skinner, remains to be seen. We shall try. N.

Husband Politeness.—"How seldom do we meet with people, united by the intimate relations of husband and wife, brother and sister, parent and child, who are habitually courteous—that is to say, unselfish towards each other. Most unusual is it to meet a husband and wife whose manner towards each other is at all what it ought to be. All the formality assumed in company does not veil the disrespectful and contemptuous familiarity of more private life. We have seen many men who would throw away cigars at the approach of a strange lady, but who would never hesitate one moment to make their wife's sitting-room smell like a bar-room; and though we should think it a badly arranged home, where no arrangements are made to keep people's indulgences from inconveniencing each other, and her a bad wife, who allowed no place for cigar-smoking, still we do not consider that he acts with true gentlemanly spirit towards his wife who will give the whole house a smell of stale tobacco, rather than walk ten steps, even if his wife be so truly a lady, and acts in so genuine a spirit of self-sacrifice, that she does not let it be seen that she is sacrificing."—[Ex.

If a lady, with whom you are acquainted, and whom you know to possess a fair all lowance of candor and sincerity, tells you, that the smoke of a fine cigar, or of a clean pipe even, is not offensive to her, you may believe her; for this is not disagreeable to all; but is, on the other hand, to many a source of pleasure. Children are seldom annoyed by fresh tobacco smoke, especially if it come from the lips of those they love The time is fresh in our memory when we used to climb upon grandpapa's knees, and the more he smoked about our face and ears the louder we laughed. But if a lady tells you that the smell of stale tobacco—of a room where smoking is habitual—is not annoying, and mortifying too, if in her own house, however candid and sincere she may otherwise have shown herself, you need not believe her. It cannot be that the dead, musty odors of a smoker's apartments are agreeable to any one; and if a lady should tell us that they are so to her, we should suspect—the ladies must pardon us—that she fibs a little. We would sooner be where fifty smokers *are* than where one *has been*.—Eds. P. L. & A.

Strawberry Beds.—If you will as soon this month as convenient give your beds a good dressing of short, well-rotted stable manure, broken up finely—as solid lumps may press too heavily upon the plants—previously applying a tolerable sprinkling of wood ashes, if at hand—the plants will be preserved in fine, vigorous health, and will take a very early start when the season again opens. In the spring, very little of the manure, if any, need be removed—the plants will strike through the covering energetically, *and the top dressing will act as a mulching, preserve the ground in a properly humid state, and prevent the growth of weeds.* We follow this plan with entire success, and do not remember seeing a single weed in any of our beds the past season.—*Germantown Telegraph.*

We would suggest, with great respect for the Editor of the *Telegraph*, that, if the three-fourths of the manure to be so applied with wood ashes, were well cured swamp muck, the dressing would be cheaper, and quite as good for the purpose. Few are aware that well-cured swamp muck (that which has been up and washed and sunned six months or a year) is almost precisely the same thing, as well-rotted barn manure, with the exception of such active salts as are contained in the manure, but not in the muck. In other words, well-cured muck *with* ashes, is about the same as well-rotted manure without them. If, then, a mixture of manure and muck were applied, instead of all manure, a few more ashes would be required, and then the application would be veritably the same thing, but less expensive.

The Necessity of Drought, and its Benefits.—The State Agricultural Chemist of Maryland, Mr. Higgins, published a paper showing the necessity of droughts to replenish the soil with mineral substances, carried off to the sea by rains, and also taken by the crops, and not returned by manure. These two causes, also, in operation, would, in time, render the earth a barren waste, in which no verdure would quicken, and no solitary plant take root, if there was not a natural counteraction by drought, which operates to supply this waste in the following manner: During dry weather, a continual evaporation of water takes place from the surface of the earth, which is not supplied by any from the clouds. The evaporation from the surface creates a vacuum, so far as water is concerned, which is at once filled by the water rising up from the subsoil of the earth; the water from the subsoil is replaced from the next strata below; and in this manner the circulation of the water is directly opposite that which takes place in wet weather. With this water also ascend the minerals held in solution, the phosphates of lime, carbonate and silicate of potash and soda, which are deposited in the surface soil as the water evaporates, and thus restore the losses sustained as above stated. The author of this theory appears to have taken considerable pains to verify the fact by a number of interesting experiments. The subject is worthy the attention of men of leisure and of education, who pursue the rational system of blending chemistry with agricultural science.

A just inference from the above is, that irrigated lands will deteriorate, unless the water be very rich in mineral matters; and even in that case it can hardly fail to exhaust the land, if the irrigation be continued the whole year. It should be suspended at times, that the upward flow of water, spoken of by Mr. Higgins may take place, bringing up the soluble salts from below. N.

CANADA THISTLES.—These, cut early, make an agreeable nutritious fodder, especially for horses in winter; and therefore their growth on a farm is not altogether a loss: but in cultivated grounds they are one of the worst pests with which the soil can be afflicted. How can they be eradicated? Salt sown so thick as to kill every thing else, will kill them; but by this system the use of the ground is lost for one year. Sowing the land early to buck wheat, so that this, which grows fast, may overtop and smother the pests, will kill them. This will also stifle witch grass to death. Or, harrowing or plowing the land several times during the season, particularly if it proves a dry one, will in time eradicate them.

Above all, don't let one go to seed on private ground or in the public highways. Cut them down now.—*Drew's Rural Intelligencer.*

Just so; if they have already grown, make the best possible use of them, but don't let any more grow, either on your land, or on the adjoining highway, unless you mean to be a bad farmer and a bad neighbor. N.

THE laboring classes sustain all others. The fruit of their toil is the wealth of the nation. Our commerce, our manufactories are equally dependent on them.

If your college (agricultural and mechanical) needs a hundred thousand dollars to begin with, your farmers have but to order the money appropriated, and it will be found. Let your societies, your country societies, but once earnestly take the matter in hand, and it will easily be accomplished.

To whom do your State funds belong? Who pay the taxes? Who are the most numerons class in your State? And I may ask, who have been the last to be served in their great interests from the public treasury?

The response is at hand. And will this state of things continue? Farmers must answer NO.—*Judge Jessup.*

TRUE.—A family is a State in miniature. Every work of necessity performed by its members, increases its wealth. A State, manufacturing and producing all the necessaries of life, is in a healthy condition financially and morally. It is wealthier, by retaining in the hands of her people the money paid for articles imported. Thus we see that labor is wealth. Every family is wealthy in proportion to the ability of its several members, collectively to produce all that may be necessary for its wants.—*Ex.*

So is every State; and it is a primary duty of every government to hasten, by all judicious means, such a result. N.

BEAUTIFY YOUR HOME.—Every man should do his best to own a home. The first money which he can spare ought to be invested in a dwelling, where his family can live permanently. Viewed as a matter of economy, that is important, not only because he can ordinarily build cheaper than he can rent, but because of the expense caused by a frequent change of residence. A man who early in life builds a home for himself and family will save some thousands of dollars in the course of twenty years, besides avoiding the inconvenience and trouble of removals. Apart from this, there is something agreeable to our better nature in having a home that we can call our own. It is a form of property that is more than property. It speaks to the heart, enlists the sentiments, and enobles the possessor. The associations that spring up around it, as the birthplace of children—as the scene of life's holiest emotions—as the sanctuary where the spirit cherishes its purest thoughts, are sure as all value; and whenever their influence is exerted, the moral sensibilities are improved and exalted. The greater part of our happiness of to-day is increased by the place where we were happy on yesterday, and thus, insensibly, scenes and circumstances gather up a store of blessedness for the weary hours of the future! On this account we should do all in our power to make home attractive. Not only should we cultivate such tempers as serve to render its intercourse amiable and affectionate, but we should strive to adorn it with those charms which good sense and refinement so easily impart to it. We say easily, for there are persons who think that a home cannot be beautified without a considerable outlay of money. Such people are in error. It costs little to have a neat flower-garden, and to surround your dwelling with those simple beauties which delight the eye far more than expensive objects. If you will let the sunshine and dew adorn your yard, they will do more for you than any artist. Nature delights in beauty. She loves to brighten the landscape and make it agreeable to the eye. She hangs the ivy around the ruin, and over the stump of a withered tree twines the graceful vine. A thousand arts she practices to animate the senses and please the mind. Follow her example, and do for yourself what she is always laboring to do for you. Beauty is a divine instrumentality. It is one of God's chosen forms of power. We never see creative energy without something beyond mere existence, and hence the whole universe is a teacher and inspirer of beauty. Every man was born to be an artist so far as the appreciation and enjoyment of beauty are concerned, and he robs himself of one of the precious gifts of his being if he fails to fulfill this beneficent purpose of his creation.—*Southern Times.*

SALMAGUNDI.

Webster defines this word;—1. "A mixture of chopped meat and pickled herring, with oil, vinegar, pepper and onions; 2. A mixture of various ingredients." In its last sense, we use it as the heading of the following original and selected matters.

Drainage.—Of the importance of drainage as a means of meliorating the soil, most persons are not sufficiently aware—none but those who have witnessed the good effects of this process, can properly appreciate its great benefits; for it has been well and truly said, that by draining the soil is kept from being too wet, and also preserved from the effects of drought—that it is warmed by the summer showers, and escapes the chilling influence of excessive moisture, and is kept from being baked by excessive heat—that it is percolated by currents of the all-pervading air, laden with treasures of food for the plants, while at the same time the cutting blasts of wind pass harmlessly over, without drying out all the moisture, and producing excessive cold by evaporation.—*American Farmer.*

The Selma (Ala.) *Gazette* states that M. Dillard of that place, has grown 80 acres of "Boyd Cotton" this season, the yield of which has been very great—100 well-formed bolls being formed on a single stalk, on an average.—*Ex.*

The Crops in France.—The merchants of Marseilles, it is said, having ascertained that the wheat harvest will not be sufficient for the home consumption of all France, are beginning to suggest to the government, through their local papers, that a repeal of the corn laws would be indispensable, or at least an extension of the imperial decree, which permits the free importation of corn, and which expires on the first of January next. Although two millions of hectolitres of wheat have been imported within two months, through the port of Marseilles, it would be impossible by the end of the year to make up the great deficiency which exists.—*American Farmer.*

Cisterns, and How to Make them.—We have had several inquiries relative to the art of making cisterns. Where bricks are to be had they are easily constructed with the aid of water-lime. The mortar should be composed of one part water-lime to two parts of good sharp sand, and made in such quantities only as can be immediately used. Good cisterns of a moderate size can be made easily from inch and a half plank, well jointed together, hooped like a barrel, overlaying the bottom with coatings of the cement until it is water-tight. Where the soil is loose, and the plank would be liable to leakage, a coating of the mortar, if rightly put on, will render the cistern thoroughly tight. In building cisterns with filters, it is necessary to have a water-tight division in the cistern, on one side of which the supply of water is received. At the bottom of this division, is a thick layer of clean sand through which the water has to pass to get to that division from which the water is drawn. The art of making these filtering cisterns is simple, and they can be easily constructed by any good mechanic.—*Mich. Farmer.*

Dioscorea Batatas.—*Eds. Prairie Farmer*: I obtained some of the Chinese potato (sections of the root) last Spring, of Elwagner & Barry, at six dollars per dozen. I prepared the ground by spading and thoroughly pulverising to the depth of two feet, and planted them the last of April, covering two inches. They came up about the tenth of June. In the course of the summer the vines made a growth of some two feet. I tried layering them to produce tubers—covered them carefully, watered freely, and kept in good condition, but could not possibly induce them to strike root. The frost of Sept. 20th entirely killed the vines. I have now just taken the roots from the ground. In length they are from 10 to 20 inches. They are the largest at the bottom, and taper regularly to the top. The largest diameter was one inch at the bottom, and one-sixth of an inch at the top. We cooked one of them with pink-eyes of much larger size. The pink-eyes baked in 35 minutes, the Chinese potato in 60. In flavor it somewhat resembles the Irish potato; but is not, in my estimation, at all to be compared with the best varieties. It leaves a slightly disagreeable pungent sensation in the mouth. Shall the great Dioscorea be pronounced a humbug? I will not pretend to decide that question, Messrs. Editors; but I am inclined to think, from my limited experience, that it has strong claims to be placed in that category. Possibly I may undervalue it. Let me have the experience and opinions of others.

J. P. Eames, in *Prairie Farmer.*

Mendota, Ill., Oct. 20, 1856.

☞ We desire the Prairie Farmers all over the land to take particular notice of this article, and if any of our readers have had similar or contrary experience, we shall be happy to publish it. We have no desire to condemn any thing that is really meritorious, nor are we disposed to wrong any one, but we *are* disposed to mete out *justice* to all who have to do with the interests of the farmers of the West. Justice will *injure* no one.—[Eds. *Prairie Farmer.*

This is right. Will those who have tried the Dioscorea give the facts to us also. We wish justice to be done to the farmers of the West, and everywhere else, and to all.—Eds. P. L. and A.

A New Species of Corn.—We have made trial of the Wyandot Corn, at Roslyn, on Long Island, the present season. About a quarter of an acre was planted from a single ear received from Mr. J. C. Thompson, of Tompkinsville, Staten Island; a grain in each hill. The soil was not entirely suitable to this kind of corn, or, indeed, any other, with the exception of about one quarter of it, where there was a good rich mould. In that part, also, the mice did considerable damage by eating the grains before they came up. The experiment on the more fertile part of the spot planted with this corn was perfectly satisfactory. From each grain sprouted from four to eight or nine vigorous stalks, ten or twelve feet in height, on each of which was one and sometimes two ears. The corn will ripen well this season. From our experience of its cultivation we should think it a variety worth trying extensively in this neighborhood, and have no doubt whatever of its being a most valuable and desirable sort for those parts of the United States where the corn season is a little longer than here, on account of its extraordinary power of reproduction, yielding, as it does, eight or ten ears to a single grain committed to the earth.—*N. Y. Evening Post.*

All leguminous plants, to which the clover belongs, are always greatly benefited with a sprinkling of Plaster of Paris over the leaves, when wet from dew or rain; and it will, therefore, be very beneficial on the clover.—*South Cult.*

Fast Horses and the Fast Use of Them not Exactly the Thing for Farmers.—A valued correspondent, one who we presume has no objection to a little fun and frolic in an innocent way, certainly not a Puritan nor a Blue Light, says:

It has seemed to me of late, that there is great danger of the attention of our farmers being diverted from their legitimate objects, by the encouragement given to *fast horses*, and their usual accompaniments. *Fast horses* are not useful to the farmer, and the *fast use* of them is not creditable to any one.

Our own Matters again.—A liberal response to the proposition in our last for the formation of clubs of three or more, to take our journal at $2 00 each through an agent, or at $1 50 each if some of the club will collect and forward the money without charge to the rest, induces us to repeat the proposition, and to request our readers to lay it before their neighbors and friends. This they can do in their ordinary intercourse, without consuming much of their time, and greatly to our advantage, for which they shall not fail of our hearty acknowledgments.

This implies no change in our prices. They are still (for the current volume) $3 00 for a single subscriber, $2 50 each for two, and $2 each for three or more. But it throws the benefit of a commission in favor of subscribers, who choose to avail themselves of it, by paying us each $1 50 directly, instead of paying $2 00 each to an agent, and leaving us to pay him a quarter of the amount.

The evenings are now long, and are growing longer. Will our readers consider the benefit of such a journal as *The Plough, Loom and Anvil* in their neighbors' houses at this time, and jog them on the subject.

Book Notices, Etc.

Morgan Horses: A Premium Essay, *on the Origin, History, and Characteristics of this remarkable* American Breed of Horses, *tracing the pedigree from the* Original Justin Morgan, *through the most noted of his progeny, down to the present time; with numerous portraits; to which are added Hints for Breeding, Breaking, and General Use and Management of Horses; with practical directions for training them for Exhibition at* Agricultural Fairs. *By* D. C. Linsey, *of Middlebury, Vt.* New-York: C. M. Saxton & Co., Agricultural Book Publishers, No. 140 Fulton street. 1857.

On another page will be found a portrait and a brief description of the celebrated Justin Morgan, which we esteem well worth the space they occupy, as means of enabling the reader to judge of the characteristics of a good horse.

The work indicated by the above title is one which has been long wanted, not only by horse breeders, but by all who own and use horses, by reason of its plain, useful directions for their management. The best commendation we can give of it is to say that it received the first premium of the Vermont State Agricultural Society, and to copy its table of contents, as we do below, assuring the reader that every chapter is in our opinion, well executed.

I. The Most Esteemed Races of Horses, and the Kinds of Service to which they are Adapted. II. Contrast between the Kinds of Service Required of Horses Formerly, and at the Present Day. III. Description of the Kind of Horses most sought for in the Principal Markets of the country. IV. Peculiar Adaptation of the Morgan Horse to the Road and General Use. V. Origin of the Morgan Horse. VI. Memoir and Description of the Justin Morgan. VII. History and Description of the Stallions sired by the Justin Morgan. VIII. General Description of the different Families and their Distinguishing Characteristics. IX. Present Condition of this Stock in Vermont. X. Performances of Morgan Horses; the Demand for them, and their Present Value as Indicated by Sales. XI. Hints as to the Best Methods for Improving and Perpetuating the Breed. XII. Hints in Relation to Breaking and Driving. XIII. The Proper Manner of Feeding and Driving upon the Road. XIV. Hints to Purchasers of Morgan or other Horses. XV. Pedigrees and Description of Stallions.

The Illustrated Annual Register of Rural Affairs and Cultivator Almanac for 1857, *embellished with one hundred and thirty Engravings.* Luther Tucker & Son, 307 Broadway, Albany, and C. M. Saxton & Co., 140 Fulton street, New-York.

This is the third No. of an excellent series. It contains, like its predecessors, a great amount of matter on farming, gardening, fruit-growing, and other subjects, interesting to all cultivators, whether of a large farm or a ten-foot garden, and almost equally valuable to every family wishing to learn something of those rural affairs and interests, about which no one living should be ignorant.

The Dog and the Gun; *a few loose Chapters on Shooting, among which will be found some Anecdotes and Incidents*. By Johnson J. Hooper, of Montgomery, Ala. C. M. Saxton & Co., Agricultural Booksellers, 140 Fulton street, New-York.

We do not think much of this book, as compared with many of great value published by the same firm. But then that is owing to our own oddity, and is no fault of the book. The book is a good one in its way; and teaches in an agreeable style a great many things about gunning, hunting, training dogs, etc., etc. Let all buy it who want a book on those subjects. We have no objection to boys hunting, if they won't kill the birds that would otherwise destroy the insects which ruin the farmer's crops. If they do that—we won't say what till we get cool.

Address of Hon. Wm. Jessup before the New-York State Agricultural Society, at Watertown, Oct. 3, 1856. Published by the Society.

This is a valuable production, practical, instructive, containing some remarkably fine paragraphs, as will be seen by our extracts in another part of this number. It is all good; and our only fault with it is, that it is not *as good as* Judge Joseph *could* have made it.

Glances and Glimpses, or, Fifty Years Social, including Twenty Years Professional Life. By Harriet K. Hunt, M.D. Boston: John P. Jewett & Co. 1856. 12mo, 418 pages.

We have long had female authors and female preachers, and now have female doctors; and if in the last two positions women will do as much for the race as they have in the first, no one can fail to give them reverence. But we see no evidence of such promise. Female autobiographies are not unknown. The book before us adds to the number. To the friends of these writers, such works must be suggestive of many pleasing remembrances, and be highly valued. Beyond this circle, they are but little esteemed, unless the writer is a public character, in which the public have an interest. As to this book, we have time only to glance at it. The author seems full of religious sentiment, and now and then, at least, drops a beautiful thought. She repeats the story of the wrongs of woman, and has some little reason for it. But it is not true that "she is denied a finished education," nor is it true that she generally avails herself of the advantages she actually possesses. Those who believe that the practice of medicine belongs alike to both sexes will take a lively interest in this history. On this question we have our own opinion. We often see reason to be offended at the want of true feminine delicacy, but we as often see a false delicacy that is not even a shadow of the true, and in the multiform necessities which demand professional advice in the practice of medicine, we could give statements, from our friends in the medical profession, which show that those of the best reputation are not, in general, the most troubled in imparting the information the physician ought to know. Opinions here may vary, however. But if any, of either sex, wishes to become a physician or surgeon, we know of no reason why any mortal should object. One's pursuit in life ought surely to be chosen freely and not by compulsion just as one would choose a wife or a husband. We have seen women that would make capital policemen. Many would make themselves distinguished in either of the professions. It is a mere matter of taste. Ladies, walk in. The door is open.

The Communion Sabbath. By Nehemiah Adams, D.D., pastor of the Essex-street church, Boston. John P. Jewett & Co., Boston. 12mo, 208 pages.

The appearance of this volume, in its typography and binding, is honorable to its publishers and to American art, and in these respects it deserves a place among the keepsakes of the holidays. Before opening its pages, we were prepared to find an excellent book, for the author's well-known ability and peculiar style of writing, is specially fitted for such topics. An examination of the book cannot fail to satisfy every reader of the correctness of our opinion. It is one of the gems of the season.

THE BIBLE HISTORY OF PRAYER, *with Practical Reflections.* By CHARLES A. GOODRICH. John P. Jewett & Co., Boston; Jewett, Proctor & Worthington, Cleveland, Ohio; and Sheldon, Lamport & Blakeman's, New-York. Pp. 384, 12mo.

This is a Bible History of the intercourse of believers with heaven through a space of four thousand years, interspersed with various historical facts, and enriched with illustrative anecdotes. The conception of the author—to make the eminently pious of other ages our teachers by example—is a good one, and well has he executed it. The book will be likely to become a standard work on that subject.

SABBATH TALKS ABOUT JESUS WITH LITTLE CHILDREN. By the author of the Mothers of the Bible. John P. Jewett & Co., Boston. Pp. 139, 18mo.

This is what its name imports—a book for small children—and is well adapted to benefit that class. Some of the points familiarly illustrated are, that Jesus was obedient, truthful, meek, patient, faithful, persevering, courteous, kind and considerate, prompt and punctual, prudent and careful, pleased not himself, went about doing good, loved the Bible, was prayerful. It will not injure children of a larger growth.

MARTIN AND JOHNSON'S SPLENDID QUARTO EDITION OF SHAKEPEARE, is nearly completed. We have quite overlooked it, in our increased cares, of late, but we perceive that forty-four numbers in all, have been received, and others, we understand, are already published. There is no edition so handsome as this, or so elegantly illustrated, in our market. We commend it to the lovers of this great dramatist through the whole country. Price 25 cents a single number.

List of Patents

ISSUED FROM THE U. S. PATENT OFFICE FROM SEPT. 30 (THE TERMINATION OF THE PREVIOUS LIST) TO OCTOBER 28.

Hubbard Bigelow and Mortimer M. Camp, New-Haven, Conn., improved ring bolt for ships' and boats' tackle.

J. F. Boynton, Syracuse, improvement in soda fountains.

Wm. O. George, Richmond, Va., improvement in bumper arrangements for uncoupling railroad cars.

George W. Childs, Liberty, Pa., improvement in vegetable cutters.

Joel W. Cormack, Quincy, Ill., improvement in smut mills.

Cyrus Chambers, Jr., Kennett Square, Pa., machine for folding papers.

Wm. Drips, Coatesville, Pa., improvement in harvesters.

Elias A. Eliason, Georgetown, D. C., improvement in the construction of hide frames in tan vats.

Wm. M. Ellis, Washington, improvement in buoys.

Lewis M. Terry, Chicopee, assignor to James T. Ames, of same place, improvement in hose coupling.

Geo. Gilbert, Westville, Conn., for fly-trap.

Benjamin F. Field, Beloit, Wis., improvement in machines for mixing mortar.

David Allen Goodnow, Baldwinville, Mass., impovement in attaching scythes to snaths.

Augusta Jouan, San Francisco, arrangement of elastic plate paddles for steam vessels.

Edwin Kilburn, Artemas Kilburn and Cheney Kilburn, Burlington, Vt., improved method of bending wood.

Israel Kinsey, Hoboken, N. J., improvement in feeding pulp to paper-making machines.

Samuel Krauser, Reading, improved method of measuring fluids while drawing.

Wm. Lewis and Wm. H. Lewis, New-York, assignors to Malonzo J Drummond, of same place, for plate-holder for photographic cameras.

Israel S. Love, Beloit, Wis., improvement in harvesters.

Andrew W. Putnam, Brooklyn, improvement in machinery for cleaning wool.

Owen Redmond, Rochester, improved sash lock.

Charles C. Reinhardt, Baltimore, improvement in glass or earthen truss pads.

Chas. Spofford, Amesbury, Mass., improved ma china for cutting irregular forms.

Caleb O. Walworth, Boston, improved machine for finishing gas-pipe fittings.

Wm. E. Ward, Port Chester, improvement in nut-machines.

Caleb C. Walworth, Boston, improved vise.

Geo Ichabod Washburn and Ephraim H. Bellows, Worcester, improvement in brick machines.

Alex. J. Walker, New-York, improved bracket for door springs.

Wm. B. Wood, Fitchburgh, improved hoop mahine.

Benj. F. Sturtevant, Skowhegan, Me., assignor to Elmer Townsend, of Boston, improvement in pincers for lasting boots and shoes.

Milton D. Whipple, Charlestown, assignor to A. B. Ely, of Newton, Mass., improvement in cutting round files.

Wm. P. Coleman, New-Orleans, improvement in millstone dress.

Carlos French, Seymour, Ct., improvement in ooiled springs for railroad cars.

Pliny E. Chase, Philadelphia, arrangement of means for regulating the draught of steam boilers.

Lydia Atwood and C. O. Crosby, administrators of Chas. Atwood, deceased, New-York, improvement in sticking pins in paper.

Otis Avery, Bethany, Pa., improvement in guides for working button holes.

Baalam G. Anderson, Chillicothe, Ohio, improved canal bridge.

Lydia Atwood and C. O. Crosby, administrators of Chas. Atwood, deceased, late of New-York, improvement in papering pins.

J. Bourbin, San Francisco, improvement in excavators.

J. W. Barnes, Murfreesboro', improved manure distributor.

Walker B. Batram, Waterbury, Ct., improvement in sticking pins in paper.

W. T. Barnes, Buffalo, and Jacob Barnes, Oakville, C. W., improved pump.

Joel W. Cormack and Ferdinand C. Walker, Quincy, Ill., improvement in grain separators.

David P. Estep, Pittsburgh, improvement in making axe poles.

Dennis E. Fenn, Tallmadge, Ohio, improved method of opening and closing farm gates.

Carlos W. Glover, Roxbury, Ct., improvement in harvesters.

Dorminico Giambastiana, Washington, D. C., firemen's ladder.

James L. Humphrey, Syracuse, improvement in salt evaporators.

M. G. Hubbard, Penn Yan, improved arrangement of springs for side-spar wagons.

James Kelly, Sag Harbor, improvement in antifriction bushing for ships' blocks.

Samuel A. Knox, Worcester, improvement in ploughs.

Edwin T. Ligon, Richmond, Va., improvement in pumps.

John J. Mozart, Xenia, Ohio, improvement in escapement movements for automatic fans.

John H. More, West Troy, improved method of hanging reciprocated saws.

Jno. L. Mason, Germantown, improvement in porte monnaies.

Jno. North, Middletown, Ct., improvement in sawing stone.

Sam'l. C. Norcross, Dixfield, Me., improved adjustable stirrup for saw-mill pitmen.

Chas. Pawling, New-Pitsburgh, Ohio, improvement in bee hives.

Jacob Purkey, York, Pa., improvement in washing machines.

Samuel W. Pingree, Methuen, Mass., improvement in the order of applying tan liquor to hides.

Wm. Provines, Columbia, Mo., improvement in utezure supporters.

Lodner D. Phillips, Chicago, improvement in submarine exploring armors.

James Perkins and Wm. H. Burnet, Newark, N. J., improved machine for bending metal pipe.

Chas. Schroder, New-York, improvement in spring bed bottoms.

John Sitton, Williamston, S. C., improved wheelwrights' machine.

Philos B. Tyler, Springfield, Mass., improvement in finishing castor wheels for furniture.

James S. Taylor, Danbur, improvement in machinery for forming hat bodies.

John L. Tuttle, New-York, improvement in manufacturing cylinders for cotton gins and machine cards.

John L. Tuttle, New-York, improvement in card teeth for machine cases.

Guiliaume H. Talbot, Boston, Mass., improvement in gimlet handles.

Noah Warlick, Lafayette, Ala., improved arrangement of the thills of vehicles.

John C. Ward, Charleston, S. C., improvement in railroad car coupling.

Perry A. Wilbur, New-Castle, Pa., improvement in nail machines.

S. Young, Milton, N. Y., improved fastening for gates.

Stephen A. Whipple, Shaftsburg, Vt., and Herman Whipple, Port Richmond, N. Y., improved machine for cleaning emery wheels.

Simon Ingersoll, Greenpoint, N. Y., assignor to Farmers' and Mechanics' Manufacturing Co., same place, improved method of felling trees.

Thos. Dutton, Washington, D. C., assignor to John R. Elvans, same place, improved brace for carriage springs.

Alfred P. Critchlow, Florence, Mass., assignor to A. P. Critchlow & Co., same place, hinge for picture cases.

Thos. W. Chatfield, Utica, improved chimney cowl.

John Barnes, Mount Morris, N. Y., thrashing and separating machines.

Chas. R. Belt, Washington, D. C., cotton seed planters.

Edmund C. Bills, Jr., Perry, N. Y., cleaning coulters of ploughs.

Wm. Black, Alleghany City, Pa., corn shellers.

John P. Cowing, Seneca Falls, N. Y., pumps.

J. C. Briggs, Woodbury, Ct., reed for musical instruments.

Daniel Freeman, Burford, Canada, carriages.

Victor M. Griswold, Lancaster, Ohio, photographic pictures.

Alex. Le Mat, New-Orleans, La., fire-arm.

Pells Manny, Waddams Grove, Ill., sickles for harvesters.

Pells Manny, Waddams Grove, Ill., harvesters.

C. A. McPhetridge, St. Louis, Mo., spike machine.

Joseph McCraken, Brooklyn, N. Y., sizing hat bodies.

James B. Mell, Ricchoro', Ga., cotton gins.

W. F. & C. J. Prevost, Selma, Ala., cotton presses.

John Moore, Madison, Ind., screw machine.

Chas. Perley, New-York city, ships' capstans.

Perry A. Wilbur, Newcastle, Pa., nail plate feeding.

Henry D. Pochin, Salford, Eng., preparing clay for alum making. Patented in England, Jan. 30, 1855.

John M. Sigourney, Watertown, N. Y., cast-iron railroad car wheels.

Abbey S. Smith, Rochester, N. Y., scale for instrumental music.

C. A. Mills, Dubuque, Iowa, head rests for chairs.

Walter Worthen, Danville, N. H., balance and fastener for window sash.

H. R. Howlet, assignor to himself and A. W. Goodell, New-York city, filing and setting saws.

S. S. Turner, Lewiston, Me., assignor to himself and Elner Townsend, Boston, Mass., splitting mackerel.

J. J. Bate, Brooklyn, N. Y., lard rendering kettles.

Chas. Baum, Philadelphia, Pa., combined table and bedsteads.

Thomas Blanchard, Boston, Mass., bending wood.

A. A. Dailey, Wilson, N. Y., washing machines.

Edward Gleason, Dorchester, Mass., bottle casters.

J. H. Howell, Ansonia Ct., India rubber hose.

Tony Petitjean, Tottenham Court Road, Eng., silvering mirrors.

Jas. M. Kern, Morgantown, Va., washing machine.

Augustus Pfaltry, Saxonville, Mass., rosin soaps.

Samuel Pierce, Troy, N. Y., cooking stoves.

Joseph Poleux, New-York City, coating metals with metals.

John Schaffer, Manchester, Pa., capstans for steamboats.

J. H. Shireman, East Berlin, Pa., seed planters.

Wm. Thomas, Jr., Bingham, Mass., stove blacking.

George Thompson, East Tarentum, Pa., putting up caustic alkalies.

C. N. Tyler, assignor to Henry Pardin, Washington, D. C., washing machines.

J. P Derby, assignor to the Salisbury Manufacturing Co., Amesbury, Mass , dyeing.

J. V. Jenkins, Jackson, Miss., shearing sheep.

Robert P. Bradley, Cuyahoga Falls, improved puppet valve.

Edward C. Blakeslee, Enoch Platt, Jr., and Edmund Jordan, Waterbury, improved machine for making brass kettles.

Wm. H. Butler, New-York, improvement in locks.

Geo. W. Burling, Trenton, N. J., for improvement in machines for bending sheet metal.

Hazen J. Batchelder, West Fairlee, Vt., for tooth extractor.

Isaac B. Branch, Galena, Ill., apparatus for applying freezing mixtures to the teeth.

Matthew A. Crooker, New-York, arrangement of buckets of paddle-wheels.

Wm. C. Childs, Boston, improvement in mould candle machines.

John B. Coppinger, New-York, for method of fastening jewelry.

Plumer Chesley, Candia, N. H., for improved current wheel.

John W. H. Doubler, Stephenson county, Ill., for improvement in cooking stoves.

John Anthony, Gaussardia, Washington, D. C., for method of preserving dead bodies.

Chas. A. Howard, Pontiac, for gas generator.

Jesse D. Havis, Perry, Ga., improvement in seed planters.

John R. Hopkins, Auburn, improvement in evaporators for salts.

Reuben M. Hine, Troopsville, improvement in the handles of agricultural forks, shovels and hoes.

George E. W. Herbert, Cohoes, improved water wheel.

Harvey B. Ingham, Camptown, Pa., improvement in smut machines. Ante-dated June 24, 1856.

Wm. S. Lord, Pulaski, Tenn., improved perch coupling for carriages.

Geo. C. Lawrence, Winchester, Mass., improvement in soap mixtures.

Josiah Mumford and Jno. W. Wilson, Clarksburg, Ohio, improvement in washing machines.

Jos. C. Moulton, Fitchburg, Mass., improvement in suspension hook and insect insulator.

John Phyfe, New-York, for ivory bleaching apparatus.

S. T. Savage, Albany, improvement in stoves and furnaces.

Wm. Smith, Newport, R. I., improvement in machines for husking corn.

James M. Thompson, Holyoke, improvement in oil cans.

Wm. B. Twiford, Horntown, Va., for improved dumping wagon.

Wm. H. Triesler and Jno. Stewart, Fairview, Pa., improved mode of securing sheet metal covering for roofs.

Moses D. Wells, Morgantown, Va., improvement in washing machines.

Thornton A. Washington, United States Army, improvement in breech-loading fire-arms.

Wm. Wentzs, Geneva, improvement in shaft tugs.

John Wilcox, Philadelphia, improvement in metallic pens.

Noah Warlick, Chambers Co., Ala., improved back-hand hook for plough harness.

Wm. P. Carpenter, Brooklyn, improvement in billiard-table cushions.

Geo. W. Morse, Baton Rouge, improvement in cartridges.

D. Lynahon and C. J. Wing, Buffalo, assignors to D. Lynahon, aforesaid, improvement in railroad car coupling.

Henry Forstrick, Hoboken, improvement in working over vulcanized India rubber.

John B. Read, Tuscaloosa, improved projectile for ordnance.

The Plough, the Loom, and the Anvil.

Vol. IX. JANUARY, 1857. No. 7.

Agricultural.

AMERICAN FARMERS.

Some would call them *agriculturists.* It is a longer word, and it is Latin, if that is any recommendation. But we love the good old Anglo-Saxon word, *farmer.* It is English, and English is good enough for us. It is short, and we love words that we and our readers can get over quickly. Formerly it seems to have meant one who collects revenues for another party. In Europe it has come to mean pretty generally those who till another's land. In this country, thanks to our institutions, it means the tiller of his own acres. If some of our readers, who cultivate the staples of life and of wealth on a liberal scale, choose to call themselves *planters*, we have no sort of objection. The distinction seems to be well enough founded. Only let them understand, that when we use the good old-fashioned word, as we were educated, we mean large farmers as well as small, and planters, as of the same brotherhood. When we speak lovingly to the farmers, let them consider themselves included; and if we sometimes get angry and scold, as we may even before the end of this article, let them not dodge, under what may seem to them a misnomer, for, in speaking of farmers, we always mean those, and all those, who cultivate the soil.

What the farmers of this country are, what they ought to be, and how they are to become what every impulse of an intelligent philanthropy desires, is a subject of intense interest, not only to themselves, but to every well-wisher for his country and his race. If our pen were not contrary, refusing to report more than half our inwardly burning thoughts, we would do it ample justice. Religion, learning, agriculture, are our trinity of ideas. But how shall religion effect her divine mission, how shall learning flow more deeply and widely, if the millions who cultivate the soil are to be for ever denied that position of moral power and of political and social influence, which of right belongs to them? Christianity will fail to renovate the world, science will halt midway in her achievements, unless the cultivators of the soil shall cease to be looked down upon by the very men who have reaped millions by trading in their products.

But *what are the farmers of our country?* A few of them are rich; not in the mercantile sense; very few have accumulated more than half as much as a failing merchant might honorably (?) slip aside from the grasp of his creditors; but rich enough—can pursue their calling comfortably and without any reasonable fear of want. That is the farmer's idea of riches, and it is a pretty good idea. Such we have generally found to be liberal, ready to give when there is occasion, cheerful to educate their children, to grant them all safe indulgences, to provide comfortably for their families, and to pay all assessments, notwithstanding that the farmer, from the very nature of his property, known and seen of all men, is always made to bear more than his fair proportion of the public burdens. When we hear some sprig, with soft hands and softer brain, say, as we often do, that the farmers are a bigotted, stingy set, we abstain from kicking him only because we have made up our mind to be civil. Retired merchants sometimes try their hand at farming, and it is a very good thing for them and others, as it generally disburses some of the wealth of which they have contrived to get more than can be held comfortably by one man, and to put it in the reach of those who need it. In fact they are *capital* fellows to give employment with sure pay; and then the freedom with which they apply capital to the new business, is a fine example to other farmers, *whenever they apply it judiciously;* and farther, they clear up, and fertilize, and beautify many a farm which would remain ugly and unproductive but for their extraordinary means; and further still, not a few of them are importing and diffusing fine blood stock, greatly to the benefit of the country—a thing which most farmers are unable to do. All thanks to them for this. We have not the least objection to their enriching the country as much by these importations as they had before enriched themselves by the importation of articles which ought to have been dispensed with or manufactured at home; that is, if they will enrich it as much by the new operations as they impoverished it by tempting us to buy what we did not need, or ought to have made ourselves, we will agree to call them pretty good fellows. What is yet more to their praise, is, that a goodly proportion of them become, after a little experience, really good, sensible, judicious farmers, excelling even the older members of the craft; and all must admit that by their land improvements, they are making their mark on the world—more than some of us are doing.

Next after the rich farmers—those who have gained their wealth by farming, quite differently from the merchant princes just spoken of—rich we mean only in their own more sensible view of the subject, having enough to live generously above the fear of want—is a larger class, who though passibly well to do, are not in as easy circumstances as men of their industry and capacity ought to be in such a heaven-gifted country as this. It is true, that they have not been, as a general thing, as inquisitive after the best ways of prosecuting their calling, as they might have been. It is true also that they have not always been as free to invest capital in their business, as would have been for their interest. The cry that capital invested in labor and fertilizers does not pay, has frightened them a little more than was necessary, and they have pursued a creeping course to a bare competency, when a bolder course would have put them up in the world. But after making all reasonable deductions for what may be regarded as their own faults, the farmers of this country, from causes hitherto beyond their control, and perhaps always to be so, though we hope not, have not been paid for their skill and industry in proportion as they have contributed to the general prosperity. That is the plain English of the thing. There is something wrong, something out of joint, a screw loose somewhere, when a hundred merchants in Boston hold more wealth than all the farmers in that populous old State, and pay but half as many taxes; when a similar comparison holds to a greater or less extent of other cities and their surrounding rural population; and when this very thing is getting nothing better, but rather worse. There must have been a good deal of one-sided legislation to produce such a state of things, and that too since the olden times, when no law enacted here could take effect till approved at the Court of St. James. We are no apologist for slack, slip-shod, lazy, sleepy, uninquiring farm life, that never thrives and never ought. If the farmer will not be as wide awake as the merchant, he may blame himself if his dish is not found right side up. He must be as liberal in the patronage of journals devoted to his business, as the merchant is towards those devoted to his, if he would understand his interest as well, and hoe his row as clean. We confess that the hoeing of the row is rather an up-hill, discouraging business, if more than half the corn is to go to make city millionaires. But there may be a better time coming. Party strifes and sectional interests have hitherto kept the farmers of the country apart—have made them chase a phantom over their own bread and butter—have divided and conquered them. It may always be thus; and if so, then Republican Government is an *ignus fatuus* light at first, soon to go out in darkness. We hope better things.

Another class of farmers, larger than both of the others, are not well to do. They have the *double trouble* of not doing much and of not being fairly paid for what they do. The two causes depress them in a degree that is shameful in such a country as ours. They can't wear a good coat. They can't get their wives a new dress; can't allow their sons and daughters reasonable indulgences; can't send a son to college, if he is ever so bright; can't hold up their heads and be men, especially in a pinch, where it takes a little money to be a man. The whole family economy has to be on a scale, absolutely belittling, degrading, seminal of a peasantry to be trod upon, as soon as those who get the money take it into their heads to tread on them. The position of these farmers leads every spirited girl in the country to prefer a merchant or a professional man, and is the father and mother of nine-tenths of the miserable slang, every where heard, about the niggardliness and illiberality of farmers. To show how little we sympathize with it, we will relate a recent occurrence in our own office. A dealer in patents called. We overheard him, as we were writing, say to another person present, "The farmers are the meanest of all men; they won't have an improved implement till they know they will make by it, and then they will steal it." We turned around, straightened up with more dignity than we are conscious of possessing, looked at him with an expression of blank wonder, and said, for we did not know his name, "Man, you've come to the wrong diggings to say such things; you don't know what you are talking about; the farmers are not the only men who wait to see whether they will get their money back again before letting go of it; as for stealing, they are the very men who won't steal; and you either know it, or else you know nothing of them." The chapter ended, and we went to writing. Whether our unknown visitor was wiser, is doubtful. Our reflection was, that if the farmer gives heed to every solicitor, he will soon be down and none to help him up. Not *he* can save a snug competency out of his creditors. The merchant may let a few dollars slide, and have enough left; but in the present state of the country the farmer must count his dollars, and spend them considerately, and if he gets called a niggard for it, better so than worse. That farmers are obliged to adopt a more rigid economy than would be desirable for its own sake, partly from their own fault, and, as we think, partly from wrongs not self-inflicted; that they do not as yet hold that position of social influence and political which of right belongs to them, and which the public good requires that they should wield, is a truth which we wish all would dispassionately consider. *American farmers are not as a whole what they ought to be.*

What then ought they to be? As intelligent as any other class, just what many of the more able farmers are—as intelligent, first, in matters pertaining to the science and practice of their own art; and, next, in matters of government and general interest—as influential in matters of Church and of State, of education and public sentiment, as any others, liable to no such sneer as that "he is nothing but a farmer," and doesn't know much, of course; as interested, as cheerfully active and benevolent in all matters pertaining to the public weal, or to the soothing of private griefs; not rich in the mercantile sense, for the world does not contain wealth enough to enrich so great numbers as the farmers must necessarily be in any country—without money to fool away, but rich enough—able to be full grown men, in their families, in their school district, in their town, county, State, and in this glorious Union. If this were an old, aristocracy-ridden country, where the wealth was made fast to the few by legislative enactments of a thousand years' application, we could bear that the tillers of the ground should be peasants, and if they were transferable with the soil it would make no great difference. We should not expect them to possess a particle of influence. What would the government care for them except to *use* them? To labor and to be despised would be synonymous of course. But ours is a virgin country The most useful men in it are those who subdue the land and keep it in fertility. It is intolerable that their toil should not be rewarded and honored; and if there is one thing in the aspect of the times which would lead us to despair of the Republic, it is, that the farmers of the country, though undoubtedly in advance, as a whole, of those anywhere else, are not in advance *toto capite*, as, from the very nature of our country and its institutions, they ought to be. It sickens us to the soul when we see the close, self-denying, humiliating, almost degrading economy to which too many of them are compelled to resort, and compare their position with that of the millionaires, enriched by traffic in their products, filling our city palaces and country villas, each one possessing enough to make a thousand farmers rich and generous, who are now reckoned by the thoughtless and indiscriminating among the penurious and niggardly. How many times have we heard it said of a farmer, that he would pinch a penny till it squeals, when we knew that this same farmer had a good large heart, that he was doing the best he could, and that if he had not money to meet the demands of charity, he would give his services to the needy, and scorn to be paid. To a coxcomb, whose father made money easily and allowed him to spend it foolishly, and who was berating the littleness of Massachusetts farmers, we once replied, that those farmers are not overstocked with change, but you just contrive to be traveling with a family of women and children, and have your carriage break down in front of a Massachusetts farmer's house, and see how he will take you in, give you his best, send his man to get your carriage mended, keep you over night, and when you go in the morning refuse to take pay, almost refuse to be thanked, saying that you have had the worst of it. Said he, it is just so; I don't believe the farmers are so stingy as I thought they were. A great many heedless people would alter their opinion about them, if they would think a little. We will stand up for the farmers; and if we should be found blaming them before we get through, let them know that the wounds we inflict are "the wounds of a friend." We verily believe that they ought, in a young and self governed country like ours, to be highly informed, to exercise a conservative but powerful influence on the government, and, with the exception of cases of uncommon misfortune or imbecility, to be rich, at least in their modest sense of the term.

But *how are they to become such?* That many of them are men of whom any nation might be proud, none is quicker to perceive, or rejoices more to acknowledge, than we. Why should not the masses approximate the same standard? We would not ignore the fact that there is progress. But we do wish to see it more rapid. As we have already intimated that the difficulty is two-fold, partly without and partly within themselves, so the remedy lies in two directions, one in the government's care for the great industrial interests of the country, the other, in their management of their own affairs. And now since the farmers are the largest class of the people, perhaps a majority of the whole, it rests very much with them to see that the remedy is pursued in both directions. On the former we will not dwell—it is not in our line, and we might blunder sadly. We will only say that to us it seems as clear as the noon-day sun, no cloud intervening, that government should look after the industry of the country, protecting such branches as cannot quite compete with foreign interference, and thus ever hastening the time when the nation can supply its own wants and be truly independent. Every want that is supplied by home industry benefits the farmer, because it increases his customers, and gives him a ready market, one in which he gets the whole, not half, of what the consumer pays. We know there are difficulties in the way of a just protection, because the manufacturer, intent on getting the lion's share, thrusts himself into the lobby, and under color of furnishing statistics, teaches Congress the very curious doctrine, that the farmer's interest will be advanced by leaving wool unprotected; and the merchant goes there and whimpers about the loss that will accrue to the carrying-trade, if we should not buy our iron of Europe, just as if we may not make our own iron, lest he should lose the profit of bringing and selling it to us; while the farmer, more modest, stays at home and takes what a Congress, tampered with by every body else, may choose to give him—the privilege, perhaps, of furnishing wool to our manufacturers, after Europe, Asia, Africa, and South America, have furnished as much as they please, without let or hindrance; or the privilege, it may be, of half-feeding the iron-maker in Europe with a little exported wheat, when he should have the privilege of feeding him to the full, here on our own shores. Would to Heaven Congress would kick the lobby members overboard, and then sit down and make a tariff that would be fair and just to all parties; first and foremost, to the agriculture of the country.

We find ourself, as too often happens, at the end of the space allotted to this subject, and yet the point on which we proposed to dwell most of all untouched. Of course, we must leave for other occasions, of which we hope there will be many, the means by which the farmers of this country are to elevate their own position, and widen their influence, and make it felt, irrespective of governmental action.

If the vulgar aphorism is true, that every tub stands on its own bottom, it is as true of American farmers as it is of tubs. Thank God, they are not a very dependent class yet, and may they never be more so. But if they want to stand on their own feet, as tall as any body else, and not lie down and be a bottom for every body and every thing else to stand on, they must depend mainly on themselves; must be self-reliant, united, respected. There are influences enough, in this country, that will make farmers peasants and boors, if they will suffer themselves to be made such; politicians enough, who will ride them, if they will be rode; rascals enough to legislate for them, unless they should take into their heads that the majority rules; and that they may as well be united, and legislate a little for themselves.

In no country yet, since modern civilization dawned, have the tillers of the soil made themselves what they should be; in none have they ever possessed their due share of intelligence, wealth, influence, and power. Whether this country is to be a glorious exception, is yet to be decided. Its decision depends very much on the present and the rising generation of farmers. As to what the farmers of the country are to do to secure their own elevation, along with a perpetuated Republic, we have burning thoughts; and if our readers will be a little patient, we will come to them (a kind Providence permitting) before the year now entering goes out. N.

Fallen Fruit.—No fallen, unripe fruit should be permitted to decay on the ground under or about the trees. Fruit that drops off before it is ripe, does so because an insect is in it which has diseased it. The insect matures in the fallen fruit and rises to infect the tree or leave its larvæ for another crop of its kind. Fruit-growers cannot be too careful in gathering the fallen fruit, that the grounds beneath their trees do not become insect nurseries—that their orchards do not become swarming households for insect tribes.—*Ex.*

CLOVER AND HERDS-GRASS.

Messrs. Editors:—In answer to some proper suggestions of yours, appended to our article on "Sheep and Farming," we can say that clover-seed, sown in favorable seasons, and where it takes a good root—"catches well"—it is one of our most profitable investments in the line of agricultural economy. But you know all countries are not adapted to it; that it will very frequently heave out; that roots are often seen in the spring of the year, nine or even fifteen inches in length, lying on the top of the ground; and that, therefore, seeding low, mucky lands with it, proves unprofitable; while, on the other hand, seeding sandy, chestnut soil with clover-seed renders its use profitable in an eminent degree, as experience has very frequently shown. Now, when we sow herds-grass in this part of the State of New-York, say in Onondaga county, also in Seneca, and in that tier of counties, we are generally very certain of getting a growth of grass from our seed, or the seed almost invariably "catches"—it does not fail so often as clover-seed; and we regard timothy hay as of more value by at least sixty per cent. than that produced from the sowing of clover-seed. But notwithstanding this, clover has its absolute value; namely, it is of great consequence in making either clay or sandy lands rich; it furnishes them with manure, and thereby they are kept up, improved in value. The roots of clover penetrate deep into the soil, and hence bring out, or up, its latent properties. Herdslgrass, we have noticed, seems to confine itself to the surface, and is very hardy. It will do well on almost any kind of land, though the soil must not be too wet for it; but its growth is always governed by the strength of the soil, as a matter of course. It makes excellent hay, as you well know, and is now extensively raised in the West, and in this country. We would rather have a ton of the hay than two and a quarter tons of coarse clover fodder. If you want to manure impoverished sandy soil, sow clover-seed, by all means; but if your land is in tolerable condition, and if you have horses and milch-cows to feed, sow herds-grass, and when you feed the hay, you will be satisfied that you are throwing out a good deal of substance. Cattle will gain on it; so will sheep and horses. We are of the opinion that more and more of it is being sown every year, for farmers are becoming convinced of its value.

There is a good deal in cutting herds-grass in the right period of its growth. If it stands too long, its substance will evaporate; therefore, it should be cut early, when the stalks are quite green, and then it will retain many of its most valuable juices. Farmers do not sow timothy-seed enough; they should sow more, and help the productiveness of their lands. Put on one round peck to the acre, and seed it with as much care as you would your wheat lands, etc. Money expended in the purchase of grass-seed is well laid out. Only look at soil which has never been fed with herds-grass, and your attention is called to the fact that something is wanted to cover the land, to enrich it, and make it what nature really designed it to be, namely, productive and lively in its character.

We are now getting from the West much herds-grass seed which is not pure; it is mixed up with foreign seeds of one kind and another, so that Eastern farmers do not feel safe at all times in purchasing it. We should, therefore, raise our own seeds, and not depend upon poor Western counterfeit seed for our use. Raising the seed is profitable business, if you only have the right kind of soil—free from foulness, etc.

In favorable years, it will turn out remarkably well, and satisfy the husbandman in a most remunerative manner.

Very respectfully, W. Tappan.

Baldwinsville, N. Y., December 15, 1856.

We are exceedingly pleased with the discriminate character of the foregoing. The writer seems to us to be a keenly accurate observer of nature; and that we always hold is the first requisite for a good farmer. Naturally acute powers of observation, sharpened by reading and conversation with intelligent men, will go far to supply the place of learning in a farmer; or, what is nearer the truth, will make him a learned man, in time, in his profession. Hence we have often said, that when we have a little time to study *scientific agriculture*, we love to get alongside of an old, reading, thinking, acutely observant farmer—one who has *worked* the farm and watched nature half a century. The only reason why the farm is not the only and the sufficient school for the education of farmers, is, that knowledge obtained in this way comes too late in life. Too many blunders and losses are made from a want of it earlier. Many a farmer, when life is ebbing, has occasion to wish he had known at twenty-five what he does at sixty. Hence, we think, is one great advantage of scientific schools for agriculture—not to make the practical farmer profoundly scientific abstractly, but to give him an insight into nature, to create a taste for scientific reading, to quicken the powers of observation, and to give the farmer the benefit of all this while life is yet young and fresh, and while he has many years to reap the benefit of it.

As to our author's idea that the nutritive properties of herds-grass evaporate by its standing too long, we think he teaches no *practical* error, and so it is well enough; though we suppose it would have been more philosophically accurate, if he had said that the sugar of the grass turns into starch, and then the starch into woody fiber, so that what was before digestible, and would have gone into the tissues of the animal, becomes indigestible, and has the effect not to increase the size of the animal, but only that of the manure heap. We will give our idea of the best time to cut herds-grass in another place.

N.

POLICY OF FARMERS.

The following seems to us to contain sound instruction, in adaptation to the latitude whence it comes; and we receive it with the greater pleasure, from the fact that we are not as familiar with the agriculture of the South, as we desire to be, and are yet desirous of making our journal useful to all parts of the country. If practical men, those of experience and observation, in different sections, will give their views, either on the general policy suited to their respective regions, or on the cultivation of particular crops, whether of the garden, the orchard, or the farm at large, or on the rearing, use, and disposal of farm stock, any thing that pertains to the working out an independent living from the soil, they shall have, as the writer of the following has, our hearty thanks. And as we see no reason why farmers and their families should be excluded from an appreciation and a love of the beautiful in nature and art, why will not the ladies, wives and daughters of farmers, or others, give us a little of their experience in the garden, or with the flower-pots? We have an idea that God made the flowers, and that it makes us better to love and admire them; and then our readers know very well, that we have the odd notion, that the ladies themselves will bloom more beautifully, and become more competent to the vicissitudes of life, if they will be more out of doors; and as we should hardly wish to see them on the top of the hay-cart or the wheat-rick, or with hoe in hand cutting up the weeds in the field, the flower-garden would seem to be a fit theater for their industry and taste, in which, while creating beauty, they would be receiving it, with extra health into the bargain. But we are keeping the reader too long from the more important practical matters below.

N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

Edwards, Miss., November 25, 1856.

Messrs. Editors:—Your November number is to my taste—one of the richest numbers I remember to have seen. I believe I have seen all, as I began with the beginning, for I think I have been a subscriber for all the agricultural works of our very worthy I. S. Skinner, since 1832, up to the day of his death.

I rejoice much that you was called out on 264, etc., pages, and that you make so *orthodox* a showing. Allow me to say, some folks say, "Orthodox is my dox, and heterodox is opposed to me." This is not what *I mean.*

I have been engaged in planting on my own account, for nearly twenty-six years. My twenty-sixth crop is now gathered, wanting about three or four days' labor; and mingling as much as I have done through the South and South-west, I have known a great many planters. I have found it is not always a consequence that the largest producers of cotton get rich the soonest; but to the contrary. "Extremes are dangerous." I think, perhaps it was Horace said, that safety lies in a medium; at all events, I can point to more fortunes made by pursuing a medium course, than either extreme.

In this country, about the medium latitude for cotton, no man can succeed best by attempting to make every thing, (for that is impossible,) nor, on the other extreme, to make cotton his only product. We can make sugar and grow wheat in a part of this county. Hinds might grow the latter profitably; yet would it be sound policy? The few who have the choice lands of the county, can, by good management, grow ten bales of cotton, four hundred pounds each, to the hand, and yet make corn, and meat, and potatoes, and pumpkins, and turnips, and peas. Some of us that have cypress, can make our own shingles; we can make our horse-collars out of the shucks or the bark of the lime-tree; we can make our own whiffle-trees, (single-trees,) ax-handles, hames, with the aid of a smith to iron the first and last. If a short crop comes along, we ought to take time to gather peas for sale, or make shingles on wet days, and always strive to have a few bushels of corn for sale; and a hog or two would be no drawback.

Much or all this should be done, even if we had to make less cotton.

This is my twenty-sixth crop *here*, and I am certain that I have sold corn, hogs, peas, shingles, sheep, cattle, more than I have bought, though in that time I have made many wild purchases, and have had to buy meat; besides, I think I have a margin, *perhaps* enough to pay overseers' wages during that time—I say *perhaps*, because I have not employed an overseer half the time, and think the half I had none, that I sold odds and ends enough to pay for one, when I had him, admitting that under overseers I have sold comparatively little. Some few years since, there was a great desire for fruit-trees, when I pitched in and worked enough to give me a few hundred, and without interfering with my duties as owner of my own hands.

The cotton planters, though much improved, do not keep plough-team in quality or quantity, nor tools, to work to the best advantage.

When I had a good work horse to each hand, I always had most corn to sell, and, *vice versa*, when least team, least corn. I admit, I own much above an average place for this county, but I claim that my crops, for ten years together, were better, not alone for land. During my planting life, I have never had less than two agricultural papers. Have these not aided me? I know it. I know, if I believe many good friends, that I have done some good, though perhaps much harm, and I attribute it all—the good—to the lamented Skinner. I love to do his name honor. And just here, permit me to thank thus publicly, the editors or the publishers, or some friend—I know it is a friend—who sends me the *Alabama Planter*, *American Agriculturist*, *Western Farm Journal*, *The Farmer and Planter*, *The Farmer and Visitor*, all the way from New-Hampshire, Manchester; *The Ruralist*, though last not least, *The Valley Farmer and Southern Cultivator*, besides many odd numbers of others—all sent me gratis, and the two first for years. Besides, I receive Fruit-tree Circulars from everywhere, almost. Permit an old veteran in the cause, to rejoice over such fruit of approval from his peers and superiors. It is wont to me to be thankful. Yours truly, M. W. PHILIPS.

THE TIME TO CUT HERDS-GRASS.

IT is not certain that our views on this point will agree with those of all our readers, especially as perhaps not two of them think quite alike. According to our *notions*, and they have not been conceived hastily, the earlier herds-grass is cut, within any reasonable bounds, say from June 15th to Sept. 1st, the better will be the *quality* of the hay, if equally well cured in all cases. This is a point on which we have no doubt, though we know that some, with whom we would gladly agree if we could, think differently.

But this is not the only point to settle. The *quantity* of hay will be increased by late cutting. We wish to ascertain when the *value* will be greatest. Evidently, we think, when the seed is as nearly matured as it can be without danger of wasting, just at the time the blossoms are beginning to fall, because then the plants have attained about their full growth, and because then the sugar and starch are best arrested in their transformations from digestible to indigestible conditions. We suppose that nature, in the growing plant, forms sugar out of its elements, that the sugar is gradually transformed into starch, and then starch into woody fiber, which is nearly indigestible and consequently innutritious. And then again the phosphoric acid, which is concentrated in the seed when ripe, and the nitrogenous substances which are there concentrated in a great part, are lost if the seed becomes so mature as to fall out.

Having settled, to our own satisfaction, at least, the point of greatest value, there is another consideration;—the labor of curing the hay diminishes, if we let it stand till rather late. There is one other consideration, which always *will* influence practical farming, whatever theorists may say; and that is, when can the farmer get time to cut and cure his herds-grass. He cannot do every thing at once. If his wheat is fully ripe, and ought to have been cut four or five days before, the herds-grass must wait a little.

Our conclusion then is that herds-grass should be cut just as the blossoms begin to fall, if it can be done then conveniently; that if it should be cut a little sooner in anticipation of important work ahead, no great loss will ensue; and that if you are obliged to let it rest a few days later, till the corn-hilling, or the wheat harvest, or other pressing matters are over, it will n t be best to fret. The difference between the *right time* and a few days earlier or later cannot be great.

Here we want to say a kind word to farmers, whether it fairly belongs to the subject or not. The peculiarities of our climate, our long winters, our sudden transitions from winter to summer, the rapid strides of vegetation when growing time comes, all tend to make the farmer indolent a portion of the year, and to work him beyond all reason another portion; both of which are unfavorable to his rising to the possession of a sound judgment, a clear, well-informed intellect, and a cheerful, resolute, unconquerable enterprise.

The tendency of an indolent winter and an overworked summer, is to make the farmer inferior to the merchant and the manufacturer, as a man—less wide-awake, less thinking, less enterprising. The temptation should not be yielded to. More important advice than the folowing we do not believe can be given:

Lay out the work of the farm, as far as possible, so as to always have something to do, in spite of wind and weather; and never do more at one time than is reasonable, for love or money. Some Northern farmers work themselves harder in summer than they would find it in their conscience to work another.

To work excessively six months, and then to suck the fingers as long before waking up, will not make much of a man, and in the long run will not produce thrift. The farmer's rule is to be always doing something, but not to work himself to death, even in harvest.

We include reading, of course, among the things to be done. It should have its times. The farmer who does not read his agricultural papers and some others must expect to fall behind his age. N.

FOREIGN CORRESPONDENCE.

The following, from the *Journal of the N. Y. State Agricultural Society*, we think, will be read with interest. Any thing which tends to bring the nations of the earth together, to look into each other's faces, and to sympathize with each other on the great industrial interests of the world, we regard as a harbinger of peace and general prosperity. N.

[Central Agency for International Exchange—39 Rue de Clichy.]

Paris, 6th August, 1856.

To Colonel B. P. Johnson, Corresponding Secretary of the State of New-York Agricultural Society:

Dear Sir:—I have the pleasure of informing you that I have this day forwarded two cases, containing about eight hundred small paper bags of specimens of grains, seeds, etc., collected during the last Agricultural Universal Exhibition. From the arrangement and classification you will be able to appreciate the time and trouble it has cost me to complete it—and to tell you the truth, had it not been for the liberality of American gentlemen here, who, spontaneously and without my knowing any thing about it, made a subscription among them, which brought about one hundred dollars, and which enabled me to have three men exclusively employed for nearly two months in collecting, sorting, transcribing, and packing them up, I should have failed. This collection proceeds from England, Ireland, and Scotland, Denmark, Bavaria, Prussia, Holland, Belgium, Switzerland, Spain, the Roman States, Two Sicilies, France and Algeria, making, with those already forwarded, the most complete collection of cereals that could be brought together. The cereals from the Kingdom of the Two Sicilies were accompanied by the following letter:

"Sir:—Allow me to congratulate you most sincerely for the beautiful idea you have conceived for so many years, to establish a system of exchanges of scientific, natural, and agricultural products between all the nations of the earth. It is a mighty thought, and every one appreciates its happy results for the civilized world. Your system facilitates the exchanges of knowledge and all kinds of products; and, through your agency, each nation becomes acquainted with each other, and can obtain what they may want, and relieve their sufferings.

"Desirous of bringing my share in the support of your work, I place at your disposal the agricultural products exhibited this year, 1856, by me, at the Palace of Industry.

"Every one is acquainted with the fertility of Sicily, and the variety of its products; every body knows, likewise, the activity of commerce existing between America and Sicily. The knowledge of all what my country will be able to furnish to commercial researches may be of good interest to the American navy, for then they will not be obliged to provide themselves with certain products from more distant countries—exposing themselves to so many dangers, occasioned by a longer navigation, always perilous on the Archipelago's waters. Hence, they would find in Sicily the dried figs, with raisins, and a number of other products, which they procure now from Smyrna, Patros, and a few ports of Asia Minor.

"In the Catalogue of the Universal Agricultural Exhibition, you will find, page 261, the list of the products I exhibited. I have the honor of inclosing herewith a copy of the Revue Franco-Italienne, in which these objects are mentioned. It will give you an idea of what can be found in the center of the Mediterranean Sea, without being exposed to long and dangerous voyages, and where, I venture to say, they will be procured at a lower market than anywhere else.

"This is one of the excellent results your system is destined to produce, in thus establishing between nations relations of this nature.

"Your system of exchanges encourages me to beg of you to obtain, from the United States, Scientific and Agricultural Works for the Botanical Garden of Palermo. This would be an indirect means to encourage my country to improve their practical agriculture and the acclimation of many plants, the cultivation of which might be easy and most profitable.

"You see, sir, that I use the principles introduced by yourself. Perhaps I am intruding; but you will not tax me with giving little to obtain much, when I give all I can.

"Please to receive the assurance of my high consideration.

(Signed,) "Baron VINCA.

"PARIS, June 23, 1856.

"To M. ALEXANDRE VATTEMARE, Directeur de l'Agence Centrale des Exchanges Internationaux."

You will find among the other seeds the complete collection of that gentleman's contribution to the Agricultural World's Fair of 1856.

Now, my dear sir, you may already have heard that I have contrived to have the American Flag placed among the banners of the nations represented in the Palace of Industry, during the last Agricultural World's Fair. You know that to obtain from his Excellency the Minister of Agriculture, Commerce, and Public Works, who is animated with the best feelings towards America, to have the Star Spangled Banner hoisted upon the Palace of Industry, it was indispensable to have something of our own within. I therefore collected together the little I could find of objects pertaining to Agriculture, already exhibited last year, such as rice, cotton, tobacco, specimens of wood, essence of peppermint, a collection of the Annual Reports of the Society, that part of the Natural History of New-York relating to Agriculture, Pitt's Thrashing, Manny's and McCormick's Reaping Machines. With these I formed an exhibition which cut a rather small figure, for the number of objects amounted only to eight, for which we obtained—

1. First Prize Medal, (Gold,) with a premium of 600 francs, for Manny's Reaping Machine.
2. Second Prize Medal, (Silver,) with a premium of 400 francs, for McCormick's Reaping Machine.
3. First Prize Medal, (Gold,) with a premium of 600 francs, for Pitt's Thrashing Machine.
4. A Gold Medal to Hon. Colonel Allston, for his rice.
5. A Second Class Medal to Mr. Hotchkiss, for his essence of peppermint.

6. A Second Class Medal to Zadock Thompson, Esq., for his specimens of woods of the State of Vermont.

In all, three Gold Medals, one Silver Medal, and two Bronze Medals, besides 1600 francs premiums, for eight objects exhibited; and if there had been prizes awarded for Agricultural publications, New-York would have received the highest. Is not this a success of which we have reason to be proud? Yet we must not forget the good feelings which presided to the decision of the International Jury. This is an additional evidence of the brotherly affection of my beloved France for America! What would not have brought, then, a complete exhibition of the Agricultural wealth of the United States!

But now I rely upon American patriotism to prepare something splendid for the month of May, 1857. Let us have what we never had here yet, a collection, as complete as possible, of the Agricultural and Horticultural riches of North America; and rest assured that if it please the Lord to keep me to that time on this side of my grave, I shall spare no trouble to have full justice paid to your exhibition. But it would be necessary to have a general understanding with the Patent-Office and the Agricultural and Horticultural Societies, to have unity of action for an exhibition which is to reflect the highest honor to the whole community. Let us give to the Old World an example of the unanimity that can exist among Americans, when dignity, power and plenty of their great nation is to be exhibited. Such Fairs are neutral grounds, upon which every one must be anxious to appear.

"It will be necessary that a complete description of the objects transmitted should be given: for cereals, etc., for example, the name, the latitude, longitude, the elevation of the soil above the level of the sea; the stem and pods of beans, peas, etc.; the weight of corn per bushel; in a word, every information likely to convey an idea as exact as possible of the objects transmitted, and the mode of cultivation; and have these objects in sufficient quantities to be able, at the close of the Exhibition, to make twenty-five small collections destined to International Exchanges. Every nation adopting this principle, each one will have, in return for his own single collection, a complete series of what will have been exhibited. These divisions of collections will be prepared by our agency."

☞ We would call the attention of the farmers and mechanics of the State to this proposition of Mons. Vattemare. We shall take great pleasure in transmitting to France the collections which may be forwarded us for that purpose.

SHELTER WANTED.

Shelter is a want of the first necessity in our climate of cold and storm, and no farmer may neglect, with any show of economy, sundry provisions of this nature. A portion of these wants are everywhere conceded—others are carelessly forgotten and neglected. We too often see farms upon which no provision has been made for the shelter of a portion of the stock through the winter. Sheep, colts, young cattle, and, perhaps, the cows, are left to shiver unprotected. Does the farmer know that he can ill afford the loss which results? To keep an animal exposed to the weather in good order requires nearly double the food necessary when comfortably sheltered. And the increased value of the manure will repay the trouble attending the extra care then required. There is a heavy loss in the exposure of manures to the weather. The chief value of a fertilizer lies in that part which water will dissolve. Let it lie and bleach through the winter and spring, and a good share of its worth is gone; shelter it in beds and cellars, and a saving will be made—proving this the truest economy where manure is valued and good crops desired.—*Republican, Del. Pa.*

BREEDS OF CATTLE—EXPERIMENTS.

We know not how we can better aid our readers in judging of the comparative merits of the various breeds of cattle, than by publishing the *candidly expressed* opinions of practical men. Such is the following, from a correspondent of the *Mark Lane Express.* It will be seen that the writer has had a strong preference for the Durhams, and that he still prefers them, but doubts whether all that has been ascribed to them holds good. His suggestions about experiments are important, but whether such experiments could be carried out in this country so as to reach certain results, is perhaps doubtful.

We know a practical instance, bearing nearly on the point, of a gentleman who for several years was a successful breeder (for competition) of Short-horns, and himself a crack judge of the breed, and whose services in that capacity are often had in requisition, but who sold his herd, and is now, for the purpose of fattening on his farm, crossing—and we understand much to his satisfaction—with the polled Angus or Galloway. Now, unless this gentleman's practice belie his opinion, he evidently considers some other breed than the Short-horn better adapted for the profitable production of fat. But this may be mere individual caprice. True it may; but can any reliable authority be cited to prove that it is? Had the results of a train of experiments commencing with the births of a number of animals of pure and cross breeds, the amount and cost of food by each consumed, their progressive values with progressive years, and ultimate value at a certain age—had such been carefully made and duly recorded, we should now have been in a position to applaud the judgment or deplore the folly of paying 5, 6, 10, or 12 hundred guineas for an over-fed Short-horn bull. At the same time we do not wish to be understood for a moment as traducing the estimable qualities of the Short-horn. We regard the breed with a favorable eye; but what we want is to be shown a practical proof of their decided superiority. If that can be done, well and good; if not, their present extraordinarily high prices are only another proof that man is evidently a "gullible" animal. And again we repeat that nothing so likely as experiment would bring out the truths of the matter, and in the long run (to use a rather homely phrase) would hardly fail to give us the "right sow by the ear." And what, we ask, would be more in consonance with the self-imposed duties of the Royal Agricultural Society, than the insituting and carrying on experiments tending to establish on firm grounds matters hitherto deemed doubtful, and which in time would be of such immense advantage to the farmer? It would indeed then blend "practice with science," and impart to husbandry in detail the stamp of indelible certainty. Our progress then, if slow, would at least be sure; and although to "hail a milestone in its path" required a vast amount of perseverance, yet the fact would be consoling that we had not arrived there by taking things for granted—that we had not formed our conclusions "at a jump"—but that we had stridden on with laborious precision, and at every step confirming our present practice or exposing its fallacies, denuding our most favorite theories of all supposititious matter, and exhibiting facts as they really are (however much at variance with present practice) in the broad light of day.

CARE OF LIVE STOCK.

As we have several times of late given our views on the care of cattle, and as we regard the subject important, especially at this season, we republish the following from the Boston *Cultivator*—the production, we suppose, of Sanford Howard, Esq., one of its editors, and one, in our opinion, eminently qualified to give advice in all matters pertaining to stock.

With the return of the season when domestic animals, in this latitude, must depend for subsistence directly on the hand of man, it behoves him to see that their wants are supplied. The commencement of winter is a somewhat critical period for stock. The frost has not only checked the growth of grass, but has lessened the nutriment in that which had previously grown. From inattention to this fact, the farmer is frequently mistaken in regard to a proper supply of food for his animals. It is true that with an abundance of grass, and shelter against storms, some kinds of stock can live abroad till snow falls. If any stock is thus left out, it should be yearling and two-year-old cattle, young horses, and strong, healthy sheep. Even these require attention, lest they lose flesh.

It is very important that animals should be in good order at the beginning of winter, and that they should hold their flesh, if practicable, till the most severe weather is past. A fat animal is less susceptible to cold than a lean one, and on this account requires less food to keep up the temperature of the system, or to supply the daily waste which the action of the vital organs occasions. The flesh, then, which animals have accumulated in summer and autumn, is a means of protection against the inclemencies of winter, and should be regarded as of equal importance with the hay or other material required to produce it. If animals pine away at this season, they must have extra food and shelter in mid-winter, or they will run down still lower, and by having less strength and energy to withstand the unfavorable influences that surround them, are more liable to the attacks of diseases, and suffer more from them. If the circumstances of the farmer are such that the supply of food must unavoidably be restricted before the stock can be turned to grass, the short allowance should be resorted to towards spring, when the miseries resulting from severe cold will not be joined with the pangs of hunger.

Still there should at all times be a due observance of economy in feeding. In some parts of the country the waste of stock-food is great. In the West, where the facilities for obtaining this food are abundant, it may be argued (as it has been) that it is cheaper to waste, both in the expenditure of food and in the condition of the stock, than to provide shelter and use care in management. Whatever force this argument may have in a pecuniary sense, it has none in a benevolent or humane view. But the idea is carried too far, even on the score of profit, as the numerous and heavy losses which are frequently sustained by the death of sheep and cattle, might show. In sections where suitable shelter has been made for stock—as is usual on the best farms in New-England and the Middle States—the practice of economy in feeding is easy. The exact quantity which each animal needs may be given, and it may be placed in such a situation that it may be eaten in quiet under any state of the weather.

Considerable judgment is required to feed out the different articles comprising the winter's stock of food, to the best advantage. When animals first come to the barn, they should not at once be put on the poorest fodder—it would make too sudden a change in their diet—they should have that which they will readily eat, and the poorer kinds should be reserved for the keener appetites which cold weather will give. If root crops are to be fed out, the flat or common English turnip should be used first, because it will not keep long. The carrot will keep later, and the rutabaga or Swedish turnip still later.

In regard to the flat turnip, we may mention, in passing, that it is of more value, considering its cost of production, than is generally allowed. In a late visit to the farm of Mr. H. H. Peters, of Southboro', Mass., we were surprised at the quantity of this root grown in his corn-field. Just before the last hoeing of the corn, the turnip seed was sown broadcast over the ground. The earth was stirred enough in cultivating the corn to bury the turnip seed, and no further attention was given the crop till it was taken up. The field produced 200 to 300 bushels of turnips to the acre—not a remarkably large crop, to be sure, but it cost nothing but the sowing and gathering. We have seen other instances where it has been produced in the same way. It should be remarked, that it is necessary to *top* the corn—that is, cut the top stalk—to let in the sun and produce good-sized bulbs.

We have seen cattle and sheep fattened, and *well* fattened, on flat turnips. Mr. Webster, on his Marshfield farm, was in the habit of making excellent beef with turnips and salt hay. His neighbor, Hon. Seth Sprague, has done the same thing, and with advantage, too. Salt hay alone will barely keep animals in store condition.

We are indebted to Mr. Peters for some interesting facts in regard to the practice of Mr. Samuel Chamberlain, of Westboro', in feeding stock with turnips. In 1855, Mr. C. raised 2500 bushels of turnips, among eleven acres of corn, in the manner above described. He fattened fifteen farrow cows on turnips, commencing when the cows were first tied up in the barn, about the 10th of November.

The cows were then in quite low condition. They were fed with two bushels of turnips a day—one in the morning, and one in the evening. They were fed eleven weeks—had no grain of any kind, and consumed but very little hay—and were then sold for seven dollars per hundred, dressed, which was as much as *meal-fed* animals sold for in his neighborhood at the same time. The cows were of the ordinary stock, and weighed from 450 to 650 pounds dressed.

It is true that this trial lacks many of the points necessary to exact demonstration, but with all due allowances, is it not more than probable that the turnips furnished the cheapest food in this case that could have been produced?

DEEP DRAINING.—IRRIGATION.

The following statement, from the *London Farmers' Magazine*, of the results of Prof. Way's investigations, on drainage water, will be read with interest by all who love to look into the nature of things, with a view of drawing thence practical instruction. The question alluded to in the first part is that of deep draining.

"The paper by Prof. Way, in the last number of the *Journal of the Royal Agricultural Society*, on the composition of the waters of land drainage and of rain, sets that question, we think, completely at rest, although his former researches appeared to give some countenance to it. His summing up is nearly in the following words:—1st, It appears that through every acre of land, whether naturally or artificially drained, there passes annually a quantity of water equal to 42.4 per cent. of the rainfall; and that in those districts where the rainfall amounts to 25 inches, the quantity of drainage-water is equal to about 240,000 gallons in that space of time. The next conclusion is this—and a very important one it is—that even when the land is very highly manured, this large quantity of water removes from the soil only inconsiderable portions of the most important mineral ingredients—namely, potash and phosphoric acid. With respect to ammonia, it appears that the quantity carried off from the land by drainage-water is also inconsiderable, but that nitrogen in the form of nitric acid is to be found in very large quantities in the water of land-drainage, particularly that derived from highly-manured land. It further appears, as the result of these investigations, that the quantity of nitrogen, in the form of ammonia and nitric acid, in rain water, is very much smaller than has been supposed, and quite inadequate of itself to account for the natural fertility that has been ascribed to it. It appears also that it is to these substances as existing at all times in the air, and absorbed from it by the soil and by plants, especially the former, that we are to look for an explanation of such natural phenomena. The quantity of ammonia in rain is greater than in drainage-water, which sufficiently attests the absorbing power of the soil for this alkali; but the nitric acid in rain does not account for the quantity found in drainage, even in the instances where it is present in the smallest quantity. Professor Way further continues that in all probability this nitric acid is due to the oxydation of the nitrogenous matter of manures, and especially takes place where such manures are of a nature to prevent their perfect admixture with the soil. The more perfect admixture of manures with the soil is suggested as the best means of preventing so important a loss. The best method of effecting this complete admixture is left to the judgment of practical men. Lastly, Prof. Way, in taking leave of this subject, for the present, draws attention to the propriety of employing the drainage-water of highly-manured land, for the irrigation of meadow land in the neighborhood. In support of this recommendation, reference is made to the employment of surface drainage-waters by Lord Hatherton at Teddesley, and by the Duke of Portland at Clipstone. It is also stated that the drainage-water from some of the fields of Mr. Paine, the analysis of which demonstrated so great a loss of nitric acid, produced the utmost luxuriance in the grass of a meadow over which it was allowed to flow."

PROTECTION TO SHEEP IN WINTER.

If we were asked, "What is the greatest defect in the sheep management in the North-west?" we would answer, "The omission to provide comfortable shelter and barns." This is not a partial, but a very *general* fault, or defect. Seven-tenths of the flock of the North-west are fed upon the ground during the entire winter, in the open air, and never saw an inclosed shed, or even a roof over them. This is a glaring defect—a practice in which neither humanity nor the flock-master's purse is consulted. And so far as our observation has extended, it is a practice quite general over the Northern and Middle States, although within the past three years a great reform in this particular has been going on, which is alike creditable to the flock-master and agreeable to the sheep.

Humanity, indeed, would alone dictate, one would think, that dumb animals should not suffer from our neglect. In our unrest, though, and in our haste and excitement to get riches and power, we shut our ears and eyes to that gentle spirit of kindness and benevolence which would seek to throw its care and protection around all those creatures especially allotted to man for his comfort and support.

But aside from humane consideration, (which we regard as paramount,) the pecuniary interest of the flock-master or owner demands protection for his flock from storms and winter's cold. The *Mountain Shepherd's Manual* (Scotch) thus speaks—or thus spoke years ago on this subject: "Shelter is the first thing to be attended to in the management of sheep. While every good shepherd is decidedly hostile to their being confined, or to their being forced into shelter, whether they wish it or not, it cannot be too strongly recommended to all sheep farmers to put the means of avoiding the severity of stormy weather within the reach of their flocks at all times." This is old doctrine. The result of some recent experiments in the winter keeping of sheep, which have come under our own observation and knowledge, go to prove that it is as profitable to house sheep—"force them into the shelter"—as the writer above quoted would have it, as it is to stable horses or cattle. The idea that some hold out, that to house sheep and keep them comfortable is to make them tender, induce disease, is about as reasonable as to suppose that man degenerates by having comfortable clothing and houses to dwell in.

1. Shelter obviates losses from disease and death. "Within the last ten years," says Mr. Morrell, "my flock, like thousands of others at the present time in this and other States, were denied the benefits of shelter; and the loss, in proportion to the severity of winters, varied from five to ten per cent. The diseases caused by their exposure were scab, peltrot, dysentery, and colds, which caused an excessive discharge of *mucus* from the nostrils; while many died, from no other cause, apparently, than sheer poverty of condition. Since, however, my sheep have been protected, the deaths have not exceeded one and a half per cent. in regard to number, and if comparative value were the standard, it would not be considered of any moment, as the loss has been mostly among spring lambs—so from bad nursing, and old ewes, which, from superiority of fleece or carcase, were retained thus long, to breed from. If this is contrasted with the per centage of loss before the resort to protection, it will readily dispel the *delusion* that shelter enervates the constitution of sheep, or is in any wise an inducing cause of disease; for since protected, no epidemic has prevailed among them, and disease of any kind is rare indeed, and only occurring in individual cases." In the case, or experiments alluded to above, where sheep have been housed, the losses by disease or accident have not been a half of one per cent. And such, we are well assured, will be the universal benefits of the practice. Sheep, however, must have plenty of pure air, and a clean, well-littered bed daily, in such cases.

2. Shelter increases the weight of the fleece, and improves its qualities. In fattening animals, every farmer knows that mildness and equableness of temperature is of paramount importance to the laying on of flesh and fat. The same rule holds good in the keeping of all store animals, and in the production of wool as well as flesh.

If the food which a sheep takes must all be expended in the preservation of the tissues of the body, and in keeping up the natural animal heat, none can be expended in the production of wool; but if the animal is kept quiet and warm—thus avoiding the wasting of the tissues by exercise, and the necessity of using the food for promoting warmth, the latter will be appropriated in large ratio to the growth of wool. The flesh secretions and the wool secretions are derived from the same source; consequently, the more flesh and fat are wasted on account of exposure in the open fields, the less must be the produce of wool.

"The additional softness of the fleece, and evenness and soundness of the fiber, may be traced to the same cause which increases its weight; for if the cutaneous glands are full and healthy, which follows good condition, greater supplies of yolk are imparted to the wool, conferring greater pliability, elasticity and brilliancy, and at the same time promoting greater equality in the growth of the filament. Hence it is in Spain, Australia, and other countries corresponding in mildness and equability of climate, the wool of the sheep possesses a degree of softness and uniformity of growth unequaled by any other, which arises for the most part from the evenness of the condition of the sheep throughout the year, and consequently from the regular supply of yolk, not being checked in its flow by extreme cold. From this cause, and this alone, the Spanish Merino, and Australian, to use the phraseology of manufacturers, 'work more kindly' than all other fine wools; and less wastage follows in the process of cloth-making, occasioned by their soundness and toughness."

3. Shelter increases the number of lambs. It is very often the case—where flocks are kept without shelter, and even where full feeding has been the rule—that many of the ewes get greatly reduced and impoverished, before weaning time arrives. In such cases, without strength themselves, and without milk, the character of the offspring may well be conceived. If they live they are puny and ill-formed, and the next winter will make these its early victims. But give good shelter, and both dams and offsprings will be strong and healthy; will get a good start early, and grow up with well-formed and sound constitutions.

4. Shelter saves provender. This proposition is so well known to be true—so thoroughly fixed in the minds of all intelligent and observing men—that we deem it unnecessary to give reasons or facts in its support. The scientific reasoning in corroboration, we may give at some future time.

5. Shelter is the means of making additional manure. Where sheep are permitted to run everywhere, the manure may be said to be nearly or wholly wasted. And this is no trifling loss, as it is of a most superior quality. Manure is the farmer's capital stock, and every prudent farmer will see to it that it is not diminished; and if it is protected from the weather, it is not wasted away nor dissipated by the winds. In European countries this matter is deemed of so much importance as to warrant the trouble of folding nights throughout the year, and thus concentrate or save the manure and apply it where most needed. The American wool-grower may in the same way make his flocks not only add to his gains in fleece, but in their increase of number, better health, in the saving of feed, and increasing his manure heap, by affording good and proper shelters. We have thus called early attention to this matter, that farmers may not be amiss in their duty to those gentle and harmless creatures, which are dependent on them for protection.—*Louisville, Ky., Commercial Review.*

COMPOSTS.

The business of forming composts is one in which we may derive important assistance from chemistry. Every plant is composed of certain constituents, derived either directly from the soil, or through the medium of the atmosphere. It has been conclusively shown by experiment, that the best manure that can be applied to the grapevine, is a compost formed principally of its own foliage. In like manner we find that wheat straw, and the haulm of the potato plant constitute the best manures for the sustenance of those crops. Analogy also teaches us that the residuum of all vegetables, or that portion of them which remains after decomposition, contains the true *pabulum* of their respective tribes, and that in no way can their growth be more effectually promoted than by their application. This is, indeed, the course nature pursues. In our forests the only aliment the trees receive is furnished by the decay of the annual foliage, with the exception of a certain though unascertained amount of atmospheric food, derived through the medium of their leaves, and which is also of vegetable origin. These facts indicate a definite course to be pursued in feeding our crops. All vegetable matters are replete with the principles of reproduction, and should consequently be economized and turned to profitable account. Our lands are in want of all the fructifying substances we can procure, and this is one of the most prolific sources which we can hopefully apply.—*Germantown Telegraph.*

ON INSECTS:

With Descriptions and Directions useful to the Farmer, Gardener, etc.

We proceed in our endeavor to awaken an interest in, and to furnish facilities for comprehending, the dull details of this branch of natural science. We do not forget the suggestions we have made in reference to frame-work, and stagings, and the like; but we are certain that we shall receive the thanks of those who wish to acquire valuable information on this subject for presenting first, in a new form, some of these foundation timbers, properly fitted for their place in the grand whole. They are so adapted to each other as to require no effort in giving each its proper place, or in forming and completing at least a portion of a graceful, pleasing structure. The more rough timbers shall be kept out of sight, as far as is possible.

All our readers are, of course, aware, that to find any description of a particular insect, in the books, he must refer primarily to the order in which it belongs. How shall this be done by one who knows but little, or even nothing, of the science. To follow the usual course, requires considerable familiarity with the science, and no little practice. But careful attention to the following simple suggestions will enable one to do this without difficulty. If not, the whole thing will be clear before we close this article.

1. If the insect have four wings, the outer pair, or "wing-covers," being thick and opaque, and *meeting in a straight line, on the top of the back*, while the under wings are filmy, and folded transversely, and also a biting mouth, it belongs to the order Coleoptera. Beetles represent this division.

2. If it have two thick wing-covers, *overlapping a little on the back*, and two thin under wings, larger than their covers, which lie folded like a fan, in plaits, and a biting mouth, it belongs to the order, Orthoptera. Such are cockroaches, crickets, etc.

3. If it have four netted wings, the hinder ones being the largest, and have a biting mouth, it belongs to the order Neuroptera. Such are dragon-flies, May-flies, etc. These insects, by the way, have no piercer or sting.

4. If it have four wings, the upper ones being thick at base, with thinner extremities, or sometimes thin and transparent throughout, and a sucking mouth, it belongs to the order HEMIPTERA. Bugs, plant-lice, etc., are of this order.

5. If it have four wings, all covered with branny scales, and a sucking mouth, it belongs to the order LEPIDOPTERA. The wings of these insects slope like the two sides of a roof. Butterflies and moths are examples.

6. If it have four veined wings, the hinder pair being the smallest, and have a piercer or sting, it belongs to the order HYMENOPTERA. Such are ants, bees, etc.

7. If it have but two wings, and a sucking mouth, it belongs to the order DIPTERA. Musquitoes, flies, etc., are examples.

This classification was given in a modified form on pages 72 and 73 of our eighth volume. With few exceptions in the insects that need come under the farmer's observation, the wings alone would determine with tolerable certainty the order to which it belongs, and thus all difficulty would be removed, but for the fact that in some species, as that of the *ant*, the individuals of one sex are sometimes without wings, while the other sex has them. But where wings are present, this description will always apply. We refer here, of course, as already suggested, to insects after they have completed their transformations. Many of them, as all know, are most destructive to vegetation before these changes take place. But they propagate only when in the perfect form. It is very difficult for the skillful entomologist to distinguish between some of the different kinds of grubs, worms, and catterpillars, merely from their appearance, and utterly impossible for one entirely unlearned. Hence we take other things into account, with such forms of insect life, as their position, habits, etc. Even this, by far the most difficult part of our subject, we hope to make useful and agreeable to the reader.

The differences between a biting mouth, and a mouth for sucking liquids, are quite apparent, and the following description will enable any one to determine which of these is found on any given insect, with the help of an ordinary microscope, and often by the naked eye.

Biting insects are furnished with an under and upper lip, with two jaws or nippers, on each side, which move sidewise, and not up and down, and with four or six little jointed *palpi* or feelers—two on the lower lip, and one or two on each lower jaw.

Sucking insects have a mouth furnished with a spiral tube, as in butterflies; or with a hard, hollow proboscis, fitted for piercing, as in musquitoes; or with a softer one, ending with a flattened or fleshy lip, as in common flies; or with a long, hard, and jointed beak, bent under the breast, when not in use, which is designed for making punctures, and thus obtaining and drawing out liquid nourishment. This form may be seen in bugs, plant-lice, etc.

If you would thoroughly understand the differences here described, in the structure of the sucking mouth, or *proboscis*, pursue the practice we adopted many years ago, and suffer a common house-fly to rest upon the back of your hand and leisurely make experiments upon one and another part of it, to ascertain if he can find nutriment there. You can thus see very clearly the shape of *his* proboscis. If you then suffer a musquito to try his needle-formed proboscis, in the same way, you will easily perceive the difference. These experiments may be pursued with other insects, placed upon some substance which they frequent and love to eat, and your mind will become perfectly clear on this point.

The *piercer* may contain a sting, which is connected with a sack of poison or venom; or it may be merely a flexible, jointed tube, used in conducting the eggs of the insect into crevices and holes; or, again, as in a few species, it may contain a saw-like instrument for making holes in trees, in which the eggs are to be deposited.

Being able thus to designate the order of any individual to be ex amined, it will not be difficult, by turning to that order in any scientific treatise which may be at hand, to look at the various descriptions of genera and species, hastily, and find some one which answers to that before you. We refer now, of course, to a mode of examination, which is the best under the circumstances. We purpose hereafter to furnish much better means, even for those not familiar with the science.

After a careful reading of what we have written, if you turn to the technical descriptions, given by Linnæus, of the different orders, you will find that they have lost, in good degree, the repulsive appearance which they once had, as your eye accidentally rested upon them. They are as follows:

Coleoptera. Wings two, covered by two shells, divided by a longitudinal suture.

Orthoptera. Wings four, the two anterior ones leathery.

Hemiptera. Shells or covers of the wings somewhat soft, and incumbent on each other.

Lepidoptera. Wings four, imbricated with minute scales.

Neuroptera. Wings four, naked, transparent, reticulated with veins or nerves.

Hymenoptera. Wings four, membranous, tail of the female armed with a sting.

Diptera. Wings two.

But we will not leave this *stage* of our subject without another suggestion, which cannot fail to remove any remaining difficulty, if such exists. We have constructed the following table, which, so far as the application to this science is concerned, may claim to be original. But the same system has been adopted in Botany, by some of our best authors, and relieves that beautiful science of many troublesome difficulties. Hence we apply it (on trial) in this department of natural history. Its merit consists in this, that the mind of the learner is directed by it to a *single point*, and that point is described and set forth, leaving for the inquirer, not to mark out a plan for himself, but merely to say yea or nay, in each successive step. We first exhibit the table, and then illustrate its use.

TABLE.

1. Four wings. 2.
1. Two wings. Diptera.
  2. A sucking mouth. 3.
  2. A biting mouth. 4.
3. Upper wings thick at base, with thinner extremities. Hemiptera.
3. All the wings covered with branny scales. Lepidoptera.

  4. Anterior or outer wings (wing-covers) horny, meeting in a straight line on the back of the insect, posterior wings (or under wings) being filmy. Coleoptera.

  4. Wing-covers thick, and overlapping a little on the back of the insect, and two larger, thin wings, folded like a fan, underneath. Orthoptera.

  4. Four netted wings, hinder ones nearly the size of the anterior. Neuroptera.

  4. Four netted, membranous wings, the posterior being smaller than the anterior. Hymenoptera.

Note, that in this last-mentioned order, Hymenoptera, the female insect is usually provided with a piercer or sting.

In using this table, we first inquire whether the insect has *four* wings, or only *two*. If only two, it belongs to the order Diptera. If it has four, then go on to the number designated, which is 2. Here you inquire whether it has a *sucking* or a *biting* mouth, and if a sucking mouth, you go on to 3. At 3, you look at the texture of its wings. If the upper wings are "thick at base," etc., it belongs to the order Hemiptera. If all the wings are "covered with branny scales," it is of the order Lepidoptera.

But, perhaps, when we came to the second inquiry, we found it had a *biting mouth*. If so, we must pass on from 2 to 4, as directed by the figure. Here we have a single point to investigate, and according as the specimen examined answers to one or to the other of these four descriptions, each of which is numbered 4, it belongs to one or the other order named in connection with it.

With all perfect insects, which are not *anomalies*, or exceptions, this plan is entirely free from difficulty, and so far as we use it here, it seems just what one needs, who has no confidence in himself, to attack a system which includes several thousand species, without some guide or without plainer directions than can be found in any extended scientific treatise. P.

TILLERING—BY A NORFOLK (ENGLAND) FARMER.

On this subject most, if not all of the writers have fallen into a singular mistake as to the origin of the tillers of cereal plants. It is laid down by them as an established fact that the tillers proceed from the coronal roots, which *invariably* form on the plant just below the surface of the soil. This is so confidently laid down by every writer I have consulted, that I took it for granted that it was correct; until having recently had extensive opportunity of examining for myself, I have at once discovered, what any other person may do with very little trouble, that the tillers *do not spring from the coronal, but the seminal roots;* and that, in point of fact, the former, so far from being an essential appendage to the plant, are entirely accidental in their formation. They proceed from the first knot or joint formed in the stem, *provided* that knot is beneath the surface; but if, as is frequently the case, it is *above* the surface of the soil, no coronal roots are formed, and the plant is wholly supported by the seminal roots, which in *all* cases constitute the main source of nourishment to the plant. I have now under examination the stubble of a number of plants of this year's growth, some of which have from twenty-five to thirty stems. In all these the tillers spring from the seminal roots, without any exception. Some of them throw out coronal roots; but others, which have no knot below the surface, have also no coronal roots, but are equally strong in the stem and heavy in the ear.

I have laid the more stress upon this circumstance, because even Le Couteur has fallen into the same error, and written upon the presumption that the coronal roots are an essential and invariable part of the plant; leaving his readers to infer, that without them there would be no tillering. This also has led to another error, namely, that after a certain time (supposed to be the month of April) the seminal roots cease to impart nourishment to the plant, which then and after derives its support from the coronal roots alone. It was in an investigation of this assumption that I discovered the errors regarding the tillering question; and I therefore request those who have taken up with the commonly-received view of the case, to do as I have done—examine for themselves: and they will have no difficulty in discovering the true state of the case. The best way will be to wash the roots first from all the mold, and let them afterwards dry, when the examination can be made with more ease and precision.

The establishment of this fact greatly strengthens the arguments in favor of deep sowing, by which the chance of the formation of a joint below the surface is rendered more certain, which also insures the formation of coronal roots. These undoubtedly are of great utility in imparting a more firm hold upon the soil, as well as additional nourishment to the plant, and consequently lessens the danger of the corn being lodged.

The fecundity of the cereal plants, and their reproduction by transplanting the offsets or tillers, is truly wonderful. We read of from forty to one hundred and twenty ears being grown from one root or grain; and there is an account in a work by Sir Kenelm Digby, written in 1660, of a plant of barley in the possession of "the Fathers of the Christian Doctrine" at Paris, who kept it for many years as a curiosity. This plant, which was the produce of one grain, had 249 ears, from which were counted above 18,000 grains of barley. In the Cambridge case, which is mentioned above, if the plants were set at one foot distance, it would insure a crop of ten quarters per acre, which under the circumstances was not an apocryphal produce; and at the average number of stems was forty-two, less than a foot would leave them very much crowded. Thus, there are in an acre 43,560 feet, which, divided by 500, gives 87; then multiply this by $3\frac{3}{4}$ pecks, the produce of the 500 plants, and we obtain 327 pecks, or about ten quarters per acre. The soil on which this was raised was a light blackish one, with a gravelly subsoil; part was well manured, and part without any manure whatever; but there was no perceptible difference in the strength of the straw or size of the ear.—*Farmers' Magazine.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE FARMER'S HOME.

We commend the following excellent communication from our valued correspondent, as worthy of a very careful consideration. If the suggestions which it contains were carried out in their true spirit, through all the arrangements of the family, we believe that immense good would result, both in producing reformation where reformation is needed, and in affording security to those now in the early morning of their days.—Eds. P., L., and A.

During the past year I spent several months in a rich agricultural district. Having been bred a farmer, I felt at home, and took an interest in observing the improvements which have been introduced into farming operations.

The power of mind over matter is strikingly illustrated in the invention and construction of machinery, and its application to the farm. The number of machines patented yearly, for performing almost every species of work, so multiplies the facilities for agricultural labor, that the plodding toil of months, in the times of our sires, is now performed in a less number of days, with greater ease.

But while our independent farmers are supplying themselves with labor-saving machinery, stocking their farms with the most improved breeds, and adopting those modes of culture which science and experiment point out as most productive, we do not generally find the *home* improvements progressing equally.

The young or middle-aged man who can appreciate the value of improvements which multiply dollars and cents, often, from education and habit, thinks not of increasing the attractions of his home by increasing its comforts and beauties. Children grow up around him without enjoying advantages which his abundance should secure to them, and become contented to possess wealth, without acquiring the means which give position and influence among intelligent and cultivated people. Or else, becoming disgusted with farm-life, they go out into the crowded cities and villages, and seek other occupations.

Many men have so much animal in their compositions, they cannot appreciate beauty of a higher grade than that which they see in a fine horse or bull. I do not talk to such—there is nothing in common between us; their mission is not a high one, and they may rest satisfied to do the labor of slaves. They are capable of nothing which shall develop the refinement and grace of which the farmer's home is susceptible.

It is the duty of the farmer to educate his children well, so far as his means will allow, and to make their home smile with those adornments which are within his reach, that they may not, as their minds become cultivated, learn to look upon their father's occupation with distate. The man who has broad acres teeming with wealth, and barns groaning with their fullness, surely can spare time to look to the welfare of his children, and means for gratifying their tastes. He may teach them to honor and love his occupation, if it is not made repulsive to their sensibilities. It is not necessary, even in the busiest season, that he should appear before his family at table, stripped of his coat, and his wife fill her place with sleeves above her elbows. It is not necessary that he should stretch himself on the floor for rest, when at a trifling expense, his house may be supplied with comfortable lounges. It is not necessary for the family to occupy the kitchen, when there is the "spare room" in its loneliness waiting for "company."

Spare rooms are a nuisance in a country house, usually occupying the pleasantest portion, and wearing a prim look, implying that they are to be opened only on special occasions. When I enter such, I feel tempted to set the chairs to dancing around, wheel the tables out from their precise positions, and to give all things the appearance of having stopped in the midst of a general "hop." "The spare room," if properly furnished with books and papers, has a genial atmosphere that should enable the sons and daughters of the farm to cultivate tastes which elevate them far above those who only think of filling the purse.

The farmer's home, when graced by intelligence and cultivation, and giving evidence, in all its surroundings, of the fine sensibilities of its inmates, is the place where, before all others, I would seek for the real enjoyment of life. JUNE ISLE.

FACTS AND DEFINITIONS.—BY STOCKHARDT.

"GRAPES, carrots, and many fruits and roots have a sweet taste; they contain sugar. The branches and leaves of the grape-vine have a sour taste; they contain an *acid salt.* Those of the wormwood have a bitter taste; they contain a peculiar *bitter principle.* The latter also possesses a powerful odor, which proceeds from a *volatile oil.* In the seed of our various kinds of grain, and in the tubers of the potato plant, we find a substance resembling meal, *starch;* in the seed of the rape and flax plants, a lubricous fluid, *fat oil.* From the cherry and plum trees there exudes a viscous matter, soluble in water; from fir and pine trees a similar product, but insoluble in water; we call the former *gum*, the latter *resin.* That which gives mechanical support to plants, forming as it were their bones and blood-vessels, receives the name of *vegetable fiber*, or when it has become tough, insoluble, or indigestible, the name of *woody fiber.* In the sap of plants we meet with a substance which coägulates by boiling, like the white of an egg or the albumen of the blood; in peas or other leguminous fruits, a substance which is extremely like cheese; in the seed of rye, wheat, oats, and other kinds of grain, a substance whose composition is identical with that of the flesh of animals; the first is called *vegetable albumen*, the second *vegetable casein*, and the third *gluten.* Finally, on the combustion of the plant, we find a residue consisting of an earthy or saline powder, which neither burns up nor volatilizes by heat; this contains its *mineral constituents.*"

STOUT RYE IN NANTUCKET.

E. W. GARDNER, Esq., of Nantucket, raised twenty-two bushels of rye on a half acre. His manner of growing it, as stated below, may be a matter of interest to those who have lands bordering on the sea. He says: "The land on which this rye grew, is sand and loam, on a subsoil of red sand and gravel. It had been used for several years in grass without any manure, until it was scarcely worth mowing. In August of last year, I put upon it broadcast about thirty-seven full cart-loads of what we usually denominate 'kelp,' but which, in fact, is sea-mosses, of various kinds, including a large portion of 'Caragheen,' or 'Irish moss.' This was plowed in at a depth of about ten inches, and sown with about one-third of a bushel of rye, a peck of herds-grass, and five pounds of clover-seed, early in September. The rye grew to about six feet in height, and from early in the Spring until it was ripe, its beauty attracted the attention of all passers by. About the time of the last rain preceding our great drought, I counted the grains of several heads in full milk, which numbered from fifty to seventy-two, and at that time it gave promise of a good yield; but the drought ripened it prematurely, and it yielded only twenty-two bushels of grain, and about two tons of straw.

TOO MUCH LAND.

We see this heading in papers from every quarter, agricultural and others—"Too much land," "Too much land." In part, it is true;—as a nation, we have too much land till more are born here, or come here, to occupy it; and then again we have too much land, till more manufacturing is done among us, to create demand for produce; and our policy is not yet of a kind to hasten an American supply of American wants, quite as fast as the farming interest requires, and we will add, *all other interests*, for when the farmer thrives, all thrive. Stick a pin there.

This old heading, "Too much land," is partly true in another sense; there are individuals and companies, who are getting quite too much of God's heritage into their own clutches. We do not believe in land monopolies, would rather see any thing else monopolized; but we are no politician, and know not that it can be prevented. In the sense in which the stale motto is used, that of charging that American farmers have too much land, it is partly true, for some farmers who have ten acres, have too much; and it is partly false, for others, who have one thousand acres, have not a rood more than they ought to have. We know farmers of ten acres, who have just nine and three-quarter acres too much; and we know others with a thousand acres, from whom we would not take away a rod.

To estimate how much land one should undertake to cultivate, he should first estimate himself. If he is a man of small means, little energy, not much intelligence, reading but one agricultural paper, and perhaps none, unable and unwilling to drive a *smashing* business, ten acres inland, and less near a city, is enough. But if he is a man of energy, conscious of intelligence up to the mark of directing his own and others' labor, willing to be bothered and yet bent on going ahead, quick to seek new information from any source—books, papers, wiser heads, nature herself; in short, if he believes that he possesses the ability, and is willing to do a large business and keep the irons from burning, we see no reason why he should be limited in the application of these talents to farming, any more than if he had chosen to use them in any other direction. We seldom hear the enterprising merchant warned that his store is too large, so long as things go well in it; and cannot as much energy be employed, as controlling an influence over the labor of employees, as pervading an insight on the farm, as in the counting-room. We are not much in favor of millionaires. We would prefer a state of things in which the many should have a competency. But we do not see why, if we are to have our merchant princes, we may not have our farmer princes also; and if the merchant may enlarge his business up to the outside of his ability to manage it successfully, why may not the farmer? We are no apologist for one man and a boy *running over* a thousand acres, nor a hundred acres, nor ten even; but whoever can *cultivate* ten acres, or a hundred, or even a thousand, let him do it. We go for measuring the man first, and then giving him a field commensurate with his ability. Small farming in a thorough way, with deep plowing, thorough pulverization, large crops, a wise expenditure of them, and a snug thrift as the result, is a good thing. No one need be ashamed of being a good farmer of a few acres. But we insist that large farming is a good thing also. If any man possesses the ability to farm many acres *well*, give rope. The profits of large farming *may be made* greater than those of small farming possibly can be, because in the former more extensive machinery can be introduced, the cost of production can thereby be diminished, and the margin between cost and sale prices enlarged. N.

UNDERDRAINING WITH STONE.

My experience in that line is of seventeen years' practice. In 1839 I ditched around about four acres of the most perfect bog swamp I ever saw. The ditch was from two and a half to four feet deep, according to the ground through which it passed. It was dug as narrow as it could be and let the men use the pick and long-handle shovel. This ditch surrounded the swamp, keeping mostly in ground dry on the surface; still the outlet went through deep muck. I filled from fourteen to eighteen inches with stone taken from the four fields about the swamp, clearing them of surface stone completely. Through this muck bed where the ditch was compelled to run, it was necessary to place old boards at the sides and bottom, making a sort of rude trough in which the stone were placed and bogs thrown on them. The stone were all slightly covered with either straw, turf, or fine shavings, (which I consider best,) before the ditch was filled; then with a plough the work was soon finished by turning in the dirt taken from it.

After its completion, there were drawn from the swamp one hundred and twenty-eight large cart-loads of bogs that were counted, and after that the boys said they thought they drew as many more, of which they lost account, but all done in the same season. The first crop raised on it was buckwheat, and since that time up to the present day, that swamp has been planted, sowed, pastured or mown, as other dry land on the farm, the water from the outlet running freely and steadily ever since the work was finished, without any intermission.

At different times since 1839, I have underdrained wet land, (surrounding it in almost every instance,) always using small stone, taking some care in placing the bottom course; after that throwing them in promiscuously, and never yet have failed of reclaiming the land to my entire satisfaction.

I have probably about sixteen acres of land tripled in value by this method.

I forgot to mention that I failed in one instance, and that was for want of sufficient fall in the outlet.—C. Du Bois, *in Country Gentleman.*

TREE CULTURE.

On the Atlantic slope of the United States it is no unusual thing to come in contact with lands so filled with hedges, that, with their shallowness of soil, it becomes impossible to give them the tillage necessary to insure remunerative crops. Then again there are hill-sides so steep that plowing renders the soil so open, that subsequent rains wash it into the lower lands, and thus, instead of its fertility being increased, its impoverishment actually follows.

Reason fully teaches that lands in either of the above cases are not adapted to purposes of cultivation, and observation goes fully to establish the conclusion. If not already so, they are fast becoming the waste lands of the country. The question then comes up, not only to the owner of such lands, but also to the national economist, What can be done not only to keep them in as good condition as they now are, but, if possible, to increase their value?

We know of only one answer to be given to such an interrogatory, and that is, to cover them with trees—bring them into a forest state as soon as possible. And here an objection will arise in the minds of many of our calculating farmers, who are eager for present profits from their lands. In the first place, the expense attending the starting of the forest; and the imaginary loss of the use of land until the timber is fit for removal.

These objections are both fallacious. The seeds of valuable timber trees are easily gathered, and may be sown with a crop which of itself will pay the expense of cultivation of the land, after the harvest of which the young trees must be allowed to monopolize the soil. The trees will grow rapidly from the seed, and the leaves, increasing in quantity from year to year as the size of the trees increases, by falling on the ground, and in each succeeding year will give them more rapid growth.

Or if the process of raising trees from seed seem too tedious, they may be successfully transplanted to such localities. Take the yellow locust, for instance, whose value for timber is well known, and which ranks as a rapid-growing tree. These are easily raised from seed, and succeed well if transplanted; and what renders them more valuable for covering such lands, their tendency is to increase rather than diminish the growth of grass. Cattle will not injure them, in consequence of their thorns, as they will other trees, and they have a remarkable propensity for throwing up new shoots from their roots, so that a less number may be set upon an acre with a prospect of having the ground well covered, than of almost any other kind of tree.

The growth of this tree is so rapid that it will bear cutting in ten years, though it will be more economical to allow it to grow fifteen or twenty years. In the latter period, the income on an acre will give a good percentage. The second crop will come up and grow more vigorous than the first.

As a matter of public economy, the several States, or the nation, would do well to offer to individuals encouragement for improving such lands by tree culture. At least let all lands planted or sown to forest trees be exempt from taxation for a given number, or all the years while it remains unavailable to the owner; for the wealth of the State and the nation would be increased by the increased growth of valuable timber, in as great a ratio as would that of the farmer who, for a series of years, gives up the use of his land to the growth of a commodity the absence of which would be severely felt by all.

Yours truly, WM. BACON.

RICHMOND, MASS., Dec. 16, 1856.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

MESSRS EDITORS:—East Tennessee now presents a dreary aspect. Since its settlement by Christian people no one year has yielded, *communibus annis per capita*, so poor a crop. "Cause," the drought. The wheat crop was, however, a medium one, the grain well filled, sound, plump, and healthy. Oats very short and light. Grasses were consequently thin, and the hay not heavy; and as for corn, the staple of the district, it is of less yield than the "memory of man runneth back to the contrary." East of Knoxville, and to the Virginia line, the corn crop, perhaps, justly speaking, will not be one third the usual gatherings in the Tennessee Valley. West of Knoxville, the crops are better. To add to the calamity of the East Tennessee farmer, in 1856, the army worm has visited us and has played havoc with our growing clover, meadows, and grazing grounds. Many of us hesitated to sow wheat as early as usual; some have sown the same land twice, and yet, on account of the ravages of this insect, have now but a poor stand. It has not been our misfortune to have had a visit from these enemies since 1829 till 1856.

Their work seemed to be so secretly performed, so thoroughly done, so early begun and ended, that our very best farmers could devise no means of attack or defense. Perhaps some reader of your valuable journal, in the event you, Messrs. Editors, are unable, could tell us how hereafter to fortify our verdant fields against this occult enemy. This short synopsis may give you an idea how our lovely valleys look. So gleaned are our adjacent knobs, so bare and dreary, the winter sets upon us with our stock generally thin and weak for the season. Notwithstanding all this scarcity of grain and provender, prices of living animals domesticated on the farm remain fair on our side. The pork crop may not be so abundant, but doubtless the hogs will be heavier, and the bacon, as a consequence, better than last year. Our wheat is hardly as quick sale at the prices of last year, there being, as per our advices, but little foreign demand for this grain here. It is a little unusual that corn shelled, is worth more money than wheat per bushel. Speculators and others driving hogs from and through this district to market, have bought and fed on wheat instead of corn as formerly.

That portion of Tennessee lying betwixt the Tennessee river and Cumberland mountain, called Middle Tennessee, has this year yielded a very fair crop of all kinds. This last district produces cotton to a very considerable extent; otherwise their mode of farming is pretty much like ours. We are imitating them in putting to work here and there a steam saw and grist-mill. Sometimes a thread and cloth factory is now seen in our district.

Whilst our arable lands have advanced in value at least one hundred per cent. within the last ten years, and are still progressing, our merchants were never more safe in their business. Our currency is plenty, and carries confidence wherever it goes. Tennessee is a fast State. Her minerals are now being successfully wrought and transported. Her railroads are completing as rapidly as may be. Her villages are ornamented with beautiful churches and college buildings. Her valleys specked with neat farm houses, surrounded with good barns, etc. Nor in any country can a more frugal and industrious farming community be found. Looking forward to a more propitious season in 1857, and in a firm reliance in the Divine benignity, our farmers are social and cheerful, the first idea given you herewith notwithstanding. A. L. B.

MILL-BEND, TENN., December, 1856.

The writer may expect an article on the question of "attack and defense" against the army worm, and other enemies of the wheat crop, at no distant day. In the mean time, will our correspondents make a note of his request. The subject is an important one, and there will be room enough for us and them. The reader will find something on this subject in our October and November numbers, to be followed by more, and of a more practical nature, hereafter.

THE WYANDOT CORN.

We have made trial of the Wyandot Corn at Roslyn, on Long-Island, the present season. About a quarter of an acre was planted from a single ear received from Mr. J. C. Thompson, of Tompkinsville, Staten Island; a grain in each hill. The soil was not entirely suitable to this kind of corn, or, indeed, any other, with the exception of about one quarter of it, where there was a good rich mold. In that part, also, the mice did considerable damage by eating the grains before they came up. The experiment on the more fertile part of the spot planted with this corn was perfectly satisfactory. From each grain sprouted from four to eight or nine vigorous stalks, ten or twelve feet in height, on each of which was one, and sometimes two ears. The corn will ripen well this season. From our experience of its cultivation we should think it a variety worth trying extensively in this neighborhood, and have no doubt whatever of its being a most valuable and desirable sort for those parts of the United States where the season is a little longer than here, on account of its extraordinary power of reproduction, yielding, as it does, eight or ten ears to a single grain committed to the earth.—*New-York Evening Post.*

CARROTS FOR HORSES.

Lately going to the country to spend a few weeks with a friend of mine, I drove a very handsome horse, and a good 'un, but was always annoyed about his coat—it was more like a lot of bristles than a horse's smooth skin, and all the grooming he could get "wouldn't do it no good." My friend, who is a great horse breeder and fancier, made me try giving him a few raw carrots every day to eat out of my hand, saying that he would have a good smooth coat in three weeks; and he was right, for in that time my horse had a beautiful, sleek, glossy coat, and all from eating a few raw carrots daily. He tells me it is infallib'e.—*Cor. Porter's Spirit of the Times.*

SMALL HORSES.

The arguments may all be in favor of great size, but the facts are all the other way. Large horses are more liable to stumble and be lame than those of the middle size. They are clumsy, and cannot fill themselves so quick. The largest of any class is unnatural growth. They have risen above the usual mark, and it costs more to keep them in position than it would were they on a level with their species. "Follow Nature," is a rule never to be forgotten by farmers. Large men are not the best for business; large hogs are not the hogs to fatten best; and large hens are not the best to lay eggs. Extremes are to be avoided. We want well-formed animals rather than such as have large bones. Odd as it may be to the theorist, short-legged soldiers are better on the march, and officers say they endure hardship longer than those of longer limbs. On choosing a horse, take care, by all means, that his legs are short. If they are long and split apart like a pair of dividers, never inquire the price of the dealer. Make no offer.—*Indiana Farmer.*

ORCHARDS.—In your apple orchards, young or old, remove the dead trees, or those that must soon die. Then prepare the ground by deep spading, and by generous manuring, with well rotted manure, leaf-mold, and a sprinkling of old lime. If this kind of manure is generously applied, apple trees may be wisely planted where apple trees have stood before. There is, we know, a feeling that it is not the best. But we think it is often best; and the evils that are feared may be avoided, if plenty of the right kind of manure is used. Plant trees as soon as the leaves have fallen off, and when you have done the work, drive a stake near by, where the roots of the tree may not be hurt by it, and tie the tree to it. This will prevent the disturbance of the tree by the frosts of winter. Remember that the fall is deemed by the best orchardists the best time for setting out apple trees.—*Ohio Farmer.*

Senior Editor's Table.

WE wish our readers all a happy new year; and here, at its threshold, we pledge them our best endeavors to do, with our might, all we can, in our line, to contribute to their material prosperity, and consequently to their happiness. By heeding the suggestions of our associate, and those in our business notices, they will see that they can do much to promote ours; and we believe they will see that we have so associated our interests with theirs, that while they advance the one, they will not fail to advance the other also.

Of the injustice of paying subscribers being taxed, as they virtually are, by all publications not paid for in advance, to make up for those who pay nothing, or pay so reluctantly that it costs more than it is worth to get it, we have spoken otherwhere, and we have pointed out the only remedy. To be always paying for delinquents, when you take a periodical, to do this involuntarily, with no chance to show your generosity, to do it, perhaps, without knowing that you do it, is not so pleasant. We advise, therefore, to apply the only remedy, and escape from it altogether, viz.: if you want to do a generous thing in the way of paying for others, to do it voluntarily and have the credit of it.

There is a way in which you can accomplish this:—Give our current volume, or a year's subscription, beginning when you please, to some friend, who cannot well afford to pay for it, and who you believe would be stimulated to a higher style of cultivation by such a journal. By adopting the suggestions in our business notices, you would save half enough on your own subscription to accomplish the object. The price for the journal, ordered for such an object, will be two dollars. Suppose you should think of this about New Year's.

There are other subjects, grave and gay, fitted to the season, on which we would like to hold a long talk with our readers. But our pen-driving associate, or our more pen-driving self, as we fear it will turn out, has been too busy with these pages; the printer cries "Hold up;" and we will end as we began, by tendering to our readers our hearty congratulations. May goodness, intelligence, wealth—we name them in the order of their worth—be theirs.

Mechanical.

THE FIRST AMERICAN SHOVEL, AND ITS CONSEQUENCES.

We have no sympathy with that feeling which prompts one to be ever prating about "the dignity of human labor," nor do we see any occasion for such efforts. We are content, when we recur to such a topic, with the simple suggestion, that cannot be disputed, that, whether it be desirable or honorable, or otherwise, labor is man's destiny, part and parcel of his being, and he who does not labor shuts himself out from the direct enjoyment of many and rich rewards, which belong of right, and are given to every one who properly fulfills his destiny. We therefore prefer to follow out other trains of thought; we like, rather, to hold up to view the practical, real, living, acting, influential, creative—one who will not be a drone, who aims not at the highest he can imagine, or even the highest he can see, but the highest he can attain. This is the true man, the real benefactor of his race. We would represent such a man, in his every-day life, reaping, as he goes, the certain, constant, permanent reward of intelligent labor. Even these every-day scenes, we would strip of all merely adventitious, accidental attractions, and then our picture is more honorable to the man, and he is more useful to the world, and richer in his gains, than any pretentious and boastful but indolent and inefficient member of his race, who ignores the plain and practical duties of life, and has no ambition *to achieve.*

We once heard a learned Professor treat of "the poetry of mathematics;" and if his definitions were correct, our topic, even thus limited, is poetic, and is so demonstrated in the paragraphs which follow. Like Schiller, who, in elegant verse, celebrated the casting of a bell, so, another equally gifted mind, selecting our present topic for his theme, may open up vistas of brilliant thought and joyous fancies. We adhere to our topic, *the production of the first shovel.*

The iron for our humble tool is in the mountains, intermingled and combined with various other matters, neither in form nor substance what we need, covered up and scarcely accessible, and utterly beyond the power of ordinary men even to discover it. There let it lie, says Indolence. There let it lie, says Hesitation; and Doubt thinks he is right. There let it lie, says the drowsy son of a rich father, who earned what the son is spending. There let it lie, says proud Conservatism, who knows nothing of progress, and least of all, progress among the masses. Not so, says intelligent Industry; we will dig up these hidden treasures and open a mine of wealth more precious than a mine of gold; silver cannot buy it. But how shall it be done? Where is the man with skill to find, and enterprise to develop, these immense resources? Go to our Universities, but you will find the pupils unlearned in these sciences, and no one answers to your call. Even "the faculty" have not acquired this art. Then we must go abroad, where such operations are familiar to hundreds, and there we can find a man to pronounce this *sesame.* But he must bring his own pickaxe, and drill, and sledge, his spade and his crucible. We have none of our own production. We must borrow or buy every thing we need. So we import our engineer, and he brings his tools with him. He digs into the mountain, and ere long, huge piles of ore are waiting to yield up their treasures. But there is no furnace. How shall we manage this matter? Call in a troop of masons, summon a score of brickmakers, and of stone-cutters, and furnish them all with implements. Meanwhile, get car-builders and blacksmiths, and provide the means for conveying the ore to the furnace. Very speedily the tall pile looks out over the wide horizon, and proclaims a glorious success. Then the services of another set of mechanics are needed, to build various conveniences, for which lumbermen have provided the material, and by the use of foreign nails and foreign hammers, this task is soon completed. The makers of wooden-ware, glass-blowers, etc., by the help of some half dozen other kinds of craftsmen, provide the buckets and tubs, the tumblers, etc.; potters furnish the earthen-ware, for the accommodation of the workmen; chair-makers, cabinet-makers, tailors, hatters, etc., each furnish their several products for the convenience of all, and each helps the other.

But who shall feed them? They are all hungry, and have no food. They send to the neighboring farmers to buy meats and vegetables, and a temporary supply is obtained, for which they pay a liberal price, double and quadruple what had previously been quite satisfactory. But these supplies are soon exhausted. The farmer must clear his forests, and enrich his soils, and raise larger crops; and to do this he, in turn, needs more help, and calls in men from abroad. Before, the farmer only fed his own family. Now he feeds many more. His market is more than doubled, and his prices are increased four fold. Then he needs more tools, more ploughs, more hoes, more scythes, more of every implement; and this again requires more mechanics, and he must constantly add to his annual crops, and as he increases his daily labor, adds, in a still greater ratio, to his constant returns.

Meanwhile these mechanic arts are in successful progress, and very soon the shout echoes along the valleys, that the work is done. Art has a home among our own mountains. We can make, we have made, our first shovel.

And, lo! a village is in progress. Every industrial art is called into requisition, and all are employed, and all prosper. Population increases; the village is extended; the lands rise in value a hundred fold; agriculture is profitable, new and improved modes of farming are introduced. Industry is king, and his reign is a complete triumph.

A genius like Schiller's might well immortalize itself by the Song of the Shovel, as it has already by the Song of the Bell, which not only pleases by its poetic beauties, but is made doubly effective in the melodies and harmonies of rich music.

It is the energy which finds scope in such scenes, and only this, which gives vitality to a nation. Literature and refinement, unsustained, do not perpetuate themselves. It is hard for them to maintain their high demands on successive generations, in the midst of indolence and inactivity, and under the pressure of diminishing resources, and perhaps in the face of impending poverty. Under such circumstances, elegant retirement soon becomes changed into imbecile idleness, and the enjoyment of literary leisure is degraded into lazy, besotted ignorance.

In ancient mythology, we are told that Vulcan, being enraged with his mother, Hero, made and presented to her a throne of gold, upon which she was no sooner seated than she found herself unable to move. So it is with the votary of dignified idleness. He is thoroughly enslaved, and loses not only the power but also the will to be free. He even glories in his condition, and none the less when he sees his dependence wasting away, and the community around him either getting the advantages which he has lost, or, together with him, sinking into the like imbecility and decay. The realms of Pluto were so gloomy that all the goddesses refused to marry him. So should it be with those communities where useful labor is held in dishonor, and Idleness is enthroned as king.

But in the realms we have been describing, as already stated, Industry is king. The Romans, in their works of art, represented the Genii as winged beings, and this name is derived from a word signifying *producers*—one of the instances which so abound in this fabulous system, in which the greatest truths are taught under a fictitious form.

Now, if the reader would see all the pleasant parts of this picture, so imperfectly drawn, developed in real life, proving themselves *living truths*, and set off with much more, equally pleasing, let him read the following abstract of a description which we find in the Boston *Traveller*, in reference to the commencement and prosecution of just such an enteprise. P.

THE AMERICAN SHOVEL.—D. AMES.

In the last century, most of the shovels in use, in the Northern States, were of wood—shaped out by the farmers, and then "shod" or edged with iron or steel, by the blacksmiths. About fourscore years ago, in Bridewater, we think, Mr. John Ames began the manufacture of shovels. He used American iron, and the bars were brought from neighboring forges by his own son, carrying the load before him on horseback—say two bars at a time. The rolling, shearing, hammering, etc., was done at his shop; the handles were made by cabinetmakers. At this period a Mr. Dyke was also engaged, in North Bridgewater, in the same business. During the Revolution, there was a great demand for guns, and Mr. Ames contracted to furnish these to the Continental army. After the struggle was over, he turned his ingenuity to the fabrication of knives and forks, and scythes, then much needed.

It was about 1800 that the youngest son of John, Mr. Oliver Ames—who, though more than threescore and ten, is still hale and active, and at the head of the firm we shall refer to presently—re-commenced the making of shovels at Bridgewater. He changed his location several times, having his shop in Bridgewater, Plymouth, and Easton, respectively, until 1814, when he settled permanently in the latter town. From 1814 to 1820 he turned out from 8 to 10 dozen per diem. In 1821–22 there were but two shops. A want of water led to an increase of the number; and privileges were obtained, and a shop built in Braintree in 1822, in West Bridgewater in 1829, and in Canton in 1848, carrying nine trip-hammers, and five grindstones, which still belong to the concern, being tributary colonies to the central establishment. In 1845, Mr. Ames took two of his sons, Oliver and Oakes, into partnership. Several of the third generation are employed as clerks and overseers; so that the manufactory is a sort of "family affair," and is managed with consummate system and skill, and is made, indirectly at least, to produce something besides material wealth.

The village of North Easton, in population and prosperity by far the largess portion of the town to which it belongs, is in Bristol county, about 22 milet from Boston. There is nothing specially attractive about the place, and the editor of "Harper's Gazetteer of the World" appears to have been ignorant of its chief glory, as it has not a syllable about the shovel factory. As a matter of fact here is a thriving community, of some 2000 souls, quite homogeneous, comfortable and independent—made what it is, with its cottages, churches, schools, etc., almost entirely by the wise enterprise, and mechanical skill and business talent, of a single family.

The main building of the factory is two stories high, 525 feet in length, with an L 95 feet and an engine room 40 feet, built of stone obtained hard by. Another stone edifice has been recently erected, where ten trip-hammers are put in operation by a steam engine of 250 horse power. Besides these main structures, there are six hammer shops, (all the hammer shops give 24 trip-hammers,) one griding shop with five stones, and one shearing shop.

It requires 24 different processes to complete a first quality cast steel shovel. All these processes are performed on the premises, except the making of the handles; these, of white ash, are made in Pennsylvania and Maine—the wood from the latter State being preferable for its closer grain. The advantage derived from machinery and the division of labor may be judged of, from the fact, that a shovel is finished in about one hour and a quarter; and, 300 men being employed, shovels are produced at the rate of one in every *fifteen seconds*, or 200 dozen a day; that is, 2400 shovels in ten hours—720,000 in a year!

There are seven different qualities of shovels—among which is the long-handled, pointed-blade shovel, preferred by Californians. The stock used in one year is as follows:

Best Swedish Iron	900	tons.
Cast Steel	400	"
Fuel	2000	"
Grind Stones	85	"
Emery	18	"
Vitriol	5	"
Glue	3	"

The amount of sales, the last year, was $600,000. The average price of shovels per dozen, is about $10.

At this establishment are manufactured one third of all the shovels (six hundred dozen a day) made in the United States. So it is the banner shop, followed at a considerable distance by about thirty other shops, the principal of which are at Philadelphia and at Pittsburgh, Pa.

We look upon the establishment of the Messrs. Ames as something better and higher than a successful business operation, and as having other relations beside its relation to the business world. It illustrates the fact, that the right and enlightened pursuit of individual interest may be truly philanthropic in direct and indirect results, and it symbolizes the progress of civilization. There is that about North Easton which indicates the presence of a positive regard for the welfare of the little community, and a positive public spirit. But without adverting to this, the place is an evidence how the interests of employers and employés are identical, and how all prosper together. At a rough guess we may say that fifteen hundred persons are dependent upon "The Shop"—and "The Shop" takes care of them all. Some of the operatives have been steadily at work for years, and earned a competence. One man, if he lives till next November, will have been engaged in shovel-making, under Mr. Ames, for half a century; and he has, naturally enough, identified himself with the "concern," and feels that his connection with it is something to be proud of. Should his life be spared till he rounds off the fiftieth year of his service, he ought to have a jubilee and a testimonial!

But besides the benevolent working of this free-labor institution—where every man who respects himself may preserve his independence and put the wages of his own toil into his own pocket—it tells also of social advancement. You may despise a single shovel, but when you reflect that more than *two millions* of shovels are demanded annually, from the makers of the United States alone, the shovel, we submit, becomes amazingly significant.

Gas Lime.—The gas lime must not be applied in a fresh state to any crop, but should be mixed with two or three times its weight of earthy or vegetable mold, and then turned over repeatedly for at least twelve months. It will then be fit for applying to the land. It will be most appropriate for clover or grass lands. From fifty to sixty bushels of the gas lime, prepared as before mentioned, may be used per acre in the autumn or spring.—*Mark Lane Express.*

AMERICAN MECHANICS AND MANUFACTURES.

A NEW IRON STEAM SHIP OF WAR.—The use of iron for civil and naval architecture, is becoming very common, and unless the bright hopes of those in this interest are dimmed by some unlooked-for failure, which hardly seems possible, there will be opened for such uses an immense iron market, which may have a material bearing upon its market value. Few stores are now built in this city without an iron front, at least of one story; and often such structures are continued of iron to their very tops. In naval service, we have made less progress, but the work is commenced, and not only contemplates small boats, but large ships. Many of our readers have heard of the "strictly private" structure that is to become a ship of war, or a naval battery, or something of that kind, in Hoboken, on which the General Government have already expended, it is said, $250,000.

SHIP AT EAST-BOSTON.—Our Boston friends are even more advanced in this kind of enterprise than we are in this city. At East-Boston, an iron ship is in process of construction, and nearly completed, intended for the Viceroy of Egypt. The following description is given of her in one of our exchanges. She is said to be 215 feet long, 87 wide, and 21 feet deep, with long sharp ends, slightly concave water lines, and a semi-circular stern. The iron-work of her outside is almost complete to the rail, and varies from three-fourths to three-eighths of an inch in thickness, but inside the wood-work is all open. Her frames are of iron, in the shape of a right angle, with a base of three inches, to which the outside plates are riveted, and a perpendicular of six inches. Between the perpendiculars or projections of the iron frames, she is filled in with hacmatack frames, from three feet below the lower deck to the rail. These frames are secured to the iron frames, and are also bound in their places by 12 iron belts two and a half inches wide by five-eighths of an inch thick, and these are also riveted to the iron-work of the hull. Over the wooden framing she is being ceiled with hard pine, which is fastened with screw and blunt bolts. In the wake of the engine-room, the deck-beams and other fixtures are all of iron. The ends of her beams are clasped and fastened with iron, and lodge in iron pockets, which are bolted to the sides.

Her beams are only three feet apart, with ledges and carlins between every two; they are also secured with hanging knees, and her deck plank is laid edgeways and bolted. The hackmatack frames vary from twelve to eight and seven inches, and will not average more than half an inch apart, fore and aft. From the bilge, therefore, to the rail, she is, inside, more thoroughly built than any wooden ship of her size, notwithstanding she has the usual strength of an iron ship outside. This filling in makes her very solid, and must be proof against vibration when under steam. She has five water-tight bulkheads, and each compartment is so arranged, that it may be filled or pumped out at pleasure independently of the others. She has two flush decks, consequently her machinery is below the water line. Her armament, which we understand will be very heavy, will be on the upper deck, leaving the deck below for the accommodation of her officers and crew. She will have a single propeller, and two powerful engines, which have been built at the Atlantic Works, East-Boston.

This brief description shows that she has extraordinary strength, and her model is said to be very beautiful. She will be rigged as a ship, and is the largest iron vessel ever built in this country. The order for this structure was given by the Viceroy under the conviction that he would secure in this country, a better model for speed, than he could in Europe.

General Increased Use of Iron.—Elsewhere the use of iron is extended far beyond the amount required but a few years since, so that one of the best judges of the quantity now annually manufactured, estimates this to be about 7,000,000 tons. Of this, Great Britain produces about 2,500,000 tons, and the United States 1,000,000 tons; Belgium, Russia, and France, come next in the list of producers, ranging from 975,000 tons manufactured by Belgium, to 650,000 tons, the product of France.

The new method discovered in England, and also in this country, by which the expense of this manufacture will be very essentially diminished, will greatly increase this demand, so that under ordinary circumstances the market will not fail to be quick and the profits of the mines be greatly enhanced.

Evils of the Credit System.—The value of quick sales and cash payments, though perfectly appreciated by those who directly suffer from our present usages, are not understood by the public, and we may add a thought which will not be entirely out of place in this connection. In England, the manufacturer of cotton, woolen, and other goods, commences with the raw material, and performs all the labor upon it, paying cash, and then sells, realizing cash, all within the space of a few months. In this country, the manufacturer buys for cash, perhaps, and pays workmen cash, weekly or monthly—at Lowell, all such payments are made monthly. The goods are then sent to the broker or agent, and are sold on a credit of six, nine, or even twelve months, so that ordinarily, perhaps, a year intervenes between payment for its cost by the manufacturer, and the time when he receives payment from its sale. This difference is by no means a small affair, for it requires a much larger capital with which to do business on this long credit, than is required for the same amount of the same business in England; and this is one of the elements which, in the final result, give so great an advantage to the English manufacturer over those of this country. The credit system, so extensively prevalent in the United States, is an incubus which would ruin any people of only ordinary industry and efficiency.

Importation of Iron.—Our census returns show an enormous increase in the use of iron in this country, as may be seen by the following statement of the amount imported and exported in different years:

	1840.	1856.
Foreign Importation, - - - - -	$6,750,099	$22,980,728
" Exported, - - - - - -	156,115	1,565,523
Domestic Exported, - - - - -	1,104,455	3,753,472

Influence of Emigration on Agriculture.—An English journal undertakes to give us the trades and callings of the multitude of emigrants which come to this country. These figures may approximate to the truth, although it will undoubtedly be found that the emigrant does not always pursue the same trade here as he did at home. A very large proportion of those who there cultivated a small *patch*, which formed their entire farm, are here engaged with shovels and pickaxes, on our railroads and other large enterprises. But to a certain extent, the calculation is of some value, and may go far, perhaps, to relieve the mind of some timid farmer who fears that he is to encounter too many rivals in the work of production. For the only hope of the land-owner is to be able to feed a multitude of mechanics. But for the table of trades: In 1854, of 134,789 emigrants, 3984 were bricklayers, masons, plasterers, and slaters; 1574 were blacksmiths; 5185 were carpenters and joiners; 4112 were miners and quarrymen; 21,347 were mechanics of some kind, including those just specified. It is estimated that, on the average, about one sixth of the whole number are mechanics. A very large portion of the remainder must be employed in other labor than that of the farm.

Projectile Forces.—Certain careful experiments have recently been made at the arsenal in Washington, by some of the scientific gentlemen connected with the United States army, in relation to the projectile force of gunpowder, with the following results: With a ball weighing about 6½ lbs., and a charge of 1½ lbs. of Dupont's cannon powder, the greatest pressure at any instant on the interior of the gun at one inch from the breech, varied from 19,000 to 21,000 pounds per square inch. At one foot from the breech the greatest pressure was only about 8000 pounds; at two feet, about the same; at three feet, about 6000; and at four feet, about 5900 pounds. The pressure of a small quantity of Hazard's rifle powder, fired in a cavity from which there was absolutely no escape, was not sufficient to burst the box, the strength of which was estimated sufficient to sustain an internal pressure of about 93,000 lbs. per square inch.

Artificial Ice.—We see the statement is made by some of our exchanges, that some ingenious person has invented a plan for producing very large quantities of artificial ice, even in the temperature of summer. That this is possible, we have no doubt. That it is economical, we can not yet believe. The cost of the machinery and the materials required for producing such a depression of the temperature as to bring a large mass of water to the freezing point, must greatly exceed the cost of ice at present market prices. But perhaps, we should add that a gentleman in Cleveland, Ohio, claims to effect this at a cost of five dollars a ton.

Value of Iron Filings.—Old scraps and filings of iron have been considered of very little or no value, perhaps not more than five dollars a ton. But recently ingenious men have discovered modes by which these may all be turned to account. One plan, devised by Mr. A. Pevey, of Lowell, is this: A cheap hollow casting is provided, which is filled with these small pieces, and then the whole are placed on the furnace and melted together. Mr. E. Lyon, of Boston, has another plan of his own contrivance. These small bits are placed in a compact mass near the center of each charge, so that the draft will pass freely through the coal on all sides of it. In this way the tendency to choke and clog the chimney, endangering an explosion, or at least injuring the success of the process, is in a great measure, if not entirely, prevented.

New Instrument for Surveying.—An ingenious instrument has been constructed lately, of great utility in the art of surveying. It comprises two telescopes, attached to the same table at certain distances from each other, one firmly fixed to it, and the other movable over it upon a pivot, on a line at right angles to the line of the former, so that both may be made to bear upon the same point. The latter telescope has an index attached to it, moving over a graduated scale of distances marked upon the table, which thus indicates the distance of the point or angle formed by the meeting of the lines of the two telescopes. Hence the principle on which it is constructed is the familiar one of the right angle triangle, and avoids the necessity of logarithmic or other computations. It is easily made by an ordinary mechanic, though the graduation of the table would require considerable mathematical skill.

Epidemic Among Fish.—The rivers of Michigan have become incapable of sustaining the lives of fish, and multitudes are said to be thrown dead upon the banks. The cause is entirely unknown.

Poisoned Cheese.—An instance has occurred in which persons have been poisoned from eating cheese, and it was found that the anotta with which it was colored, was itself adulterated by vermilion, which was adulterated with red lead. The adulteration of an adulteration did the mischief.

Allen & Osmond's Improved Patent Shuttle Loom.—This valuable invention was patented by these gentlemen in April last, (1856,) and seems to be an important acquisition in the department of labor for which it is designed. It weaves checks, plaids, ginghams, handkerchiefs, shawls, etc., which, both in this country and in Europe, have been woven by hand; for, while four-shuttle looms have been long known, their use has been limited to certain patterns. This loom can weave by power, all patterns, whether of large size, as handkerchiefs, shawls, etc., or smaller ones, including "all kinds of cross-bar fancy goods, whatever the device or pattern." The lift and drop motion is so constructed that it will skip from shuttle to shuttle, as may be required, and no shuttle can be made to operate but the right one. The pattern may be altered "in a few seconds." It is not liable to get easily out of order, and costs about as much as any other four-shuttle loom. It is in operation in the Franklin Factory, Wilmington, Del., where the patentees reside, of whom further information can be obtained.

P.

AMERICAN INSTITUTE.

Among the various productions of our enterprising mechanics, manufacturers, and inventors, lately on exhibition in the Crystal Palace, which are not yet noticed, we think the following may be of interest, each to a portion of our readers. P.

Scales of the Vergennes (Vt.) Scale Company.—The accuracy of the results as tested by numerous experiments, with these scales, gives them a very high rank in all the varieties of form on which they have been constructed.

Marble Headstones and Daguerreotype Likenesses.—This is an original idea, so far as we know, for perpetuating the appearance, as well as the character, as heretofore, of a deceased friend. Whether any monopoly of this kind can be secured by patent, is another question, not for us to decide. We do not know whether any is claimed.

Night Alarm and Light.—James Wood, of this city, exhibited a very ingenious combination of an alarm and a wax-match which becomes ignited by the machinery. The burglar finds himself not only making noise enough to awaken a whole family, but also under the light of a bright candle.

Leather Frames and Ornamental Pieces.—The use of leather for various kinds of ornaments, either in the form of small scraps or larger pieces, is getting to be quite general, and is worthy of attention. It is both cheap and elegant. We will endeavor to give hereafter a description of the mode of using it. This work is a very pretty amusement for young ladies in their leisure hours.

Scroll-Sawing.—We may perhaps have referred the reader, heretofore, to arrangements for scroll-sawing. We believe, in our account of the exhibition in Boston last year, we referred to such a machine. We find it in this exhibition, and again admire the perfection and fineness of its work. The most complicated curves, of a very small radius, are cut out with great exactness and with great rapidity. It cannot fail to be valuable in the shop of every maker of fancy work of such description. It consists of a proper adaptation by machinery, of a very thin and very narrow saw, so that, like a wire, it may be urged through the wood equally well in any desired direction.

Sheet Brass.—The most elegant specimens of sheet brass we ever examined, were exhibited by Messrs. Benedict & Burnham, of Waterbury, Conn. Other forms of brass-ware, of similar quality and workmanship, were also on exhibition.

Musquito Canopies.—We refer to these variously fashioned, but very important safeguards against those noxious and obnoxious insects, merely to describe the different forms in which they may be arranged by our housewives in their own families. These modes are as follows: One sustains the canopy by a rectangular frame resting upon the posts of a high-post bedstead. Another rests it upon four slim rods, fastened by a wire let into the tops of low posts, and into one end of each rod, while the other ends of the rods meet and are fastened together at an elevated point over the center of the bedstead, higher than the bedposts. In a third, the canopy is suspended from a single rod, the length of which equals the width of the bedstead, and hanging down on all sides in loose folds, the rod being suspended from a hook in the ceiling, over which a cord is thrown, fastened to each end of the rod. In a fourth, the entire canopy is swung through a ring suspended over the bed, and hangs in loose folds. In a fifth, a hoop of any size that may be preferred, covered with cambric, as a drum-head, is hung over the bed, and the canopy, cut in convenient lengths and sewed together, is "gathered" or plaited and fastened round the hoop, hanging in loose folds in all directions. In the points of economy and convenience, we give the preference to this over any other. The fixtures about the hoop may be made as ornamental as one's taste requires. The larger the hoop, the more air, of course, will be inclosed within the canopy. One of two or three feet in diameter answers a very good purpose. In some of these different modes of suspension, the canopy may be drawn tight, or hang in loose folds, as each person prefers. Two "short" pieces of netting are quite sufficient for a canopy for a double bed. We refer to such nets as are manufactured in this city.

Hoop-Sawing Machine, by Mr. Strange, of Taunton, is a capital arrangement for rapid and good workmanship. Another, by Mr. Marble, of Paris, Me., is designed for the same service. A Company in Fitchburg, Mass., also exhibited an excellent machine. We cannot judge very well, how these would compare with each other, in such woods as would be submitted to them in a cooper's shop.

Machine for Planing and Turning Barrel-Heads, by Mr. Robinson of Keesville, operated admirably, and seems all that can be desired.

Prince's Protean Pen.—We refer again to this valuable invention, only to remark that the parties in interest have devised new patterns of it, of different styles, to suit different tastes and different *hands*, and can scarcely fail to suit any one who needs any accommodation of this kind. We always use one of these pens, and should not feel *at home* without them.

Mechanical Paradox.—This is one of the marvels of the age, discovered by scientific men, and, like many others of the phenomena connected with revolving bodies, is demonstrated as clearly as the sun at——midnight. In other words, the fact is abundantly proved, *by eye-sight*, giving opportunity for very learned and strange-looking mathematical processes, sometimes called demonstrations. This may be set down alongside of the pendulum problem, which has set into motion so many pens, and used up paper, ink, and intellect, without throwing much light upon the matter. It furnishes, however, a very beautiful scientific toy for persons of all ages, from ten years upwards. They are for sale in this city, at about $3 00 each.

Patent Gas Regulators.—We are fully prepared to commend the use of one or more kinds of gas regulators, both as a means of improving the flame of gas, and of saving in the amount of gas consumed, while, as in the case just mentioned, we cannot give such a reason for it as satisfies ourself, or as would satisfy others. Of the fact we have no doubt, and believe that the cost of this addition to every gas meter, which is about ten dollars, but varying with the number of lights to be regulated, would be saved in a few months. It can be attached to any meter.

Horse-Shoe without Nails.—We hold this to be one of the most hazardous humbugs we have recently examined, though we may possibly be very much mistaken.

Grooving Plane.—Mr. Robinson, of Mattewan, exhibited some fine grooving planes, suited to various patterns, which are handled with great convenience, and produce beautiful work. P.

Recent English Patents.

SELECTED AND PREPARED BY M. P. P.

An Improvement in Apparatus used for giving Notice when the Water in a Steam Boiler is too low. By William Oliver Johnson, Acklington, Northumberland.

This invention consists in a peculiar combination of a hollow float with a steam-whistle. For this purpose a hollow float is attached to a stem or rod, which passes through a guide, and has a stop to prevent the float falling too far. The upper end of the rod or stem is attached by a pin-joint to a plug with a stem, which enters the tube of a steam-whistle, and is guided thereby. When the water in the boiler is at a proper height, the float presses the plug into its seat, and no steam escapes through the whistle; but when the water falls too low, the plug descends with the float, and the passage to the whistle is opened; the steam then flows through, and sounds the whistle.

Improvements in Machinery for the Manufacture of Looped or Knitted Fabrics. By John Thornton, Albert Thornton, William Thornton, and Henry Thornton, all of Nottingham.

This invention consists in a peculiar combination of mechanical parts into a machine for manufacturing looped or knitted fabrics; for which purpose two cylinders are used, each grooved on its circumference with as many grooves as there are needles or looping instruments. These cylinders are caused to revolve simultaneously end to end, but at a short distance apart, in such manner as to admit of the needles or looping instruments being slid from the grooves of one cylinder into the grooves of the other cylinder. In these grooves are slid needles or hooked instruments, suitable for making looped fabrics, each having a beard or hook at each end, so that the work is alternately made at the two ends of the needles or looping instruments. The needles or looping instruments are slid to and fro, from cylinder to cylinder, by means of fixed inclines or guides; the work being forced over the heads of the needles or looping instruments when such instruments are moved into the grooves.

By this arrangement the needles or instruments traverse their whole length first into one cylinder and then into the other, and the work is formed at each end of the needles or other suitable loop-forming instruments alternately. The thread-layers and the sinking and pressing wheels are of the ordinary construction. The work is conducted and drawn through one of the cylinders by having a cord and weight attached thereto, or otherwise, and passed over a pulley, as is well understood.

An Improvement in the Rolling of Iron for the Making of Ships' Knees. By Joseph Betteley, Liverpool.

Heretofore, when rolling iron for the making of ships' knees, they have in some cases been rolled of a wedge-like form to make each of the limbs of a knee of more substance at the bend than at the ends of the limbs; thus bringing the strongest part at the bend; and in some cases the wedge-form has been produced by two straight lines or surfaces inclined to each other.

This invention consists in forming the grooves or surfaces of the rolls used in rolling knee-iron, so as to produce one of the surfaces of each limb with a curved line or surface; at the same time making such curved line incline to the other surface of the limb, in order to bring the greatest substance of the iron to and near the bend, as heretofore, when making each limb of a ship's knee wedge-form or tapering; and also for forming the groove or surface of the rolls of a shape so as to roll iron tapered on the sides instead of top and bottom, as heretofore.

An Improved Mode of Manufacturing Rods, Shafts, and Tubes of Iron and Steel. By Alfred Vincent Newton, Chancery Lane.

The object of this invention is to manufacture rods, shafts, and tubes of iron and steel, possessing great tenacity of fiber, and capable of effectually resisting sudden or continuous strain, or a force of greater intensity than rods, shafts, and tubes of the same weight, but produced by the ordinary processes of manufacture, are able to resist.

In carrying out this invention, which is applicable chiefly to the manufacture of gun-barrels, the operator takes, by preference, a round bar of iron or steel, of suitable size and quality, and heats one end thereof red hot in a smith's forge or furnace; he then fixes one end of the bar, say the heated end, in a vice, and turns the cool part of the bar round on its axis. The heated part of the bar will then yield under this strain, and take a twisted form; the fibers of the metal at the same time being laid in a helical direction, somewhat like the fibers of yarn. The metal, while red hot, is subjected to the operation of hammering, the blows of the hammer being delivered on the end of the bar; by which means the proximate edges or projections of the helical twist will be welded together, and solidity will be given to that part of the bar. The next thing is to re-heat the bar a little below the part just operated upon, and the like operation of twisting and hammering is repeated. When one half the length of the bar has been thus twisted and knocked up, the workman turns ends, and proceeds in like manner with the other half; or he may commence in the middle of the bar and work towards the ends, in which case the same effect (viz., the laying of the fibers of the iron around the axis of the bar) will take place.

The fibers of the iron, although they will necessarily be all twisted, will take variable amounts of twist, according to their situation in the bar; that is to say, those which lie in the middle of the bar will have considerably less twist than those which lie at the periphery; and it is this difference of twist, or non-parellelism of the fibers, which renders this new manufacture specially applicable to fire-arms; for in boring a round bar made according to this invention, in order to convert it into a gun-barrel, it will be found that the direction of the fiber of the metal forming the inner periphery of the barrel will be comparatively but a slight divergence from the axis of the barrel; the shot will therefore act upon the barrel more nearly in the direction of the fiber of the metal than in twisted metal barrels of the ordinary construction, and consequently with less wear or injury to the gun.

Improvements in Treating Vulcanized India-Rubber or Gutta-Percha. By Nathaniel Shattswell Dodge, St. Paul's Church-yard.

This invention relates to a peculiar mode of treating vulcanized India-rubber, whether soft or hard, or vulcanized gutta-percha, for the purpose of rendering scraps or waste pieces of such vulcanized material—such, for example, as old shoes, railway-buffers, &c.—fit to be worked up into useful articles or fabrics without requiring to be re-vulcanized. For this purpose the material to be treated, if existing in large pieces, is reduced into smaller ones, and is then placed in a vessel capable of being closed air-tight. To this material is now added pure alcohol and bi-sulphuret of carbon, in the proportion of a quarter of a pound weight of the former, and ten pounds weight of the latter, to one hundred pounds weight of the material; the alcohol and the bi-sulphuret of carbon being previously mixed together, and then poured over the material to be treated. The vessel containing the ingredients is then closed air-tight, and allowed to remain so for about two hours, more or less; at the expiration of which time the cover may be removed, when the whole will be found to be in a soft, plastic, or gummy state, and ready to be ground in the ordinary way of grinding such gums, for the purpose of manufacturing it into various useful or ornamental articles, without repeating the process of vulcanizing. By adding a larger proportion of the alcohol and bi-sulphuret of carbon, the gums may be reduced to a liquid state.

Improvements in the Construction of Roofing and other Tiles. By James Pockson, Penton street, Walworth.

This invention consists in forming tiles in two distinct parts; one called the upper tile, the other, the under tile. The under tiles are constructed so that when cut in cross section they present the form of a V. The upper tile is made in the same way, but is exactly the reverse when cut in cross section—presenting the form Λ. When in use, the upper tile is so arranged as to lie over and cover the junction of the adjacent sides of two under tiles; they are also so made as to have a projecting band on their under surface, to act as a fastening to attach or hang them to the tile, lath, or other substance, upon which they have to lie. The under surface of the top tile is cut into and removed for a large space on either side of the center from bottom to top, with the exception of a small band at each end: the object of this being both to lighten the weight of the tiles, and to prevent the water from being drawn up between the under and upper tiles. The tiles may be formed of any plastic materials now used, or in glass or metals, and the mode of making them may be either by molds or by machines, as now practiced for ordinary tiles.

THE APPLICATION OF A NEW MATERIAL OR MIXTURE FOR DRESSING OR SIZING TEXTILE FABRICS OR MATERIALS. By JOHN ERSKINE, Glasgow.

This invention relates to the application and use, in dressing or sizing textile fabrics or materials, of a new dressing material or sizing mixture. This sizing material is composed by mixing together potato flour and wheaten flour, or potato flour and rice flour. The proportions which the patentee prefers, are half potato flour and half wheaten or rice flour. In preparing the mixture for the dresser or sizer, it is done in the usual way, by using a certain proportion of the material to a certain quantity of water, which is then boiled. He prefers to use one pound weight of the mixture to one imperial gallon of water, and boils the same for about twenty minutes; but he has found this mixture to improve by being well boiled, and therefore consumers cannot go wrong although they boil it during as much as three hours. After boiling, the mixture is run into tubs, such tubs being, by preference, of a shallow kind. This mixture can be used either entirely by itself, or in any proportion with other sizing materials, such, for instance, as sago flour; and by means of it the required dressing effect is produced at a more economical cost than by the means hitherto adopted.

AN IMPROVED METHOD OF PRODUCING FIGURED OR ORNAMENTAL SURFACES ON GLASS. By GEORGE REES, Clerkenwell.

This invention consists in an improved method of producing figured or ornamental surfaces on glass; and for this purpose a sheet of finished glass, either white or colored, of the dimensions required, is employed, which is rendered plastic by heat, and pressed between a pair of metal dies, engraved with the design or pattern which is to be given to the glass. After impressing the pattern upon the glass, it is annealed, and is then fit for use in windows, or for ornamental purposes.

In applying this invention, a sheet of flat finished glass, either white or colored, of the dimensions required, is made plastic by heating it in a reverberatory furnace. It is then pressed between a pair of metal dies or rollers, engraved with the design, pattern or inscription which is to be given to the glass. The dies or rollers may have the pattern raised in the one and sunk in the other; or one of them may be plain, according to the character of the ornamental surface that is to be produced. After impressing the pattern upon the glass, it is annealed in the ordinary manner, when it is fit for use in windows, or for decorative purposes.

Ornamental surfaces of glass, produced as before described, and hollow on their under side, may be ornamented by gilding, silvering, enameling, painting, staining, or otherwise, so as to produce any determined artistic effect. Another description of figured or ornamental surface may be produced by pressing the glass between dies or rollers, so as to leave the required pattern or inscription in slight relief. After the glass has been annealed, the raised pattern may be removed by grinding, when the pattern or inscription will appear dull upon a bright ground; or flashed glass may be thus treated, that is, white glass, coated or covered on one side with a colored glass. In this case the pattern will appear white upon a colored ground, or *vice versa.*

PROCESS FOR RESTORING METALLIC SPOILED PENS. By PROSPER PIMONT, Rouen, France.

The object of this invention is to restore to their original state of flexibility, hardness, and efficiency, steel or other metallic pens which have been thrown aside and spoiled, by the use of bad ink, long use, or neglect. To accomplish this purpose, the spoiled metallic pens are exposed in a suitable vessel to the heat of a furnace, or to flame from any source, and raised to a red heat, or to any temperature discovered by experience to be sufficient. The pens are then allowed to cool, and afterwards cleaned from dirt or smoke which may adhere to them. This restoring operation, if not sufficient, is repeated until the desired object is obtained. By this simple but efficacious process, the pens, hitherto deemed spoiled, and therefore useless, are restored to their original state, as far as regards utility, and may be again used for the purpose for which they are designed

Junior Editor's Table.

The issue of another number of our journal presents to us another invitation to a familiar chat with our readers. And another month brings us to the verge of a new year. Under these circumstances, no service that we can perform, having our readers in view, will be more in accordance with our sympathies, than to say to each one—a happy new year. In this, we utter a wish, a hope, and a disposition to help in obtaining a boon so desirable. But wishes are often indefinite, and are uttered without any reference to proprieties or possibilities. We often wish for something, when the next moment reveals to us that the fulfillment of our wish would be ruinous either to us or to others. Hopes are perhaps less frequently indulged without some reflection and deliberation, as to probable consequences, and are therefore less frequently irrational or absurd. But we are sure that no man is injured by being truly happy. We are often merry when we have occasion to be sad, and we sometimes sigh when we are unconsciously but rapidly approaching the fruition of substantial joy. We may be happy while we are scarcely relieved from a process of severe moral discipline. But we are not writing a moral essay. We wish all our readers a TRULY HAPPY NEW YEAR.

The outer atmosphere, throughout the political horizon, within a few weeks, has been clearing up. Dark clouds have disappeared, contesting factions cease their wranglings. The successful rejoice with becoming moderation. Their opponents submit like honest citizens. "The country is safe." Now, if we may compare the small and the great, the private and the public, we may say that within our own sphere, which is large and grand in one view, comprehending every State and Territory in the Union, but very limited in another, a mere personal affair, there has also been of late an equally happy change. Some years ago we came into the service of the then proprietors of this journal, and found it in some respects prosperous and hopeful, but in others the reverse. The entire labor of sustaining it was soon devolved upon us, with but little "aid and comfort" from abroad, except that derived from the occasional contributions of our subscribers, whose more frequent commendations were both serviceable and encouraging, and more than we had a right to demand for any return we made, except in intention and in effort. The labor of three, all competent for their several departments, instead of one, was desirable and important, and could not be done to our own satisfaction by ourself, if ever so laborious. The kind commendations of those receiving our monthly issues, with scarcely a discordant tone, encouraged us to "hope on" and labor, till we could find one able and willing to give us efficient help. Such help is found; the greater half of the burden is removed from our shoulder, and the change is very grateful to us. We might have changed our condition more speedily, but we would not act hastily, nor until we were sure that it was our best move. The move is made, and we cannot doubt that every intelligent reader is satisfied, and the six numbers of the present volume, and our daily records, bear testimony both of the importance of the change and of the readiness and complacency with which the public, *our* public, accepts the improvement, and pronounces it deserving of encouragement. These six months' trial, we are sure, must have satisfied all our readers on this point.

Now, having passed through this furnace, having provided such valuable and simple means for promoting the success of every form and variety of labor on the land, and having already the belief, well founded, as we trust, that all our readers are disposed to encourage us in this effort, may we, the *junior* Editor, invite each one to send the conductors of this journal a New Year's present in the form of new subscribers? A single postage stamp will bring us their own year's payment, and the subscription of their friend or friends, and though New Year's day may already have passed, the new year will be present; and every such exhibition, we can assure you, gives energy to our hands, and pungency to our thoughts, and vitality to our pages; and thus every dime finds its way back to the liberal subscriber, and doubly enriches both him and us. We abhor dunning. We are a little bashful in urging our claims, but may we not be both excused and justified, and even commended, for the suggestions we have made? Let our works commend us mutually to each other. P.

Miscellaneous.

That's so.—If men and women were willing to live within their income, disposed to begin life at the bottom of the ladder; obeying the primary impulses of their nature, and enter upon the cares, trials, and pleasures of the domestic circle, bind their hearts and twine their hopes around the family altar, they would be greatly the gainers. Here comes the difficulty. They must live, when they begin life, just as their parents are living now, or it may be in better style, than those who have been journeying together for thirty or forty years. This is decidedly wrong. Labor is wealth, and *two*, with honest industry, can manage to get along, until they can really afford to keep help, if necessary. In a former article we had occasion to refer to our first parents. It would be well if our modern fair ones were more willing to do as Eve did, when, with a new creation smiling around her, she and her husband began their housekeeping. Don't believe she thought the house would look *too common* without a velvet tapestry carpet on her parlor and sitting-room floors, nor do we believe she ever had a chambermaid or nurse to *run* after little Cain and Abel, at least when she *first went to housekeeping*, or that she ever went to the intelligence office, to see what it would cost per month to hire a first rate French cook or laundry-maid. There is little doubt she made Adam's trowsers (don't know what they called them, then) and hemmed his pocket handkerchiefs, fixed up his Sunday coat, and kept things generally nice and tidy in the house. While Eve was doing this, Adam was probably tending his flocks, or worked in the garden, fenced his potatoe patch, and attended to the churning, and other matters connected with the dairy. Thus they got along "right smartly" and economically, became quite aristocratic, had many children, lived to a good old age, and died among friends. This after all is the true way, to begin upon a small scale, and gradually rise from that point, rather than begin at the top and come down.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

HARVEST HYMN.

AIR:—*Dundee.*

BY THE "PEASANT BARD."

O THOU, whose wisdom decks the sod,
  And loads with fruit the bough!
We thank Thee that the FARMER'S GOD
  Peculiarly art Thou.

When vernal skies and southern airs
  Make green the sunny slope,
We turn the glebe with gleaming shares,
  And cast the seed in hope.

Thine are the seasons as they roll;
  Thy years, how dread they seem!
From age to age is thy control,
  Deific and supreme.

When Autumn pours her solemn light
  Upon the fading fields,
Our garners, filled to crowning height,
  Show what Thy bounty yields.

Do Thou to us Thy grace impart,
  Who on that bounty live;
The incense of a grateful heart
  Is all that we can give.

GILL, MASS.

THE PEAR SECKEL.—About 89 years ago, when the Bishop was a lad, there was a well known sportsman and cattle dealer in Philadelphia, who was familiarly known as "Dutch Jacob." Every season, early in the Autumn, on returning from his shooting excursion, Dutch Jacob regaled his neighbors with pears of an unusually delicious flavor, the secret of whose place of growth, however, he would never satisfy their curiosity by divulging. At length the Holland Land Company, owning a considerable tract south of the city, disposed of it in parcels, and Dutch Jacob then secured the ground on which his favorite pear tree stood, a fine strip of land near the Delaware. Not long afterwards, it became the farm of Mr. Seckel, who introduced this remarkable fruit to public notice, and it received his name. Afterwards the property was added to the vast estate of the late Stephen Girard. The original tree still exists, (or did a few years ago,) vigorous and fruitful.—*Bost. Cult.*

KOHL-RABI.—Within the past few years the heads of this plant have been very considerably disseminated through the patent office and otherwise. It is a common European vegetable, belonging to the cabbage family—and its treatment in cultivation is quite like that plant, except that an equal space of ground will bear more of them. It is in fact a cabbage whose stem, just at the top, swells out into a sort of turnip-like affair, out of which the leaves grow. This reaches a size equal to a large round turnip, and when boiled is tender and much like a cabbage in flavor, but much more delicate, and without the strong smell of the cabbage, so disagreeable to many. It is well worthy of cultivation, like many other vegetables of which the Germans and French make great use, and which we rarely or never see here.—*Homestead.*

FEEDING MILCH COWS ON TOMATOES, ETC.—We tried an experiment in feeding milch cows that did so well with us that we will give the facts, and perhaps it maybe tested by others, and prove equally satisfactory to them.

In planting cotton, we left two rows together, in which there was no cotton seed dropped. About four feet apart in each row, we had the soil dug up with a grubbing hoe, about a foot deep, with about two spades of good manure well incorporated with the loose earth, and made into a flat, low hill, or bed. When a good season came, we planted a tomatoe plant (large round red) in each hill. They were worked with the cotten, and came very finely. Our squash patch was pretty large, and planted with a view to feeding our cows.

For two or three months we were able to have a half bushel or three pecks of tomatoes boiled with about the same quantity of squashes each day, and given to four cows. The results were remarkable. The quantity of butter exceeded the usual average for that number of cows; but what was the most striking result, and that which we had not anticipated, was the beautiful yellow color and the delicious flavor imparted to the butter by the tomatoes.—*So. Ca. Agriculturist.*

HIAWATHEAN.—We catch the following innocent little thing flying about the country in papers light and heavy. Very few of our readers will regard it as a dun; for, thanks to their promptness, the great majority of them owe us nothing. If a few others, here and there one, should need it for a higher purpose than to laugh about, why here it is:

"Should you ask me why this dunning,
Why these sad complaints and murmurs,
Murmurs loud about delinquents
Who have read the paper weekly,
Read what they have never paid for,
Read with pleasure and with profit,
Read of news both home and foreign,
Read the essays and the poems,
Full of wisdom and instruction;
Should you ask us why this dunning,
We should answer, we should tell you,

From the printer, from the mailer,
From the prompt old paper maker,
From the landlord, from the carrier,
From the man who taxes letters
With a *stamp* from Uncle Samuel—
Uncle *Sam* the rowdies call him—
From them all there comes a message,
Message kind, but firmly spoken,
'Please to pay us what you owe us.'

Sad it is to hear such message
When our funds are all exhausted,
When the last bank-note has left us,
When the gold coin all has vanished,
Gone to pay the paper maker,
Gone to pay the toiling printer,
Gone to pay the landlord tribute,
Gone to pay the active carrier,
Gone to pay the faithful master,
Gone to pay old Uncle Samuel—
Uncle *Sam* the rowdies call him—
Gone to pay the Western paper
Three-and-twenty hundred dollars!
Sad it is to turn our ledger,
Turn the leaves of this old ledger,
Turn and see what sums are due us,
Due for volumes long since ended,
Due for years of pleasant reading,
Due for years of toilsome labor,
Due despite our patient waiting,
Due despite our constant dunning,
Due in sums from two to twenty.

Would you lift a burden from us?
Would you drive a specter from you?
Would you taste a pleasant slumber?
Would you have a quiet conscience?
Would you read a paper *paid for?*
Send us money, send us money,
Send us money, send us money,
SEND THE MONEY THAT YOU OWE US!"

SIMPLICITY OF FAITH.—The late King of Sweden was greatly exercised upon the subject of faith some time previous to his death. A peasant being once on a particular occasion admitted to his presence, the King, knowing him to be a person of singular piety, asked him—"What he took to be the true nature of faith?" The peasant entered deeply into the subject, and much to the King's comfort and satisfaction. The King, at last, on his deathbed, had a return of his doubts and fears as to the safety of his soul, and still the same question was perpetually in his mouth to those about him, "What is real faith?" His attendants advised him to send for the Archbishop of Upsal, who, coming to the King's bedside, began in a learned and logical manner to enter into the scholastic definition of faith. The prelate's disquisition lasted an hour. When he had done, the King said, with much energy: "All this is ingenious, but not comfortable; it is not what I want. *Nothing after all but the farmer's faith will do for me.*"—*The Old Chest and its Treasures.*

☞ One person having asked another if he believed in the appearance of spirits, "No," was the reply, "but I believe in their *disappearance*, for I've missed a bottle of gin since last night."

Bad if true, that the Californians don't get Married.—According to the Malthusian theory of population, this State will soon suffer for the want of families. It is in the families of our land, that we are to find the virtue, purity, and wealth of the State. The pecuniary condition of a State, its combined resources, and commercial facilities, do not constitute its principle wealth. The domestic fireside, the family circle, pure, intelligent and virtuous children, are of far more importance than ships, warehouses, rich lands, or dollars and cents. Together, all these constitute a growing and virtuous community. Apart, the sum of happiness is greatly diminished. The materials from which to rear the entire social fabric, are spread around us in ample profusion; but much like those intended for a splendid edifice, strewn in every direction, each to be prepared and placed in the proper position by the hand of the workman. There are many men and women here, who are not married, and yet they ought to be.—*Cal. Farmer.*

How They do Things at Salt Lake.—Prest. Grant, in the midst of his missionary labors and farming improvements and operations, is enlarging his city residence, feeling that want of more dwelling room, so incident to those who observe the "peculiar institution."

"The Court House is receiving its dome-capped cupola; large loads of huge stones are being rolled on to the Temple Block, and workmen are busily engaged in cutting them; and numerous minor improvements are actively prosecuted, all tending to beautify and make commodious the habitations, grounds, and streets of this quiet, industrious, moral, and exemplary metropolis of the Saints."

Fence securely, till deeply, enrich liberally, seed judiciously, weed cleanly, and irrigate as well as you can, and you may reasonably expect the smiles of Heaven upon your labors. But every other mode of using the share of earth placed under our stewardship, or greedily over-grasped by our selfishness, will end in more or less vexation and loss, as all very well know.—*Deseret News.*

A Lesson from the Birds.—A gentleman observed in a thicket of bushes near his dwelling, a collection of brown thrushes, who for several days attracted his attention by their loud cries and strange movements. At length curiosity was so much excited that he determined to see if he could ascertain the cause of the excitement among them.

On examining the bushes he found a female thrush, whose wing was caught in a limb in such a way that she could not escape. Near by was her nest, containing several half-grown birds. On retiring a little distance, a company of thrushes appeared, with worms and other insects in their mouths, which they gave first to the mother, and then to her young; she in the mean while cheering them in their labor of love with a song of gratitude.

After watching the interesting scene until curiosity was satisfied, the gentleman released the poor bird, when she flew to her nest with a grateful song to her deliverer, and her charitable neighbors dispersed to their usual abodes, singing, as they went, a song of praise.—*National Intelligencer.*

Agricultural Discovery.—A Paris letter writer states that a scientific gentleman discovered two years ago, embedded with some embalmed bodies, a species of wheat not then in existence. In the time of the early Gallic kings, a certain quantity of wheat was placed in the coffins of embalmed bodies. Some of it was sown, and it yielded from sixteen to twenty stalks to a grain, while there was on an average twenty more grains in the head than in the ordinary wheat.

United States Agricultural Society.—The Fifth Annual Meeting of the United States Agricultural Society, will be held at the rooms of the Smithsonian Institution, in the city of Washington, D. C., January 14th, 1857, at ten o'clock, A. M.

Business of importance will come before the meeting. The Report of the Exhibition at Philadelphia, and the Journal of the Society for 1856, will be distributed to the members present. At the same time, awards of premiums on field crops will be made, the officers of the Society for the ensuing year elected, and the propositions which have been received in relation to the Fifth Annual Exhibition acted upon.

A lecture will be delivered on the application of Science to Agriculture, by Professor Henry, of the Smithsonian Institution. Another lecture, on the Grasses of the United States, will be given by Charles L. Flint, Esq., Secretary of the Massachusetts State Board of Agriculture.

Other lectures and interesting discussions are expected on subjects pertaining to the objects of the Association.

The various Agricultural Societies of the United States are requested to send delegates to the meeting, and all gentlemen who are interested in the welfare of American agriculture, who would promote a more cordial spirit of intercourse between the farmers in different portions of our land, are invited to be present.

Wm. S. King, Secretary. Marshall P. Wilder, President.

December 11, 1856.

Over Two Million Acres Farm Lands.—We should have called attention to the Illinois Central Railroad's land in former numbers. Much of that land, we have occasion to know, is of an excellent quality, is well situated, and affords eligible locations for Eastern settlers. Of the prices, as compared with other lands in the market, we know nothing; but Mr. Wilson, the commissioner of these lands, we know to be an upright, gentlemanly, accommodating man, who will give purchasers every possible opportunity for seeing those lands, and suiting themselves, if possible; and we would advise families going West to take a look at these in his hands, before buying otherwhere. Special accommodations, we believe, are tendered to those contemplating a purchase, for seeing the lands, by the Illinois Central Road, on which many of them lie.

Book Notices, Etc.

Red Beard's Stories for Children. Translated from the German by Cousin Fannie. Boston: Phillips, Sampson & Co. 67 pages.

This beautiful book for children, every page of which is capitally illustrated, is one of the famous stories wrought out by the fancies of our German friends, who alone can write them. It is one of the very best executed and most amusing of all the juvenile annuals we have ever seen. In its style of execution it is quite unique.

Southern Planter.—The December number of this Journal comes to us full of the most valuable matter for farmers, and full of promise. The proprietors say: "We propose to issue the January number of double size, *and beg that all who disapprove it, will give us immediate notice, on receipt of this number.*" We think nobody will object, for it is an excellent journal. It abounds in rich matter, and is printed so that it can be read. What is the use of printing like the New-York dailies, so that a man would be a fool to spoil his eyes in trying to decipher the meaning?

The Last of the Huggermuggers; a giant story, with illustrations. By Christopher Pearse Cranch. Boston: Phillips & Sampson. 70 pages.

Kobboltozo; a sequel to "The Last of the Huggermuggers;" with illustrations. By Christopher Pearse Cranch. Boston: Phillips, Sampson & Co. 1857. 95 pages.

If these two books are to be judged by their externals, they should have a high rank in any gentleman's library. They are printed upon the very best paper, in most elegant type, and bound in elegant covers. Looking at the text, we are very much amused, and live over our boyish days, when tales of this sort from the German, Mother Goose, &c., formed almost our whole libraries for children. Parents, then, we suppose, like ourselves now, were as much amused by them as their children, and though moral tales and juvenile biographies have since then been *invented*, we are by no means disposed to abandon the former fashion. We think these, though by no means answering the same ends, yet as important to a child's proper development, as Scripture lessons, or catechisms. Let every parent buy all these three books for his children.

THE MINNESOTA HANDBOOK for 1856-7, with a new and accurate map. By NATHAN H. PARKER, author of "Iowa as it is," &c. Boston: John P. Jewett & Co. 12mo. 159 pages.

THE IOWA HANDBOOK for 1856, with a new and correct map. By NATHAN H. PARKER, author of, "Iowa as it is," &c. Boston: John P. Jewett & Co. 12mo. 187 pages.

In giving to the public these two books, Mr. Parker has done his fellow-countrymen a very useful service, and he has done it well. The books are all they ought to be. Mr. Jewett, as usual, has done his part in most excellent style, and presented two small volumes as honorable to the liberality of the publisher as to the skill of the artisans who performed the service.

THE BIBLE IN THE WORKSHOP; OR, CHRISTIANITY THE FRIEND OF LABOR. By Rev. JOHN W. MEARS. New-York: C. Scribner. 1857. 12mo. 344 pages.

We have run over the pages of this volume with great pleasure. Its style is good; its aims are high and noble, and are well pursued; and the entire discussion is able and manly. We have now to notice only a single point, to wit: How is the necessity of labor a curse? Adam was obliged to work in Eden. How did the fall affect this necessity? "All fields of human activity are cursed," says our author, "not so much by the direct interposition of the Deity, altering their nature, as by being in the hands and under the management of sinful men." These have multiplied the necessities for labor, and "involved it in circumstances which cause the laborer to toil excessively and unreasonably." This is sound; and the indolence, the vices, the diseases which flow from sin, all conspire to make labor offensive, and to be avoided by all possible contrivances and frauds upon ourselves and others.

PAUL FANE; OR, PARTS OF A LIFE, ELSE UNTOLD. A novel. By N. PARKER WILLIS. New-York: C. Scribner. 1857. 12mo. 402 pages.

The hero of this volume, Paul Fane, is a graduate of one of our colleges, who goes to Florence that he may learn to be an artist. There he finds Mr. Wabash Blivens, his former chum, a native of Indiana, who also had a desire for the same profession, and who had left college, and become a painter, having already served as artist for a theatrical company, performing on a flat-boat in the Mississippi. The story of their experiences, the acquaintances they made, and various incidents, scenes, loves, &c., happening in connection with them, professionally and otherwise, their associates and occasional acquaintances, make up the story. The style is very Willis-y, sprightly, of course; many happy hits are made. The narrative is sometimes instructive, and the story highly amusing; but now and then presents scenes and descriptions of doubtful propriety. It will be read extensively, and many will highly and unqualifiedly commend it.

LIFE IN ISRAEL; OR, PORTRAITURES OF HEBREW CHARACTER. By MARIA T. RICHARDS, author of "Life in Judea." New-York: Sheldon, Blakeman & Co. 1857. 389 pages 12mo.

This is an elegantly written and well digested historical account of the Jews, arranged in chapters, under three several titles or parts. 1. The pilgrimage from Egypt.

2. The reign of Solomon. 3. The captivity. We need not say that it is not only a period of absorbing interest in itself, but one having a most intimate connection with the claims of the Christian religion. This volume will be read with great interest, and is a very valuable addition to the literature relating to that period.

Chaplains of the General Government, with objections to their employment considered, &c., by Lorenzo D. Johnson, author of, "Churches and Pastors of Washington." New-York: Sheldon, Blakeman & Co. 1856. 82 pages 12mo.

The title exhibits the object of this little volume. It contains also a list of all the chaplains in Congress through the entire existence of our government. It is a very convenient manual.

An Etymological Dictionary of Family and Christian Names, with an essay on their derivation and import. By Wm. Arthur, M. A. New-York: Sheldon, Blakeman & Co. 1857. 300 pages 12mo.

The lover of genealogical discussions, and of theories connected with ancient names, will find in this volume something which they cannot afford to be without. It is well digested, alphabetically arranged, and handsomely executed. Much labor has been devoted to it.

The Rural Poetry of the English Language, illustrating the seasons and months of the year, their changes, employments, lessons, and pleasures, topically paragraphed, with a complete index. By Jos. Wm. Jenks, M.A., lately professor of language in the Urbana University of Ohio. Boston: J. P. Jewett & Co.; Cleveland, O.: Jewett, Proctor & Worthington; New-York: Sheldon, Lamport & Blakeman. 1856. 8vo. 544 pages.

We do not know of any publisher whose books are executed in a superior style to those of this enterprising firm. They are thorough masters of their business, and efficient in execution. Hence they sell large editions of their books, and authors have found out this fact, and the firm are overrun with manuscripts, a multitude of which they are obliged to decline.

The book, the title of which is given in full as our caption, is a beautiful sample of typography, on beautiful paper, and inclosed in the very best style of cloth covers. It is throughout in most excellent taste.

Examining the contents of these pages, we are equally gratified. The editor has done his work faithfully. The index contains the names of the very best poets of the English language. Among these are Thomson, (his Seasons,) Hesiod, (his Works and Days, translated from the Greek by C. A. Elton,) Gay, Tusser, Bryant, Merrick, Bloomfield, Virgil, (his Tityrus and Meloboeus, from the Bucolics, by Dryden,) Milton, Herbert, Mrs. Barbauld, Mrs. Hemans, Percival, Longfellow, Dyer, Cooper, Somerville, Shenstone, Cunningham, Anacreon, (translation,) Rogers, Armstrong, Cowper, and a long list of other distinguished writers. No selection of Rural Poetry, that we have seen, compares with this in point of excellence, and not one excels it in elegance of execution. It contains twenty-six handsome and appropriate illustrations.

Violet; or, The Cross and the Crown. By M. J. McIntosh, author of "To Seem and to Be," "Charms and Countercharms," &c. Boston: John P. Jewett & Co. 448 pages.

It has been our fortune to have occasion to notice some of the juvenile books of Miss McIntosh, in months past, and to commend them, unqualifiedly, in their words, thoughts, and action, in design, plan, and execution. We have now upon our table, a new volume, intended for maturer minds. Those who knew Miss McIntosh expected nothing less than smooth, and pure, and even elegant Anglo-Saxon, and a high moral tone. With such anticipations we opened this volume, and were not disappointed. In clear transparency of style, with imagery well chosen, and never introduced for mere display, she conveys her thought to the reader's mind precisely as it was presented to her own.

The plan of the story is well conceived, and capitally carried out. You anticipate the ultimate disposition of some of the principal characters; but in its details you can anticipate nothing, and, while nothing is crowded, you are carried along into one scene after another, each exciting a deep interest in its turn. On the other hand, there are no long chapters of tedious commonplace, interrupting the story, and designed to swell the book, and exhausting the reader's patience. In this respect, the book is a perfect model. Looking at the separate characters, it is clear that Miss McIntosh has achieved a triumph. Violet is an exquisite piece of art, not inferior in moral or material beauty to any heroine of any author. Van Dyke, the ignorant, brutal wrecker, stands out upon the canvas, not a demon, but a living, bad man. Katy, degraded and depraved, is a woman still, and so far as her own dark mind and heart can give light to her path, faithful to all her friends. So of all the rest. They are real, living men and women, and neither is a copy of any body. The general effect of the book cannot fail to be excellent. It is a life-boat, launched upon a rough sea, and may save many. The cross may secure a crown. It has done us good, and we thank the learned authoress for ourself, and we are sure she has done a good service for the public.

It is for sale by Sheldon, Blakeman & Co., New-York, and H. P. Jewett, Cleveland, Ohio.

Moore's Rural New-Yorker.—This is an excellent agricultural and family newspaper, published weekly at Rochester, N. Y., at $2 a year. Mr. Moore has shown great tact and energy in raising it to its present extensive circulation, approaching fifty thousand, in Western New-York and throughout the Union. That he is bound to prosper we have not a doubt, nor have we a particle of envy, for we are going onward too; and what is more, we have long known him as one of those men, whose principle of action is "to live and let live;" or, in other words, we commend him to our readers as a publisher, who wishes to make a living by his paper, and yet so that every subscriber shall have a "good bargain." Mr. Moore has authorized us to offer the Rural New-Yorker in connection with our journal, on terms which are satisfactory to us, and which cannot fail to gratify such of our readers as may desire a weekly agricultural and miscellaneous paper, sprightly in its character, and abounding in news of transient interest, in connection with a more solid, and, as we think, more reliable and permanently valuable monthly. We offer his as a more frequent visitor, better adapted to keep the subscriber "read up" in the world's "whereabouts," ours as one that we believe will be longer entertained, and both at the price of our own to single subscribers. See Business Notice on another page.

Daisy; or, The Fairy Spectacles. By the author of "Violet: A Fairy Story." Boston: Phillips, Sampson & Co. 1857. Pp. 175. 18mo.

The extensive commendation bestowed upon the beautiful moral tale of "The Violet," by the same author, has drawn forth this volume. It is characterized by the same simplicity of style, the same sympathy with nature, the same love of the good and the true, as its predecessor. We commend it for its purity of style, correctness of principle, its generous spirit, and its refined taste, as a book eminently suitable for children.

The Play-Day Book. New stories for little children. By Fanny Fern. Illustrated by Fred. M. Coffin. Published by Mason Brothers, 108 and 110 Duane street, New-York.

This is a beautifully executed little book, written in the peculiarly attractive style of the authoress, well adapted to please "little children," and we think also to please and instruct children of a larger growth. A pretty gift for the holidays.

Morgan Horses. By D. C. Linsley. C. M. Saxton & Co., 140 Fulton street, New-York.

Having noticed this work, while in progress of publication, we introduce it again, only to say that since seeing it in a more perfect form than we then could, and after more time for its perusal, we find it all that we then expected—the very work wanted by all who breed horses, and by all who use them. We learn that although the work is but just from the press, the fourth thousand is now on sale.

Worth, not Wealth; and other Tales. By Cousin Angie. Boston: Phillips, Sampson & Co. 1857. 174 pages.

It would be an improvement if our language had a distinction of sex for the word cousin, like the French *un cousin* and *une cousine.* We suppose, however, by the name, Angie, that the writer of this book is of the gentler sex, *une cousine,* not *un cousin.* Be that as it may, the book is a good one, and has an important moral, one which ought to be impressed strongly at this time, when *worth* seems to be (we do not believe it is) succumbing to the too powerful *dollar.* Wealth is certainly a good thing; we wish every body had enough of it; but it is not every thing. A person may be *rich* without it; and may be intolerably *poor* with it. Every one has seen striking examples of both. Rich *poor people* and poor *rich people* may be seen without going half so far as would be necessary to see a baboon or a mermaid. Rascality and wealth are too often preferred to competency and worth; but there is a better time coming; and such books as this in the hands of our children will hasten it.

Bright Pictures from Child Life. Translated from the German. By Cousin Fannie. Boston: Phillips, Sampson & Co. Pp. 176. 12mo.

This, like the other books we have noticed by the same firm, is beautifully executed and is embellished with four colored engravings, giving it, in addition to a rich variety of interesting and useful matter, an extra value for children and for all who have taste enough to appreciate the beautiful, or benevolence enough to rejoice in seeing children pleased at the same time that they are instructed.

The Springfield (Mass.) Weekly Republican, as will be seen by a reference to our advertising pages, is offered at the very low price of $1 a year to clubs of twenty and upwards. It is a large sheet, beautifully printed, and is edited with consummate ability by Messrs. Bowles, Holland, and their associates. We have known these gentlemen for years, have been a constant reader of their papers, and we can assure our readers, that, in their advertisement in this number they do not overstate their resolution and ability, nor their actual success, in making a journal of which the best judges most approve. Of their political views, we say nothing, except that they are open, manly, and earnest in their support of them—just what we like to see in all parties. With the single exception of their own *Daily Republican*, their weekly is the best literary and general newspaper known to us east of this city.

A new Chess monthly has been commenced in this city under the editorship of those admirably qualified for the service, and published by Messrs. P. Miller & Son, Thames street. The first number is issued. It exhibits familiarity with the subject and a talent for good writing. It is also very handsomely executed. Interesting games will be given in every number. Price $3 a year. Give them a lift.

BUSINESS NOTICES.

Moore's Rural New-Yorker.—As will be seen under our Book Notices, we are prepared to furnish Moore's Rural New-Yorker with our journal, to such as may desire a lively, enterprising weekly agricultural and general newspaper in connection with a monthly of substantial and more permanent value.

New subscribers, who will advance us three dollars, shall receive the two, promptly mailed from their respective offices, in New-York and Rochester.

Old subscribers, at $3 a year, who have paid in advance, and all who will do so, shall receive the *Rural New-Yorker* with our journal without extra charge, upon signifying their wish to that effect.

Those now taking our journal, or who may hereafter take it in clubs, at reduced rates, shall be entitled to receive *Moore's Rural New-Yorker* with it, on forwarding us the difference between their club price and three dollars.—Eds. P., L., & A.

The Cash Plan.—We have long been desirous of carrying fully into effect the plan of advanced payments, but have been deterred on the ground of a seeming indelicacy, as if we would urge our subscribers, already good payers, as the general rule, to be better. But let us look at this:—A few of them, very few compared with the whole, but enough to effect sensibly our year's receipts, are bad payers, and some are no payers at all, after having had the work for years. We send out collectors, but they are not to be found, or they have lost their property, or have made a still greater loss—that of the disposition, if they ever had it, to be just.

Now the philosophy of paying for periodicals, on any other than the cash in advance system, is just here, all in a nut-shell: The payers pay both for themselves and the non-payers—that is, they pay more than they otherwise would, because some do not pay any thing. They are a sort of unfortunate insurers, who take the risk, but get no premium, and we should think the business would not pay them. On the cash principle, every subscriber pays for himself, and no more. The publisher puts the price lower because there are no non-payers in the case, since, if all pay in advance, the work is sent to none till they have actually paid. Thus the publisher gets his pay equitably from all, and the paying subscriber gets his periodical at a lower rate.

The cash system, then, is the most economical, the most just, the best for both subscriber and publisher. We cannot make up our minds to enforce it, against the judgment of as good a set of paying subscribers as there is in the country—better as a whole, we positively believe, than those of any other publication—but cannot our subscribers see, that this is the best way for us and them, and will they not coöperate with us in bringing it about? By paying up arrears, and then falling into clubs, or taking the *Rural New-Yorker* in connection with our journal, if they like our offer, and sending us a less sum in advance than our price to single subscribers, they will make a saving to themselves, will escape paying money for delinquents, for if all will do this there will be no delinquents, and will do us a kind thing, which we will be pledged not soon to forget. Say yes, reader, to our proposition—do it "right off," and you will make our hearts glad, at this joyful season, when we believe all hearts rejoice but those of publishers who cannot get their pay.—Eds. P., L., & A.

List of Patents

ISSUED FROM THE U. S. PATENT OFFICE FROM OCT. 28 (THE TERMINATION OF THE PREVIOUS LIST) TO NOVEMBER 26.

Christopher Amazeen, Newcastle, N. H., operating the pawl cases of a ship's windlass.

Robert Anderson, U. S. A., and Aaron H. Vancleve, Trenton, N. J., cutting metals.

William A. Burt, Mount Vernon, Mich., equatorial sextant.

Albert Carter, Forestville, Ct., odometers.

Edwin A. Davis, Crawfordville, Ind., railroad station indicators.

Martin Eberhard, Philadelphia, Pa., rocking chairs.

Joseph R. Perry, Port Clinton, Pa., joint for uniting a morticing chisel to its mandrel.

William G. Creamer, New-York City, railroad car brake.

Ormrod C. Evans, Staunton, Iowa, spading machines.

Harlan P. Gerrish, Boscawen, N. H., husking corn.

Hiram Groves, New-York City, automatic musical instruments.

Peter C. Guion, Cincinnati, Ohio, cowl or draft accelerator for steamers.

Dennis Harrigan, Winchester, Mass., railroad car brake.

John Harris, Hoosick Falls, N. Y., making rope.

Nathaniel Hayward, Colchester, Ct., catch for India-rubber shoes.

Elmore Horton, Bristol, Ct., fishing implement.

Lucius J. Knowles, Warren, Mass., looms.

Pells Manny, Waddam's Grove, Ill., automatic rakes for reapers.

Wm. McLachlan, assignor to Robert Livingston, New-York City, burglar's alarm.

James F. Monroe, Fitchburgh, Mass., lubricator.

Henry B. Osgood, Dorchester, Mass., spring frame for packages.

Thomas R. Roach, West Needham, Mass., hay rakes.

L. D. Phillips, Chicago, Ill., trowels.

Wilson A. Purdom, Jackson, Miss., cotton gins.

Joshua Perkins, West Killingsley, Ct., husking corn.

John Robingson, New-Brighton, Pa., chain umps.

S. H. Roper, Roxbury, Mass., sewing machines.

David M. Tyler, Lisle, N. Y., starting and stopping water-wheels.

Joel Smith, Northbridge, Mass., throstle spinning machines.

John C. Smith, New-Hartford, Ct., weaving long warps.

Richard Trussell, Brooklyn, N. Y., stirrups for riding-saddles.

George J. Wardwell, Hatley, Canada, sawing marble and stone.

Isaac M. Singer, New-York City, sewing machines.

Wm. F. Shaw, Boston, Mass., heating or cooking by gas.

A S. Walbridge, Burlington, Vt., self-acting head and tail blocks for sawing-mill.

Thomas Maycock, assignor to himself and Henry Rice, Buffalo, N. Y., drain tile machine.

William S. Pratt, assignor to J. S. C. Thursby, Brooklyn, N. Y., fabric for underlaying carpets.

Alexander Smith and Halcyon Skinner, West Farms, N. Y., power looms.

David M. Lawrence, Cincinnati, Ohio, shutter fastener.

Wm. H. Plumb, New-York City, crushing rollers for ores.

Benj. Mackerley, New-Petersburg, Ohio, cider-mills.

Alfred Tippett, Washington, D. C., tool for tenoning, etc.

Francis Armstrong, New-Orleans, improvement in bumper brakes for railroad cars.

Fred'k H. Bartholomew, New-York, improved anti-frost faucet.

Geo. Bradley, Paterson, N. J., improved steam drag.

Thos. Carr, Liverpool, England, improvement in steering apparatus for ships.

John Cole, A. Little, and O. Wall, DeWitt, Ill., improvement in draining machines.

Almon Cooley, Hartford, Ct., assignor to Roderick Terry and A. Cooley aforesaid, same place, improvement in fastening door-knob spindles.

Legrand Crofoot, Syracuse, improved door fasteners.

J. Henry Darlington and Wm. Piper, New-York, improved diaphragm fluid meter.

John P. Derby, Cavendish, Vt., sleeve fastener.

Gustavus Fincken, Brooklyn, sugar draining apparatus.

Geo. F. Foote, Buffalo, improvement in machine for harvesting grain.

Wm. L. Gallaudet, New-York, improved spring holder for slate blinds.

John C. Harris, Savannah, improvement in water gauges for steam boilers.

Samuel L. Harris, Massachusetts, and Henry B. Osgood, Dorchester, improved method of regulating the draught of house furnaces.

August Hengstenberg, Muscatine, Iowa, candle mould machine.

Moses G. Hubbard, Penn Yan, improvement of cutting apparatus of grain and grass harvesters.

G. W. Hyatt, Auburn, improvement in forks for handling heated plates.

Rudolph Knecht, New-York, improved method of ventilating ships, etc.

Henry Kruse, New-Orleans, improvement in wagons.

Robert Lawson, St. Louis, improved waste valves for hydrants.

George D. Lund, Yonkers, improved method of hanging reciprocating saws.

James W. Martin, Philadelphia, improved method of preparing ratan for umbrellas.

Charles Miller, New-York, improvement in cutting tiles.

Samuel Morrill, Andover, N. H., improvement in cloth dyers.

Edwin M. Murphy, Lexington, Ill., medical respirator.

Ephraim L. Pratt, Philadelphia, improvement in machines for slicing apples.

Ira Reynolds, Republic, O., improvement in washing machine.

T. Sault, Seymour, Ct., process for cleaning India-rubber.

Gustave Scharffe, New-York, improvement in breech-loading fire-arms.

John R. Sees, New-York, arrangement of means for heating feedwater of locomotive engines.

Christian Scharps, Philadelphia, improvement in breech-loading guns.

W. G. Sterling, Bridgeport, Conn., gas regulators.

Thomas B. Stout, Keyport, improvement in millstone dress.

Wm. H. St. John, New-York, coppering gas retort fastening.

Wm. Taggart, Haverhill, improved projectile for fire-arms.

Reuben Wright, Westfield, N. Y., improved weather-strips for doors.

Jacob Geiss and Jacob Brosins, Belleville, Ill., improvement in machine for cutting vegetables.

Alvin Bullock, Busti, N. Y., improvement in harvesters.

Ephraim L. Pratt. Philadelphia, assignor to Leonard Harrington, Worcester, Mass., improvement in machines for paring apples, potatoes, etc.

John F. Willey, Fredonia, assignor to Benj. F. Merrill and Thos. Phillips, Cassadaga, and Jno. F. Willey, aforesaid, improvement in excavators.

Henry Bessemer, London, England, improvement in the manufacture of iron and steel. Patented in England, Feb. 12, 1856.

Henry Bessemer, London, England, improvement in smelting iron ore. Patented in England Aug. 25, 1856.

Geo. S. Burrows, Mystic River, improvement in attaching center boards to vessels.

Phineas Burgess, New-York, improvement in machinery for polishing glass.

Wm. D. Gallaher, Bensalem Township, Pa., improvement in machines for sawing marble.

Richard G. Holmes and W. H. Butler, New-York, improved burglar-proof safe.

Chase B. Horton, Elmira, improvement in machines for cleaning grain.

Wm. A. Ives, New-Haven, Ct., improved spring latch and lock.

Augustus Jouan, San Francisco, for lee-boards for vessels.

Augustus Jouan, San Francisco, improvement in propeller shafts.

Allen Lapham, Brooklyn, assignor to himself and Stephen Wilkes, same place, improvement in combined steam boilers and kettles.

Spencer Lewis, Tiffin, Ohio, improvement in bedstead fastenings.

La Fayette Louis, Boston, improvement in melodeons.

Barnetz McKeage, Accotinck, Va., for improved stave jointer.

C. A. McPhetridge, St. Louis, improvement in cotton gins.

C. A. McPhetridge, St. Louis, improved binder for grain harvesters. Ante-dated Oct. 25, 1856.

Bennett Potter, Jr., Charlestown, mode of softening cork by steam.

Pierre Etienne Proust, Orleans, France, improvement in lubricating car axle and other journals.

Julius A. Roth, Philadelphia, for bleaching process.

G. H. Stevens, Lowell, Wis., improved boring and morticing machine.

Charles M. Zimmerman, Philadelphia, for tail-piece for violins, etc.

Jos. Lyndall, Santa Clara, assignor to Cyrus Roberts, of Belleville, Ill., improvement in grain separators and conveyors.

Charles P. Carter, Ware, Mass., assignor to Leonard Harrington, Worcester, Mass., improvement in machines for paring apples.

Josiah B. Pomroy, Chicago, improved device for governing the parallel yielding of lumber feeding rollers.

C. W. Williams, Boston, improvement in tailors' pressing machines.

J. Albright, Greenville, Tenn., improvement in machines for stuffing horse collars.

Jas. Anderson, John McLaren, and John Bryant, New-York, improved lathe for cutting fluted moldings.

F. L. Bailey, Boston, improvement in printing presses.

Stephen K. Baldwin, Guilford, N. H., improvement on the fourneyron turbine wheel.

Chas. Bickell, Baltimore, Md., for process of treating feldspar for a manure.

Thomas G. Clinton, Washington, D. C., improved alcohol cooking apparatus.

David Cumming, Sorrel Horse, Pa., improvement in boxes and axles, journals, etc.

Wm. Crane, Brooklyn, improvement in machines for polishing leather and harness.

Evan L. Evans, Providence, for improvement in curry-combs.

Edwin O. Goodwin, Bristol, Ct., improvement in backgammon and checker boards.

George G. Henry, Mobile, improvement in manufacturing cotton yarns.

Wm. W. Hubbard, Boston, improvement in lathe for planing metal.

A. F. Johnson, Boston, improvement in stitches for sewing machines.

George Kenny, Milford, N. H., improvement in turning circles for carriages.

M. C. Chamberlin and W. Filkins, of Shelden, N. Y., improved machine for turning boot-legs.

Alexander La Mat, New-Orleans, improvement in fire-arms.

Samuel W. Phelps, Cincinnati, improvement in traveling trunks.

Aurelius M. Purnell, Washington, D. C., improved apparatus for exhausting air from and hermetically sealing cans and vessels.

Jeremiah P. Smith, Hummelstown, Pa., improved disk for shelling corn.

George C. Todd, Lynn, improvement in "edge keys" for making and polishing the edges of boot and shoe soles.

Chas. F. Thieme, Philadelphia, improved gas cock and swinging joint.

Uel West and Abner Mills, New-York, improvement in the construction of tubular condensers and heaters.

Wm. Whiteley, Jr., Springfield, Ohio, improved raking attachment for harvesters.

Wm. Wright. Hartford, Ct., improvement in adjustible cut-offs for steam engines.

J. Claude White and Robert Hay, Tuckervill, Pa., improved apparatus for hoisting coal.

Jos. A. Moore and Asahel H. Patch, Louisville, Ky., for improved finger bar arrangement for harvesters.

Thomas A. Chandler, Rockford, Ill., assignor to Harlow Herrick, La Grande, Ohio, and Thos. A. Chandler, aforesaid, improvement in hand corn-planters.

Wm. C. Watson, New-York, assignor to himself, Geo. H. Woorster and Morris Knight, of same place, improvement in sewing machines.

AGENTS FOR THIS JOURNAL

Are as follows: and no other names are recognized, as such, at this office.

S. D. Allen, Moore and Atkins, Paul A. Davis, in the Northern and Middle States James Deering and Henry M. Lewis, in the Southern States.

The Plough, the Loom, and the Anvil.

Vol. IX. FEBRUARY, 1857. No. 8.

Agricultural.

AMERICAN FARMERS.

If it is true, as we have stated before, and as we believe every man well read in the history of modern civilization will admit, that the cultivators of the soil have nowhere yet held that high position of social and civil influence, which the best good of the race requires that they should, it is worth while to inquire for the cause of so important a failure. Why have they not?

Leaving other countries, we will confine the inquiry to our own. Here are comparatively few monopolies. We have few vested rights, by which to turn the rewards of labor into coffers of another. No ancient king has erected a barrier about New-York, Philadelphia, New-Orleans, as around Paris, and decreed that for all coming time the farmer, who carries his produce through its gates, may have for it half of what the consumer pays, while the city shall have the balance. No divine right is claimed for oppressing the producing classes. The government has always been administered as the farmers wished, or at least might have been, had they been united and spoken out, for they have always been in majority. Either they have always had their way, or, if they have not, it has been their own fault.

Our own views are well known;—we believe that everybody else has been served first, that the farmer's interest has been left to the last, and is not reached yet. We begin to doubt whether it ever will be. Certainly it will not, unless the farmers of the country assume a more united and a more formidable position than they have yet done. This very winter, if a remodeling of the tariff were undertaken, we suppose that a British iron-monger residing in New-York would gain more consideration with Congress than all the farmers in the land. The loss to the carrying trade would be sung through at least three octaves and into a fourth, till it should attain so high a squeak as to drown more decent voices. We should hear of ships rotting at the wharves, of sailors robbing hen-roosts, and of national ships unmanned for the want of a mercantile seaman's apprenticeship, till we should forget whether American farmers should have the feeding of the men who make iron for their carts and ploughs, or whether British ore and coal, or American, should be used in the manufacture.

But all this does not reach the difficulty. The question is, Why have not American farmers attained a high place of influence and power? Why do they, numerous as they are, as really the supporters of the government as the ass is of the master who rides him, stand aside, with hats under their arms, like underlings, and see every other interest served before theirs? That it is so, every one can see. But why is it so; and by what means is it to be otherwise? Let us look at these two questions.

If we look back to the commencement of farming operations in this country, we shall find that the early farmers had most of them been farmers in England before coming here; not however of their own land, not the owners of their own houses, but farmers of another's land, and dwellers in another's cottage, liable to be turned out if they did not demean themselves meekly. They were taught by church and state that there is a wide difference between the owner and the tenant. They might respect themselves as compared with their fellow laborers, but not in comparison with Mil Lord and his sons, that rode fast horses and hunted foxes. They might dress clean of a holiday, but might not wear such a coat as the *gentlemen* in their neighborhood wore, not even if they could afford it, which was not often the case. That would be quite unbecoming. They were as thoroughly trained to cringe, and fawn, and make low bows, as men of their sterling sense could be. Now the effect of education is tremendously strong. What is drilled into the bones of a race, cannot be bred out of the flesh in one century, nor two, nor wholly in three. Our fathers came here fully prepared to look up, and if any one, whether lawyer or doctor, merchant or *gentleman*, assumed to fill the place above them, it was perfectly natural to them to see it filled. We have not the least doubt that this cause operates to this day, and will for another century. Under its influence, the American farmer feels very much like taking off his hat to everybody that wears a fine coat, and talks a little more flippantly than he can. Heaven forbid that we should destroy his respect for real intelligence and worth. Our national bump of reverence has nothing to spare. As a whole we would sooner see it growing than declining. But we cannot bear that the farmer should allow himself to feel an inferiority in the presence of men who are not really his superiors.

This tendency of the farmer to think diminutively of himself as compared with men no way his superiors, was helped on by the entire policy of the English rule, so long as we were colonies, but what drove the nail and clenched it for centuries, was the colonial policy of compelling our fathers to depend on England for our manufactures.

For a while this could be indured, because in the infancy of a colony the settlers are necessarily dependent. They cannot clear up their lands, build houses, establish churches, colleges, schools, factories, all at once. The building of factories, the development of mineral resources, the proper division of labor, must of course be postponed for a while. While they were postponed to the necessity of the case, and by common consent, the system became fixed upon us so strongly that it seems likely to take the years of another jubilee to slough it off. England must make our door locks, whether she could make one that would keep out her villains coming among us or not. Her smithy must have twenty-five cents for making it; her exporting merchant must have twenty-five more for bringing it here; the jobber would get twenty-five more, and the retailer another twenty-five; and the farmer pay one dollar for a lock, that would make a rogue laugh and an honest man cry. It may be said that this is not so very bad, no worse than we are doing now, when we buy English razors for a dollar, which everybody knows, or should know, are retailed in England for one shilling.

British manufacturers at home, and British merchants stopping in New-York, love to *shave* us, and if we love *to be shaved*, let it go on. But the trouble with our fathers was, that they had no money to buy those locks *to let in rogues with* and those razors *to be shaved with.* They could grow produce, but there was no manufacturer among them to consume their produce. It went a begging. Nobody would buy it. Now, when any one has a great deal to sell, but can raise no money for it, he feels like rather a small sort of a man. He can hardly hold up his head among merchants and others who have money enough. And yet this is the very training which American farmers have been through. Even since this century came in, fatted calves have been killed, the fore-quarters thrown to the pigs, and the hind-quarters carried a long way and sold for two and a half cents a pound. Pay was often taken in India cotton at fifty cents a yard. Nothing could be more unfavorable to agriculture. We have often wondered why the farmer did not lie down in the furrow. There is a sense in which he did;—he became unenterprising, nor was he to be blamed for it. He lacked incentives. He, in a measure, lost his self-respect. Anybody that could get some money was better than he. He rejoiced if a young lawyer, or a sprig of a merchant's clerk, took a fancy to his daughter, and would rather his son should learn to turn broomstocks, or make shell combs from oxen's horns, than to be a farmer.

Now the times are better. If the farmer can grow something, he has a reasonable prospect of selling it at a living profit. But the depressing influences of such a state of things as the farmers of this country have been through, do not cease in a day or a year. They run through generations.

Out of this non-manufacturing system, this dependence on a foreign power for nearly all that was worn by day, or slept in by night, articles without which we could not be born comfortably or buried decently, or work the soil while we lived, grew among other foolish ideas, this most foolish of all, that the farmer alone has little need of education. We mean that this ridiculous idea grew out of that state of things, as an *American idea.* It was old in Europe three centuries ago.

It may be nearer the truth to say that it was imported; but it became acclimated, confirmed, made, we sometimes fear, as immovable as the everlasting hills, by that very state of things which we have described, a dependence on England for our swaddling clothes, and grave clothes, and all the clothes we wear between, wedding suits and all, for our pots, axes, dish-kettles, and log chains, everything we wore or used, and consequently no home market for our produce, twenty pounds of veal for the writing of a dunning letter at us, and then no money for the veal, but a yard of Indian cotton, that the wind might not blow upon too rudely, and that the lawyer would by no "manner of means" accept as pay for a three-line dunning letter. Those who oppose American manufactures would reïnaugurate precisely such a condition for the farmer; would leave him to the sorry chance of raising a great deal and getting precious little for it. All the commerce in the world would not save him. It would only filch away the little money he could get, and put it quite beyond his reach, concentrating a large share of it in our own commercial centers, and dividing the rest between the foreign merchant, the foreign farmer, and the foreign mechanic, instead of leaving it here to go the rounds, from the farmer to the manufacturer, from the manufacturer to the laborer, from the laborer back to the farmer, through everybody's hands, buying what everybody wants.

It is nothing but the supplying of our own wants, and, as fast as possible, our own luxuries, by home industry, that can keep this latter state of things in operation. Nothing else will save us from being cheated as badly as our fathers, when they bought their door locks of England, and as we are when we buy a certain class of razors that sell here for a dollar, and there for a shilling, or another class, that *shave* when we buy them, but won't *shave* afterwards. It is true that foreign immigration, and our expectation of farm produce, great in itself, but destined for ever to be small compared with the amount we can grow, might a little retard the return of times when the results of the farmer's labor would go a begging. But it should be considered, that a failure to manufacture for ourselves would stop immigration, while it would stimulate foreign agriculture, and would soon leave the American farmer without a buyer.

While the old order of things lasted, while we imported all our manufactured goods, instead of importing only as now too large a portion of them, while the farmer got almost nothing for his produce, and that not in cash, but in slazy cotton cloth, or in pot-metal nails, or pewter tankards, or pewter gimlets, what wonder that the idea of a young man's wanting no education to be a farmer took possession of the public mind? Alas! if educated, he might be spoiled for his condition. If one of his brothers was dull, educate him for a minister. If another was trickish, make a lawyer of him. The one that was to be a farmer, was born to the trade, and that was enough. Let him stay at home, work hard, and help his brothers into a better position, one from which they would be pretty sure to look down upon him for the rest of life.

This was the reasoning. The idea became about as *fast* in the public mind, as a thorough-going farmer wishes his gate post to be in the ground. To read tolerably, to spell badly, and to cypher worse, was enough for the unlucky boy that was condemned to farm life. Well, where is this old idea, half justifiable fifty years ago, gone to now? Nowhere. It sticks in the heads of some people like a well-set gate-post in the ground. Too many farmers still think that reading, reflection, reasoning, the brightening up of the mental powers is of no use to them. They laugh at science; call it book farming with a sneer, if some neighbor tries to pry into the secrets of the trade, or sends his son to an agricultural school. The farmer, they think, need not know much!! This is a terrible mistake!!!

It has been true since time begun, and will be while time lasts—a truth unaltered and unalterable—that *any profession is honored just about in proportion as the men exercising it are intelligent, mentally cultivated, self-improved.*

To improve your soils, your fruits, your breeds of cattle, is well. But it generally happens that, when a man fails to improve himself, nothing improves around him. He rusts, and his buildings rot; all becomes worse, and his profession suffers in the public estimation. An ignorant farmer is a disgrace to his profession, just as an ignorant minister, an ignorant lawyer, an ignorant doctor, or an ignorant, narrow-minded merchant is a disgrace to his. We do not say that the farmer should know all that these men know. "Every man to his trade." But he should know his business as well as they theirs; and in order to this, he has much to learn beyond what fell to him by being born on a farm, or will come to him of course by being brought up a farmer.

We would not counsel farmers to read poetry in seed time, or romance in harvest. The tendencies of their calling are rather scientific than literary. Their business is an art, but it is so interwoven with many sciences, that to speak of the *science* of Agriculture is no absurdity. The soil is a sort of chemical laboratory, and if the farmer knows enough of chemistry to comprehend steadily the chemical allusions in his agricultural journal, it is of immense advantage to him. Plants have peculiar laws for drawing nourishment from the air and the soil, and if he understands these laws he can better minister to their wants, and will thereby gain enough in a single year to pay him for carefully studying a small treatise on vegetable Physiology. Animals have causes of thrift and unthrift, laws of growth, diseases; and how can he be ready for every emergency in the stall unless he understands the nature of the animal he cares for?

We grant that his knowledge on this subject is to be obtained mostly from observation, but then his power of observation will be quickened and made far more useful to him by some reading. His profession is in some respects like that of war. He has enemies, and how can he win, unless he keeps himself informed on the nature, positions, and probable movements of the enemy?

But we forbear. The benefits of study to the farmer are not all payable in dollars and cents. It gives him personal consideration, a high standing in the community—influence. It makes him an honor to his profession. The intelligent, inquiring farmer, of awakened intellect, elevates his profession, just as the ignorant farmer, of no inquisitiveness, with no mind aroused to action, sinks it. The one honors, as the other disgraces, the whole body of farmers. The intelligent farmer, and we have more such than any other country after all our deficiencies, is a pattern to his fellows, and in this way is pre-eminently useful; for of all the model farms we have ever seen, none are more instructive than those of some self-made, but well made thoroughly instructed farmers among ourselves.

Where a majority of farmers will consent to become like them, aiming at a high self-culture, with a wise reference to their business, and a generous desire for usefulness, and a high standing before the community, their profession will be honored, the government will respect their interests, empty-headed coxcombs even will know enough not to speak contemptuously of them as a whole, *and the country will be safe.*

Of all the means within the farmer's own control, for elevating his calling and securing for it a just consideration, this self-culture is the first. The second is like it—the education of his sons for the farm. Of this in a future number.

THE CHINESE SUGAR-CANE.

From a circular received from the Patent Office, signed Charles Mason, Commissioner, we gather, among other interesting statements, the following:

Origin.—This new plant seems to be destined to take an important position among our economical products. Its seeds were sent, some six years ago, from the north of China, by M. de Montigny, to the Geographical Society of Paris. From a cursory examination of a small field of it, growing at Verrières, in France, in the autumn of 1854, Mr. D. J. Browne, then on a mission from this office for collecting agricultural information and products, was led to infer, that, from the peculiarity of the climate in which it was growing, and its resemblance in appearance and habit to Indian corn, it would flourish in any region wherever that plant would thrive. From this source, he obtained some 200 pounds of the seed, which was distributed in small packages, by this Office, among the members of Congress, with the view of experimenting with it in all parts of the Union, and thereby ascertaining its adaptation to our soil and climate. In numerous instances the results proved highly satisfactory, as it attained the height of eight or ten feet, as far north as St. Paul's, in Minnesota, and matured its seeds at various points in Massachusetts, New-York, Pennsylvania, Illinois, and other places further South. The following year, while in France, on a similar mission as above, Mr. Browne obtained several bushels of the seed of this plant, grown from that reputed to have been brought from South Africa, by Mr. Leonard Wray, of London, and which has since prove to be identical with that obtained by this Office in 1854.

Description and Habit of Growth.—The Chinese sugar-cane, when cultivated on ordinary land, in the United States, somewhat after the manner of broom-corn, grows to a height of from eight to sixteen feet, while in Europe it does not attain much more than half of this altitude. Its stems are straight and smooth, often covered with a white bloom, or down, having leaves somewhat flexuous, falling over and greatly resembling in appearance those of Indian corn, but more elegant in form. When cultivated in hills, containing eight or ten stalks each, it puts forth at its top a conical panical of dense flowers, green at first, but changing into violet shades, and finally into dark purple, at maturity. In France and the central and northern section of the United States, it has thus far proved an annual; but from observations made by M. Vilmorin, as well as some experiments in our Southern States, it is conjectured that, from the vigor and fullness of the lower part of the stalks, in autumn, by protecting them during the winter, they would produce new plants the following spring. It stands drought far better than Indian corn, and will resist the effects of considerable frost without injury, after the panicles appear, but not in its younger and more tender state. If suffered to remain in the field after the seeds have ripened and have been removed, where the season is sufficiently warm and long, new panicles will shoot out at the topmost joints, one or more to each stalk, and mature a second crop of seeds. The average yield of seed to each panicle is at least a gill.

Cultivation.—Since its introduction into this country, the Chinese sugar-cane has proved itself well adapted to our geographical range of India corn. It is of easy cultivation, being similar to that of maize or broom-corn, but will prosper in a much poorer soil. It does not succeed so well, however, when sown broadcast with the view of producing fodder, as it will not grow to much more than one-half of its usual height. If the seeds are planted in May, in the Middle States, or still earlier at the South, two crops of fodder can be grown in a season from the same roots—the first one in June or July, to be cut before the panicles appear, which would be green and succulent, like young Indian corn—and the other a month or two later, at the time, or before, the seed is fully matured. In the extreme Northern States, where the season is too short and cool for it to ripen in the open air, the cultivator will necessarily have to obtain his seed from regions farther south. If it were important for him to raise his own seed, he could start the plants under glass, in the spring, and remove them to the field or garden at about the period of planting Indian corn, after which they would fully mature. One quart of seeds are found to be sufficient for an acre. If the soil be indifferent or poor, they may be sown in rows or drills about three feet apart, with the plants from ten to twelve inches asunder; but if the soil be rich, they may be planted in hills, five or more seeds to each, four or five feet apart in one direction, and three or four in the other. The plants may be worked or hoed twice in the course of the season, in a similar manner to Indian corn. Any suckers or superfluous shoots, which may spring up, may be removed. The seed should not be harvested before it acquires a dark or black hue. Should the plants lodge, or fall to the ground, by the excessive weight of the heads, during storms of wind or rain, before the seed matures, they may remain for weeks without injury.

In collecting the seed, a convenient method is to cut off the stalks about a foot below the panicles, tie them up in bunches of twenty-five, and suspend them in any secure, airy place, sheltered from rain. If intended solely for fodder, the first crop should be cut just before the panicles would appear, and the second, as soon as the seed arrives at the milky stage. It may be tied up in bundles, shocked and cured, like the tops or stalks of Indian corn. If not intended to be employed for any other economical use, after the seed has been removed, and if the weather be cool, and the average temperature of the day does not exceed 45° or 50° F., the stalks may be cut up close to the ground, tied in bundles, collected into shocks, or stowed in a mass in a succulent state for fodder, in sheds or barns, where they will keep without injury, if desired, until spring. In this condition, however, the lower parts of the stalks will be found to be quite hard and woody, and will require to be chopped into small pieces for feeding.

Precaution.—Particular care should be observed not to cultivate this plant in the vicinity of Dourah corn, Guinea corn, nor broom-corn, as it hybridises or mixes freely with those plants, which would render the seeds of the product unfit for sowing.

SAVE ALL YOUR FERTILIZERS.

Nothing is more common than to see farmers preserving certain fertilizers on their premises, but from want of consideration neglecting others of equal or superior value. The solid excrements of animals seem to be regarded by many as the only source of fertility on the farm. That they are the principal source is granted, and there is little danger of estimating it too highly, or of preserving and applying it with too much care. But they are not the only source. Swamp mud, cured in the sun, and then saturated with the liquid excrements, is at least as valuable. The same saturated with strong soap-suds is worth about as much. From these two sources alone, the farm manure may be increased almost *ad libitum.* Swamp mud mixed with two bushels of ashes to the load, forms another article of equal worth. That many farmers, who grow wheat, cotton, or some other valuable staple in large quantities, can advantageously purchase portable manures, at one, two and three cents a pound, we may not doubt, for some of the best farmers have done it, and are reporting favorably. But we are equally confident that the best policy for the great majority of farmers is, to work up the home sources of fertility. To save all, and to add to it, at a moderate expense for labor, is indicated as their best source. We do not now, as we did once, condemn the purchase of guano, at $50 or even $60 per ton; but we doubt whether there is one farm in ten thousand, on which fifty dollars worth of labor judiciously expended in gathering up and composting materials within the circuit of the farm would not give a larger return than any ton of guano ever brought from the Chincha Islands. It will be our duty from time to time to put our agricultural readers in possession of facts, enabling them to judge of the relative value of materials within their reach for manurial purposes. This we shall do with a will, because we have long been of opinion, that in the main, a farm should be made to enrich itself, and to grow richer the longer it is cultivated. We do not much blame our fathers, when land was low and produce was lower, for exhausting one piece of land and then going on to exhaust another. But the time has come for us to do otherwise—to sow grass seeds and plough in the crops, to gather up the muck and apply it to the uplands, to save the bones, the woolen rags, the hogs' bristles, the urine of the stalls, every particle of the night soil, the entire sink washings, the scrapings of the cellar, the parings of the road-sides, the mould of the wood-sides, clay, if it can be found, for the sandy knolls, leaves from wherever they have drifted into large heaps, every thing that can enrich the soil, and whatever tends to consolidate the light lands or open the heavy. Farmers who have neglected to preserve the urine of the stalls, or have let the bones lie around as nuisances, or been vexed with the woolen rags in the manure heap, or let the blood of their slaughtered animals run to waste, may learn a useful lesson from the following

Experiment by Professor Hermbstadt.

Soil without manure, -	yielded	3	times	the seed sown.
Soil dressed with old herbage, grass, leaves, etc., -	"	5	"	"
Cow dung, - - - -	"	7	"	"
Pigeons' dung, - -	"	9	"	"
Horse dung, - - -	"	10	"	"
Human urine, - - -	"	12	"	"
Sheep's dung, - - -	"	12	"	"
Human manure, - -	"	14	"	"
Bullock's blood, - - -	"	14	"	"

We are not informed how much of each of these was applied, nor must we suppose that the relative value indicated is any more than an approximation to truth, but as such, the experiment is of value, as showing the great worth of certain substanees, which many have neglected to preserve. A similar use may be made of the following analyses of Payen and Bousingault:

Table of the relative amount of nitrogen in blood and other fertilizing substances.

	Water	Nitrogen in Manure.	
		Dry.	Wet.
Farm yard manure, 100 parts, contain	79	1 95	41
Solid Horse dung, - - - - -	75 3	2 21	55
Human urine, - - - - - -	79 1	12 50	2 61
Urine of public vats, - - - -	96 0	17 56	16 88
Solid dried blood, - - - - -	21 4	15 50	12 18
Liquid blood, - - - - - -	81 0	——	2 95
Blood coagulated and pressed, - -	73 5	17 00	4 51
Guano, - - - - - - - -	19 6	6 20	5 00
Graves, - - - - - - - -	9	12 93	11 88
Woolen rags, - - - - - -	11 3	20 26	17 98
Bones, - - - - - - - -	8 0	——	6 22

If we were to estimate these manures solely by the nitrogen, it would appear that woolen rags are worth about eleven times as much as dried farm-yard manure, and nearly fifty times as valuable as wet; and that dried blood is worth from eight to nine times as much as dry farm manure, and about forty times as much as wet; and that even liquid blood is nearly twenty times as valuable as wet farm-yard manure. This would not be a fair way of estimating the comparative values, because the heavy farm-yard manures would contain more value in mineral ingredients than the woolen rags or the blood. Enough however may be seen from the table to show the great value of certain substances often neglected. We hope it may be studied for this purpose. It would be bad policy to buy ammonia in guano, and throw away the nitrogen in woolen rags and in the blood of animals and in night-soil. We have seen the style of doing things on a great many farms, and much have we seen to admire as compared with the general run of farming, but it has seldom fallen to our lot to see a farm on which we did not think that the essential ingredients for crops—the ammonia, the phosphoric acid and the potash—might be gathered from the farm itself and composted into a condition to increase fertility at a cheaper rate than to bring them from beyond Cape Horn.

AGRICULTURE IN DISTRICT SCHOOLS.

There are not far from one hundred District Schools in this county; all but eight or ten of which are, perhaps, filled with farmers' children; while an equally large proportion of the number of these children will probably follow farming for a business through life. And still, there is not a Distict School in the county—perhaps not in the State—in which the *Science of Agriculture* is taught—nor even those other sciences which most intimately apply to and promote agriculture; such as Botany, Geology, Chemistry, Mineralogy, and Natural History.

Is it any wonder that so many of our legislative bodies and other responsible offices are filled by men from other professions? Is it strange that the superior minds—or those supposed to be so—among Farmer's sons, seek, or are sent to fill, other professions, where more mind and intelligence are *commonly considered* requisite to secure fame and success? Not at all. It will always be so until the profession of the farmer is elevated so as to demand and interest a higher and wider degree of intellectual effort, and will afford the rewards and honors of higher mental exhibitions. And certainly, no profession among men furnishes a wider or more diversified scope, for all the capacities of the mind than does that of Agriculture, and when it is viewed in all of its requirements and relations—in short, when reduced to that proper and beautiful science which it is capable of presenting, and which it does present in the minds of those who look at it in all its bearings. The office of the Teacher, Preacher, the Doctor and the Lawyer, are noble callings, and demand justly a high order of mind to secure their highest usefulness; but still, the whole business of the complete Farmer embraces a wider field for the exercise of thought and learning—all of the natural sciences are readily conducive to his interests—in fact, the other sciences are but branches of the grand Agricultural Science, when it is fully systematized and developed. Meteorology, Climatology, and the others above named, all readily and naturally pay tribute to the pleasure and profit of farming, if the farmer does but intelligently demand of their treasures, with the same mental energy that men grasp the sciences of Law, Commerce, or Navigation. A knowledge of the laws, habits, etc., of animal and vegetable life, together with the hidden earth-workings, are all calculated to enhance the delights and benefits of the farmer's vocation, if he but earnestly seek such knowledge with the devoted labors both of *mind and hand*, with the studious application of the Lawyer or Doctor.

These are but the general propositions which might be enlarged upon by giving the details, such as the best modes of farming, testing and preparing desired soils—of adapting crops to soils, and soils to crops—the principles of fertilizers—the rearing and feeding of stock—application and improvement of implements, and the like; either of which subjects would afford ample field for a lengthy essay—as well as Horticulture and Pomology.

Thus it may readily be seen that the science of agriculture embraces a wider, more varied, and beautiful field for mental labor than any other; and just in proportion as the full powers of the *mind* are earnestly brought into this service will the labors of the *hands* be rendered more pleasing and lighter. It is the grand foundation of all human *material* wealth and existence—it is the source from which all others derive their support; without the products of Agriculture, Manufactures, Commerce and Literature would perish and become extinct.

Is it not strange, unaccountable, then, that mind should so long and so much have neglected the profession of Agriculture, while the others of less importance to our race have been, are still, over-stocked with half-idle, half-fed members? Why is it that the high dignity of farming has been so lamentably forgotten or overlooked? Simply, because it has not been properly understood and appreciated—the mental sky has hung with dark clouds, and the hands have been over-tasked and irksome.

To correct this great mistake we must go to the foundation of things—to remove this prevailing error, we must go to work at the fountains of mental action and forces—we must go to the children, the scions of the rising generation—to The Common Schools.

The study of Agricultural Science, in clear form, and the kindred sciences should be made common and necessary branches in our Common Schools, as much as Grammar, Astronomy or Algebra—let it be expected and required that this shall be a matter of instruction in all our schools, the same as other common studies, and we shall soon see an interest and earnestness awakened for study among our farmers' children before unknown—we should soon see an intelligence and pleasure in the pursuit of farming with this true union of *science and practice*, which that profession has not before presented, while at the same time the benefits and profits would be measurably increased with the enlarged pleasure, including reduced drudgery. And better still, we should seldom see the humiliating sight, now too common, of two many of our best minds, leaving the profession of their fathers to seek a surer field of fame and fortune in the more popular pursuits.

Another advantage will be, that farmers will be better qualified, and have more confidence in their own abilities to become legislators to make laws for their own government as well as to fill other offices generally; and consequently will have less need for lawyers to explain everything to them, and to prepare all of their papers of trade and business. They will not seem to feel or expect it to be almost necessary that they should select persons from among the "learned professions" to deliver their lectures and addresses, and teach their schools, etc.

Perhaps, we have not as yet all the necessary text books, on this subject, to take familiarly into our schools—not the most suitable that could be, probably—but let there once be a general demand for them, and it will not be long before they will be provided—competent minds will quickly see our wants and supply them, so that there will be no more lack of text books than is found in other departments of study; the very spirit and discernment which perceives the wants and stimulates to improvement will speedily be awakened to furnish all the requisite facilities, as soon as the needy community shall generally and in earnest make the demands.

It is certainly as necessary that the children of the country should be taught in Agricultural Chemistry as in Geography—in fact they may to a considerable extent be included in the same book for young beginners; for instance as the location and particular business of a place or country is described, it would be well and profitable also to have its soil carefully described—how it is constructed geologically—how it is, or should be, cultivated—what the system of fertilizing and the results—the most successful management of stock raising and dairy business; and so on. If geography makers would insert some general and reliable knowledge of this kind, and other kindred facts, their books would be both more interesting and useful, besides far more popular.

Certainly, it must be full as useful to scholars in general to be informed of the systems and results of agricultural operations in different localities, States, or nations, as to know their common geographical details and political character.

Then again, the common text books on Geology, Chemistry, Botany, Natural History, may also be so improved by combining practical facts and statements of the same kind, as to render those works more pleasing and useful; by showing their application, in different ways, to the various arts of Agriculture—as they all may greatly contribute to lighten the burdens, and increase the profits and pleasure of the farmer.

In this way book-makers, in those departments, may at one and the same time advance their own fame and usefulness, and benefit that branch of human labor which is the chief basis or dependence for prosperity to all branches of proper industry and enterprise—whether in making or carrying the necessaries of life. Thus, Mr. Editor, I have made some crude and brief suggestions on different points, in a direction, which, by following up, men of talent and learning may render great benefits to the country, and secure to themselves a high and proud name of usefulness. Shall the Science and Art of Agriculture become a regular branch of study in our Common Schools?—*D. S. C., in Wis. Farmer.*

Lord Kinnard's experiments show conclusively that manure produced and kept under cover is much more effective than that produced and kept in the open air; and they show, just as we should expect from accurately conducted experiments, that the advantage is quite as decided on the second year's crop as on the first. N.

ANALYSIS OF THE ASH OF CLOVER.

Potash	16.101
Sodium	1.874
Soda	40.712
Lime	21.914
Magnesia	8.289
Phosphate Iron	.670
Chlorine	2.856
Phosphoric Acid	3.915
Sulphuric Acid	1.063
Silica	2.605
	100.000

The foregoing analysis was made by Prof. Horsford, of Cambridge University, when pursuing his studies in Germany some ten or twelve years ago. The large amount of the alkalis explains why wood ashes are favorable to the growth of this plant. The amount of lime in the ashes shows why lime, on soils deficient in that ingredient, is so beneficial to the growth of clover, that large tufts of it will spring up, in some cases, where not a head had appeared for years, if a handful of lime happens to be dropped on the turf. As all the ingredients noted in the above analysis are contained in barn-yard manure, that is sure to produce a good growth of clover, if applied in considerable quantity; but as some of these ingredients exist in barn-yard manure only in small amounts, as compared with the demands of clover, this plant cannot be expected to continue long to flourish from the effect of a single dressing, unless the ground be naturally rich in its principal elements, potash, soda, lime, magnesia, and phosphoric acid. N.

IMPORTS AND EXPORTS.

It appears from authentic documents that we imported, in the year ending June 30th, 1856, foreign goods to the amount of $261,000,000. Of these $28,000,000 worth were re-shiped to other countries, leaving the value of $233,000,000 to be consumed and paid for by ourselves.

Of this sum upwards of $28,000,000 went for silks, nearly $17,000,000 for coffee, and $7,000,000 for tea, besides large sums for other articles, which can be viewed no otherwise than as luxuries. Of this we will say nothing now. If those who are able to indulge in foreign luxuries, choose to do so, none should forbid; and when the amount of employment given to the industrial classes by those who expend freely is considered, there is at least a mitigation to the regret we might otherwise feel.

But in looking over the figures, we perceive that still larger amounts have been expended for articles that could have been produced quite as well at home. They are articles for which the American farmer should have furnished the raw materials, and furnished also food for the persons employed in manufacturing them; and we cannot look over the account of our last year's trade, without feeling that great injustice has been done to the farmers of this country.

It appears, however, that our exports have exceeded our imports; and it is an interesting fact, that considerable more than half of our exports have been in farm produce, though we do not believe that the exportation of such produce will in the long run conduce to the prosperity of American agriculture in the same degree as the consumption of it at home by the manufacturers among us. Our exportation of farm produce has been as follows:

Beef, - - -	$2,600,547	
Tallow, - -	1,352,406	
Hides, - - -	361,982	
Horned Cattle, -	84,680	
Butter, - -	418,723	
Cheese, - -	514,034	
Pork, (pickled,) -	4,390,979	
Hams and Bacon,	3,195,978	
Lard, - - -	4,018,016	
Wool, - -	27,802	
Hogs, - - -	2,192	
Horses, - -	108.484	
Mules, - -	83,420	
Sheep, - -	18,837	
Total product of animals		$17,178,080
Wheat, - -	$ 1,329,246	
Flour, - -	10,896,908	
Indian Corn, - -	6,961,571	
Indian Meal, -	1,237,122	
Rye Meal, - -	236,248	
Rye, Oats, etc., -	238,976	
Biscuit or Ship Bread,	657,783	
Potatoes, - -	203,416	
Apples, - -	107,643	
Onions, - -	64,496	
Rice, - - -	1,717,953	
Total vegetable food		23,651,362
Cotton, - - - -		88,143,844
Tobacco, - - -		14,712,468
Hemp, - - - -		121,320
Flax Seed, - - -		6,016
Clover Seed, - - -		13,570
Brown Sugar, - -		286,408
Hops, - - - -		1,310,720
		$145,425,788

TOO MUCH LAND.

THE great error with our American Agriculturists is a morbid desire to own and occupy more land than they can cultivate. Farming is a scientific business, and is capable of being reduced to rules as precise and accurate, and we may add, as successful, as those which regulate manipulatory processes of the practical chemist. Washington, whose discriminating powers were certainly of an exalted order, in one of his valuable epistles to the celebrated Arthur Young, says:

"The agriculture of this country is indeed low; and the primary cause of its being so is, that instead of improving a little ground well, we attempt too much, and do it ill. A half, a third, or even a fourth of what we mangle, well wrought and properly dressed, would produce more than the whole, under our system of management."

Few apothegms, uttered by the sage of Mount Vernon, are possessed of greater force than this, even at this day, and it would be well for our agriculturists who are so anxious to extend the limits of their farms, without manifesting any further desire to augment their productiveness and profit, if they would ponder it more carefully, and act more in accordance with the system it suggests.—*Germantown Telegraph.*

That the father of our country wrote wisely in the above quotation, as indeed he always did, we have not the least doubt. We shall venture, however, to differ with the Germantown in part, though in the main we agree with it. The error of Americans is not exactly in having more land than they *can*, but more than they *will* cultivate.

A man without capital *cannot* cultivate much land, and do it well. The necessity of a floating capital, equal to something like half the value of the land, has not yet been considered by the great body of American farmers. We insist, that with a floating capital, adequate to the business, kept always at control, an energetic farmer, who understands his business, can cultivate ten acres, and make a good business of it; he can cultivate fifty, and make a better business of it, or five hundred, or one thousand. Ability to cultivate is not to be measured by a man's physical strength. On this scale five acres near a city, or fifty far inland would be enough for any man. It is to be measured rather by one's knowledge of soils, crops and markets, and by his ability to keep a good number of irons hot without letting any of them burn. If a farmer is master of his trade and has a business capacity, why limit him. It is as true now as it was in Washingston's time, that "a little farm well tilled" is a good thing. But it was true then and is now, that a farmer of sense, intelligence, judgment, skill in his business, energy and ambition, should not be limited. Don't let us talk about how much land he *can* cultivate well, but how much he *will* cultivate well. Let him have as much as he *will* keep in a highly productive state, be it ten acres, or one hundred, or one thousand. Ten acres is the best figure for one man, a hundred for another, and a thousand for another; just as a shop only large enough for one person to work in, is the best for one shoemaker, and one large enough for a hundred to work in together, is better for another. If successful farming depended solely or mainly upon mere physical strength, if the farmer were doomed to be an ignorant drudge, as some people seem to think, we would commend small farms; but we believe no such thing. It is a business for the loftiest intelect as well as the lowest. Let those who will, rise by it to the highest positions in society. Some at least can. N.

EXPORT OF BRITISH CATTLE TO THE UNITED STATES.

THE following from the *Mark Lane Express* will be read with interest:

It has been our pleasing duty on several occasions during the last few years to place on record facts illustrative of the growing importance abroad which is being attached to the possession of the best and choicest breeds of cattle of which the United Kingdom can boast. This feeling augurs well not only for farmers and breeders of neat stock, but for the country at large; and it is therefore a source of national satisfaction to see how highly such are prized. During the past week there were shipped from Liverpool for New-York, on board the Antarctic, Capt. Stouffer, a most valuable cargo of horses, cattle, sheep, and pigs; the arrangements for which were such as might have afforded our facetious friend *Punch* scope for his witty pen, to see how highly-favored a daughter of Master Butterfly (so honored in his columns) was placed in the poop of this splendid ship, the captain of which has so distinguished himself for his bravery and humanity as not only to receive thanks of his countrymen, but other and more substantial marks of their gratitude for his heroic conduct.

Prominent among the cattle was a young cow called Darlington 6th, by a son of Grand Duke. She was bought at Mr. Sainsbury's sale, in August, for 300 guineas. Another very fine heifer, Marie Louise, by Mr. Booth's Hopewell, purchased at a recent sale in Ireland. There were also three first-class heifers from the unrivalled herd of Colonel Townely, of Townely Hall, in Lancashire; Buttercup 2d, by Horatio from Rosette; Miss Butterfly, by Master Butterfly from Rosa; and Pearlette, by Falcon from Ringlet. The price given for these three heifers was 1000 guineas, although only just turned one year old. Two of them are descended on the dam's side from the same family as the famous bull Master Butterfly, which animal was sold for Australia, in July, at 1,200 guineas. Miss Butterfly was the first heifer-calf by him. Pearlette is descended from Mr. Booth's Bracelet, one of the most celebrated prize cows of her day; and for the dam of this heifer Mr. Douglas recently gave Mr. Townely 500 guineas. These animals have been purchased by Mr. Strafford, of London, for Mr. Thorne, of New-York, one of the most enterprising breeders of that country.

There were also consigned for this gentleman, some very fine Southdown sheep, purchased at the Hengrave sale, as well as some of Berkshire and Essex pigs that we ever saw leave the port of Liverpool. The Berkshirés were from the famed stocks of Mr. Hewer and Mr. Overman; the Essex pigs were bred by Mr. Crisp, and included the prize boar at Chelmsford, as well as some young sows also shown there.

With the above there were also shipped some splendid Southdown sheep from Mr. Lugar's flock, as well as the shearling ram bought at his sale for 80 guineas. These are for Mr. R. A. Alexander, of Kentucky, a gentleman whose name stands high as a great purchaser of our best animals, who in a recent visit to this country, bought the celebrated horse Scythian by Orlando, winner of the Derby (by Touchstone,) one of the best stallions this country ever produced, whose pedigree and performances are well known in the sporting world. He was winner of the following prises: Newmarket Stakes, £350; Dee Stakes, Chester, £750; Goodwood Stakes, £950; the Newmarket Royal Stakes, £1,240; the Chester Cup, £2,775; Stockton, £530; Goodwood, £539. This valuable horse, for which Mr. Alexander gave 1,500 guineas, accompanies the above cattle, under the charge of Mr. Beck, and is consigned through the Messrs. Tattersall.

Some cattle and sheep were also sent by Mr. Wythes, for a house in New-York. The entire arrangements for the shipment were made by Mr. Bell, of the Adelphi Stables, and were of the most complete character, being such as to reflect the greatest credit upon the care and attention of this gentleman.

STEAM PLOUGHING IN ENGLAND.

We take the following from "*The Canadian Agriculturist,*" a valuable monthly journal, published at Toronto, C. W.:

It would seem that Boydell's engine, with revolving railway, is about to furnish the long-sought improvement in agriculture—a practicable steam-plough. We have always doubted, and still doubt, the economical application of any locomotive engine power to the cultivation of small farms, and on uneven or hilly soil. But on tolerably even surfaces, and upon extensive fields, such as may be found in England and on the Prairies of the West, there seems no reason to doubt that steam power may be profitably employed.

The following account of some recent experiments with Boydell's Traction Engine, in England, is from the London *Agricultural Gazette*, an authority which may be relied upon for intelligence and honest statements:

"The trials having been advertised, we attended on Tuesday and Friday, the 16th and 19th inst., and I shall present the readers of the *Agricultural Gazette* with a brief account of what came under our observation.

"On Tuesday the engine was trench-ploughing a small field on Steam Farm, with two of Cotgreaves' trench-ploughs, Mr. Cotgreaves himself superintending them. The work was being done about twelve inches deep, and at the rate of five acres per day, or half an acre per hour. The engine, to appearance, would have hauled nearly another plough, as it was never working up to its full pressure of steam; but the two ploughs being all that were at command, we had not an opportunity of bringing this to the test of experiment. The quality of the work gave great satisfaction, especially to the market-gardeners of the neighborhood, some of whom offered to give 30s. per acre for land so trenched, assuring Mr. Middleton—who lets out engines—that a large area of market garden-grounds of the capital could be had at this rate.

"The daily expense of the engine and hands was estimated at about 30s., so that the cost per acre would be 6s.; consequently the profit would be 24s. per acre at the above estimate—equal to £6 per day, or £36 per week.

"On Steam Farm there was also a good deal of ploughing done by the engine, in two large fields, with four of Howard's P. P. ploughs, the depth of the furrow being nine inches, and the rate of ploughing from eight to ten acres per day. The quality of the work was superior—fully equal to what could have been done by four horses in each plough. Both fields were well adapted for traction-engine work, being comparatively level, and of great length.

"On Friday the engine was at work in a large field on Butts' Farm. It was again hauling four common ploughs, ploughing nine inches deep, and at the rate of an acre per hour when timed. The field was still better adapted than the former, being nearly as level, of greater length, and rather lighter in quality of soil. Both fields on Steam Farm, although of a gravelly character, were yet rocky hard in the bottom; but here the soil was more friable and sandy, consequently the ploughs were more easily held—enabling the ploughmen to make far better work than that done by them with horses in the same field.

"The steady, equal draught of the 'steam-horse' deserves especial notice, as it differs widely from that of horses. Accustomed to the latter, we think little about the irregularity of their traction force, when holding the plough behind them, but we have only to examine their mechanism and the ever-varying position of the fulcra (footprints on the ground) over which their muscular force acts, and compare them with those (the endless rails) of the traction-engine, to perceive that the difference is great, and wholly in favor of the latter. In point of fact, Howard's P. P. ploughs, after being entered behind the steam-horse, almost went alone, for we saw Mr. Middleton remove his hand from one of them for a considerable distance, and how much further it would have gone cannot be said. The expense of plough ing nine inches deep, with four ploughs, is £1 16s. 6d., or about $7 50 per day.

"The sum of 36s. 6d. per ten acres would be something less than 3s. 8d. per acre; but say £2 per day and 4s. per acre.

"The value of the work done was estimated at from 20s. to 24s. per acre; say the lowest of these two figures, which would give £10 per day, so that deducting the £2 (the expense of the engine,) we would have £8 as the profit per day over our present system; £48 per week; or the prime cost of the engine in some ten weeks' work.

"When the engine was timed it was ploughing fully an acre an hour, but that time it was going rather over its ordinary pace. In point of fact, the boiler is only calculated to keep up a maximum pressure of 45 lbs. of steam per square inch, and with the most successful stoking it seldom much exceeded this pressure, while it very frequently fell below it. Midland we found it at one time as high as 50 lbs., and at another as low as 35 lbs. We may also mention here, that we had the diameter of the cylinder measured, and found it 6½ inches. Probably at the ordinary pace of the engine it was ploughing at the rate of eight acres per day of ten hours. We insisted very hard, on Tuesday, for a ten hours' trial without intermission; but owing to the urgent demand of visitors,—some of them from the continent of Europe, the East and West Indies, and the United States of America,—to see it trench-ploughing, etc., etc., our request was found impracticable on any of the days advertised for public trial.

"At eight acres per day, the expense per acre would be 5s., and the profit per day, £6; per week, £36, over the present system—a profit which would soon pay off the prime cost of an engine. In the the provinces the expense of such ploughing would be, on an average, only 16s.; at ten acres this would yield £8, or £6 of daily profit; at eight acres, £6 8s., or £4 8s. of profit, allowing the expense of the engine in each case to remain as before.

"There was no two-horse or six-inches deep furrow work done, and therefore we cannot say from experience what the expense of such was; but we may safely conclude that, at ten acres per day, it would not be more than 2s. 6d. per acre; and at eight acres per day, 3s.

"Such are the leading facts we gleaned from two days spent with the Messrs. Middleton. That they involve a revolution in agriculture no one will deny who comprehends their importance. To those of our readers who have hitherto been opposed to Boydell's steam-horse entering their fields, the above results may appear startling, and even incredible; but to such we say, go and judge for yourselves, and be guided by facts, not opinions. We ourselves hope very soon to witness far more triumphant results in favor of direct traction than the above, for several of our most intelligent and leading agriculturists have traction-engines of an improved construction, and with better implements for tillage, nearly ready to enter the field, than what were used on the above occasion."

THE FOOD OF DAIRY COWS.

THE following, from the London *Farmers' Magazine*, is understood to be from the pen of Cuthbert W. Johnson, Esq., one of the best and most reliable of Agricultural writers:

Mr. T. Horsfall, of Burley, in the West Riding of Yorkshire, thus puts the case (*Jour. R. A. S.*, vol. xvii., p. 261) :—" In the neighborhood of towns where the dairy produce is disposed of in new milk, and where the aim of the dairy-man is to produce the greatest quantity, too frequently with but little regard to quality, it is their common practice to purchase incalving cows; they pay great attention to the condition of the cow; they tell you, by the high comparative price they pay for animals well stored with flesh and fat, that condition is as valuable for them as it is for the butcher; they look upon these stores as materials which serve their purpose; they supply these cows with food more adapted to induce quantity than quality; they, in fact, pay little regard to the condition of the animal. With such treatment the cow loses in condition during the process of milking, and when no longer profitable, is sold to purchasers in farming districts, where food is cheaper, to be fattened, or otherwise replenished for the use of the dairy keeper. We thus find a disposition in the cow to apply the ailment of her food to her milk, rather than lay on flesh or fat; for not only are the elements of her food diverted to this purpose, but to all appearance her accumulated stores of flesh and fat are drawn upon, and converted into components of milk, cheese, or butter."

It was as to the best mode of feeding the dairy cow, so that her condition and the maximum supply of milk might be maintained, that Mr. Horsfall directed his valuable inquiries; he thus explains one portion of the task he assigned himself: "It appeared an object of importance, and one which called for my particular attention, to afford an ample supply of the elements of food suited to the maintenance, and likewise to the produce, of the animal; and that if I omitted to effect this, the result would be imperfect and unsatisfactory. By the use of ordinary farm-yard produce only, I could not hope to accomplish my purpose; turnips are objectionable on account of their flavor, and I seek to avoid them as food for dairy purposes. I use cabbages, kohl rabi, and mangold wurzel, yet only in moderate quantities. Of meadow hay it would require, beyond the amount requisite for the cow, an addition of fully 20 lbs. for the supply of the casein of a full yield of milk, or 16 quarts; 40 lbs. for the supply of oil for the butter; whilst 91 lbs. seem adequate for that of the phosphoric acid. You cannot then induce a cow to consume the quantity of hay requisite for her maintenance, and for a full yield of milk of the quality instanced.

"Though it is a subject of controversy whether butter is wholly derived from vegetable oil, yet the peculiar adaptation of this oil to the purpose will, I think, be admitted. I had therefore to seek assistance from what are usually termed artificial feeding substances, and to select such as are rich in albumen, oil, and phosphoric acid, and I was bound to pay regard also to their comparative cost with a view to profit. I have omitted," he continues, "all reference to the heat-supplying elements; starch, sugar, etc. As the materials commonly used as food for cattle contain sufficient of these to effect this object, under exposure to some degrees of cold, I have a right to calculate on a less consumption of them as fuel, and consequently a greater surplus for deposit as sugar, and probably also as fat, in consequence of my stalls being kept during winter at a temperature of nearly 60°." With these preliminary explanations, the food of Mr. Horsfall's cows, "after having undergone various modifications, has for two seasons consisted of rape-cake 5 lbs., and bran 2 lbs for each cow, mixed with a sufficient quantity of bean-straw, oat-straw, and shells of oats, in equal proportions, to supply them three times a day with as much as they will eat. The whole of the materials are moistened and blended together, and after being well steamed, are given to the animals in a warm state. The attendant is allowed 1 lb. to 1½ per cow, according to the circumstances, of bean-meal, which he is charged to give to each cow in proportion to the yield of milk, those in full milk getting 2 lbs. each per day, others but little; it is dry and mixed with the steamed food on its being dealt out separately; when this is eaten up, green food is given, consisting of cabbages, from October to December, kohl rabi till February, and mangold till grass time. With a view to nicety of flavor, I limit the supply of green food to 30 to 35 lbs. per day each. After each feed 4 lbs. of meadow hay, or 12 lbs. per day, is given to each cow; they are allowed water twice per day to the extent they will drink." He adds: "I have used malt combs, together with bran, half and half, during the present season. Having a larger stock than the year before, with about an equal quantity of hay and less of roots, I reduced the allowance of the former from 12 lbs. to 9 lbs., and that of mangold from 36 lbs. to 28 lbs. per day. I gave also 1 lb. of rape cake additional to each, 6 lbs. in lieu of 5 lbs. On this fare, and with such changes of cows as were called for, my yield of milk, of which a register is kept, ranged during the months of October, November, December, and January, at 160 to 164 quarts per day from 18 cows, being fully 9 quarts per day from each cow."

It is of importance to note that the flavor of the cake is not in the least perceptible in the milk or butter. During May, the Burley herd are turned out on a rich pasture near the homestead; towards evening they are again housed for the night, when they are supplied with a mess of the steamed mixture, and a little hay each morning and evening. During June, when the grasses are better grown, mown grass is given to them instead of hay, and they are also allowed two feeds of steamed mixture. This treatment is continued till October, when they are again wholly housed.

By careful monthly weighings of these cows, the effect of the large supply of food in counteracting the drain upon the system of the cows, in the rich milk they produced, was well contrasted. The cows yielding 12 or 16 quarts per day, were found to vary little in weight, the monthly balance being rather to gain; the cows giving less than 12 quarts down to 5 quarts, per day, were found, without exception, to gain in weight. This gain, with an average yield of nearly 8 quarts per day, is at the rate of 7 or 8 lbs. per week each. Then, as to another most important branch of inquiry—the increase in the richness of the milk produced from these carefully-fed cows—we learn that in Germany the dairy owners calculate that, upon an average, 14 quarts of milk yield 11 lbs. of butter, and this is about the produce from the dairies in Wharfdale. They say there, that each quart at a milking represents a pounds of butter per week; thus, a cow which gives 4 quarts at a milking, will yield 4 lbs. of butter per week. In winter the produce is lower than this. "The cream from my neighbors' cows (observes Mr. Horsfall,) who use common food (hay, straw, and oats,) somewhat resembles milk in consistency, and requires three or four hours at least in churning. My own cream, during the winter season, is of the consistency of paste or thick treacle. Several who have adopted my system, have reported similar effects—an increase in the quantity, with a complete change as to richness of quality. Mr. J. Simpson, a tenant farmer of Ripley in Yorkshire, reports: 'In about five days I noticed a great change in my milk—the cows yielded 2 quarts each per day more. But what surprised me most was the change in the quality; instead of poor winter cream and butter, they assumed the appearance and character of rich summer produce; it only required 20 minutes' churning instead of two or three hours.'"

The quantity of butter yielded by the milk produced under Mr. Horsfall's mode of feeding, is worthy of serious attention, especially when we consider that the average daily produce of milk in England has been calculated to be about 8 or 9 quarts, and that each quart yields about an ounce of butter. From cream, the average produce of butter has been calculated to be about 9 ounces per quart.

Under the high careful feeding at Burley, the produce has varied from 24 to 27¼ ounces from 16 quarts of milk: "I therefore (concludes Mr. Horsfall) assume in my calculation 16 quarts of milk as yielding a roll (25 ounces) of butter." We see, then, that by the feeding system adopted at Burley Hall, not only is the quantity of milk considerably increased, but that the amount of butter it contains is also increased by more than 50 per cent.; so that a cow which, under the ordinary management, yields (say) 4 lbs. of butter per week, will, when fed on the Burley system, produce 6 lbs. of butter. The results of such careful high feeding on the produce of grass in the rich pastures at Burley is most satisfactory. As might be reasonably anticipated, they are tending to increase fertility; "their improvement in condition is apparent."

These are facts not only most important for the farmer, but to the country at large; for if by any improved mode of management, only a small addition can be made to the amount of butter produced by the 376,713 cows which were, in 1854, either enumerated or estimated to be possessed by the farmers of England and Wales, the aggregate increase would be equal to a very large amount of butter. An average increase of one pound per week from each cow, would be equal to, say, 160 tons of butter in every week, or 8,320 tons per annum—an amount equal to about two-fifths of all imports of foreign butter in 1855. The inquiry, therefore, is most interesting in every point of view; it is one, however to which but little exact attention has hitherto been paid, and in consequence we need hardly feel surprised at the vagueness of our conclusions. It is true that the use of oilcake and of bean meal is common in many English dairying districts, but the true objects with which those substances are used has never been till now clearly shown by the aid of the chemist, or the results so certainly traced by the weighing machine. We are all aware of the advances made by the owners of live stock during the present century, in their fattening and in their other good meat-producing qualities, and it would now seem that similar advances are likely to be generally made in the productiveness of our dairy farms.

CHEAPER TO ENRICH THAN IMPOVERISH LAND.

The idea that a farm is made worse if cropped, with a view even to the greatest *present* gain, is a mistake. It is generally taken for granted that a farm, which has been long tenanted, is exhausted. In most cases, in our country, it is so. The farm which has been cultivated by tenants is poor enough. But why? Is it because the tenant has been more selfish than other men? Is it because he has been regardless of the owner's interest? Not that. It is because he has not comprehended his own interest.

If land is in but an ordinary condition, at the beginning of a lease, we hold that no amount of selfishness *alone* will make it worse; though selfishness and ignorance may. Perhaps we ought to make a single exception, that of annual leases. If a farmer is to cultivate another's land for a single year, his own interest would not be promoted by entering into expensive improvements; but even in that case, we do not believe he could be a gainer by taking a course that would leave the land in a condition essentially worse than he found it. And if he takes the land for several years in succession, it being in but an ordinary state when he commences, it is as much for his interest as for that of the owner to raise it.

It is true that when the lease expires, another, and not he, will have the increased value of the land. But he will have had the increased crops as he went along, and that should have been a sufficient inducement to keep the land in good condition. Tenant farming, by men fully cognisant of their interest, does not run land down. The idea of wearing land out, of exhausting it, spoiling it, by anything like intelligent husbandry, is absurd.

But happily we have but little tenant farming among us. Here the farmer owns the acres he tills; he himself has the remote as well as the passing benefit of a soil properly cared for; and is doubly interested in sustaining and improving it. We think any man who will *look the matter through* with the eye and mind of a sensible, far-seeing, practical farmer, will see that even the tenant farmer cannot afford to let the land run down under his hand. It is too expensive a business; for although, in his case, the loss by diminution in the value of the land will fall upon another, yet the loss by the diminution of current crops will be his, and will be a heavier loss than he ought to inflict upon himself.

But if the tenant farmer cannot afford to spoil the land of another man, surely the owner of land cannot afford to spoil his own. We as much believe it is cheaper to recruit than to exhaust land, as we believe that land produces food for man and beast. A considerable amount of labor is requisite to keep the soil clean, loose, and in fit condition to be permeated to a good depth by the roots of plants; and manure is necessary as food to the growing crops. Now if you cheat the soil out of the requisite labor and manure, it will cheat you; and depend upon it, it will cheat you out of larger values than you cheat it. You will be the loser by the cheating process; the land will be the loser; and there will be no gain anywhere. Wearing out land by cultivation is a losing business all around. *It is a great deal cheaper to make it better than to make it worse, by cultivation.* N.

ON INSECTS:

With Descriptions and Directions useful to the Farmer, Gardener, etc.

In pursuance of our purpose not to weary or offend the taste of the reader, with too prominent an exhibition of the naked timbers of the structure we purpose to erect, by dwelling too much on abstract scientific definitions or generic distinctions, we have now only to request a review of our last essay on this subject; so that by familiarity with it, he may be the better prepared for a continuance of those details in the future. Meanwhile, we go on, presenting, as we are able, a clear, practical view of certain genera and species of insects, highly destructive, and occurring in almost all sections of the country. We begin with

BORERS.

The first of these which we shall present to the notice of the reader is

The Apple tree Borer.—This is the larva of the striped Saperda or *Saperda bivitatta.* It belongs to the division capricornus, or the capricorn, or Long Horned Beetles, and to the family Cerambycidæ. The upper part of the perfect insect is brown, and is marked by two longitudinal white stripes. The under side of the body, antennæ, and legs, are white. Its length is from half to three-fourths of an inch. The beetle comes forth from the tree in June, during the night, and flies from tree to tree, in search of food and of companions. About the first of July, or perhaps a little earlier, this insect begins to deposit

her eggs, which are laid through the months of July and August, in the bark of the tree and generally near the ground, because there the bark is more tender, and the young worm can gain an entrance more easily. A little blackish spot, scarcely larger than a kernel of wheat will be discovered wherever an egg has been deposited. By cutting into the bark, at such places, a worm will be found. The insect does not confine herself, however, to any one part of the trunk, but selects those spots that are most tender. Parts where the bark is partially decayed, or where the effect of the sun upon it is favorable to such operations, or where the bark is bruised by cattle or otherwise, or where the tree is weakened by disease and is beginning to wither, are selected by this insect. Such indications are therefore to be searched out by the fruit grower, who is in search of the larva of this beetle. This insect lays about ten eggs each nearly the size of a brass pin's head, and which are arranged thus: . : : : : .
The grub is of a whitish color, less than an inch in length and one-fourth of an inch across its broadest part. It is nearly cylindrical and tapering from the head to the end of the body, of a brown color, and is horny. The first ring is larger than any of the others, and the first three rings are covered with punctures and very minute hairs. From the fourth ring to the tenth, each is furnished with two fleshy warts, situated close to each other. It has no legs. The grub eats through the bark, to its inner surface, where it remains through the winter. During the next warm season, it penetrates the sap-wood, throwing out its dust or cuttings, and generally ascends as it bores. Thus it penetrates some twelve or fifteen inches. In the third season, the full-sized borer approaches towards the surface of the tree where it undergoes its last transformation, and escapes from the tree as we have already described.

Such being the habits of this insect, it is obvious at what season the remedy or preventive should be applied. As prevention is better than cure, the destruction of the eggs is far preferable, even to an effective attack upon the larva. But if the larvæ are already at work, means adapted to reach them should be efficiently applied. This insect was described in our last volume, page 140, to which we again refer the reader.

Remedies and Preventives.—These are of two kinds. One is, carefully to inspect every tree, and at every indication of the presence of an insect or egg, to follow it with a wire or with the knife, and destroy it. This is not difficult, since the borer throws out all his chips or *sawdust*, which may be seen at the place of its entrance, and his path may be easily followed. Another plan, which has proved successful, though it need not be followed exclusively, but in connection with the preceding, is to lay bare the trunk of the tree around its roots, or at its *collar* or base, and commencing a few inches below the surface, bandage the trunk with old woolen strips, or old bags, making this covering secure by twine or otherwise, and giving to the tree, perhaps, a double thickness of these strips. Then replace the earth. The bandage may be extended as far as is thought expedient. Every succeeding spring, this bandage should be loosened and the work done over again. If the eggs are already deposited, a wash of lye is strongly recommended as a safe and effectual application. A pound of potash to a gallon of water will not injure the tree, though an application of less strength may be thought safer by some farmers. A very respectable journal (*Wisconsin and Iowa Farmer*) recommends a peck of leached, or half a peck of unleached ashes, around the trunk of each tree. But this, of course, can afford no security for the higher parts of the trunk. Any application, however, which adds to the vigor of the tree will be, so far, an advantage, and diminish the number of places in which the tree is likely to be attacked. Dr. Harris also suggests inserting a little camphor in the hole and plugging it with soft wood. A handful of soft soap placed in the fork of a tree—a favorite place for these beetles—is highly commended by Dr. Fitch. It will be washed down by the rains, and impregnate the bark. Mr. Downing recommended a mixture of soap, sulphur and tobacco water, as a wash for the trunk and in the axils of the lower limbs. He also recommended pouring hot water into the burrow, by opening a passage for it with a knife, above the path eaten by the insect. The position of the burrow can be learned by piercing the bark with an awl, above the orifice, till its upper extremity is discovered.

This insect attacks not only the apple tree, but the quince, mountain ash, hawthorn, and some other forest trees.

The woodpecker is a most formidable enemy to the Borer, and devours multitudes of them.

The Buprestians are also destructive borers. The *Buprestis femorata* of Fabricius, or what is now called *chrysobothris femorata*, The thick legged Buprestis or the Snapping Beetle, is one of this family. The Buprestians are hard shelled, often brilliantly colored, elliptical or oblong oval, that is, obtuse before and tapering behind. The head is sunk to the eyes, in the forepart of the thorax; antennæ are short, and notched like a saw; thorax broadest behind; legs short; the scutel is small and sometimes scarcely perceptible. With the approach of danger they fold up their legs and their antennæ and fall to the ground. They keep concealed in the night and fly by day. Their flight is swift, and attended with a whizzing noise. Their larva is of a yellowish white color, long and narrow, depressed in form, but abruptly widened near the anterior extremity. The head is brownish, small, sunk into the thorax; antennæ are very short; the upper jaw is provided with three teeth. They have no legs, but are furnished with two small warts on the under side of the second segment from the thorax.

These grubs are found under the bark and in the wood of trees. They frequently rest with the body bent or curved so as to bring the head and tail nearly in contact. They retain this form, without transformation, for several years. The pupa resembles the perfect insect, but is entirely white.

The species we have already named has the first pair of thighs toothed beneath, is of a greenish black color, with a brassy polish, which is very distinct in the two large transverse impressed spots found on each wing-cover. Its surface is rough and uneven. The thorax has no smooth elevated lines upon it. It is from four tenths to half an inch in length. Dr. Fitch says this species is distinguished from others "by a smooth raised black line, with a narrow impressed line through its middle, upon the middle of the top of the head." The breadth of the thorax is much greater than the length. The habits of this insect are similar to those of the *Saperda*, already described. But it differs from that, in the form of the hole which it bores; the Buprestis cuts a passage of an oval form, twice in breadth what it is in height. Late in summer, these insects burrow into the solid heart of the tree. Pines and firs are their favorite trees, but they often attack fruit trees, as the apple, cherry, peach, etc.

Remedies, etc.—The means of destroying this borer are the same as those described for the Saperda. But these are often more difficult of access than are the apple Borers, as they enter more deeply into the hard wood. When they are very numerous, it is better even to cut down a tree and carefully destroy the insects, by burning, etc., rather than suffer them to remain and multiply.

Among the natural enemies of this destructive grub, are the larvæ of a bee-like insect (Hymenopterous) belonging to the chalcididæ, which, piercing the bark, for the purpose of depositing her eggs, pierces also this grub, and the egg is thus deposited in the body of the borer, and produces a species of aphis which destroys it.

The white oak is most infested with the Buprestians, but when these trees are scarce, the insect resorts to the apple, peach, etc. It has been very destructive to these trees in Southern Ohio. The editor of the *Ohio Cultivator* says that these beetles frequent the south side of the trees, almost exclusively, and that they attack the tree, generally, where the bark has been previously killed. Such is not said to be the fact elsewhere.

The Peach tree Borer. Aegeria exitiosa.—This insect is not a beetle, but belongs to the order Lepidoptera. The perfect insect resembles a wasp, both in form and color. It is fully described on page 601, and 602 and 603 of our journal, in the number for April, 1856. It is unnecessary to repeat what we there stated, but refer the reader to that, as a full and clear account of the appearance and habits of this most destructive insect, and also of the means hitherto most successfully used to prevent its ravages. But we will add a comparative view made by Dr. Fitch, of this and the apple borer, by which the distinctions between the two may be easily understood. "The peach borer is cylindrical, says Dr. F., and not broader, anteriorly, like the apple tree borer; it has three pairs of small feet, whilst the apple tree borer has none; it has only a few scattered, coarsish hairs, whilst the apple-tree borer has numerous fine shorter ones. They differ much more widely when they come to their perfect state. Whilst the apple-tree borer is transformed to a Long horned Beetle, the worm of the peach tree changes to a four-winged fly, bearing some resemblance to a large wasp."

The eggs of this borer are smooth, oval, slightly flattened, of a dull yellow color. Some of the dark blue scales from the tip of the abdomen of the parent, are often glued to them. Unlike the grub of the apple tree, this is hatched upon the bark near the surface of the ground, and afterwards works downwards, instead of upwards, as does the apple borer, into the bark of the root, forming a tortuous channel, which is filled with gum. Sometimes the bark is entirely consumed from the root over a large surface, an inch or more below the surface of the earth, and the soft sap-wood is extensively gnawed by this worm. Here the insect remains, even through the winter, the head upwards, being protected by a sort of cocoon composed of its own sawdust or cuttings, and cobweb-like threads, mingled with gum.

We have especial reference in our title, "borers," to those insects which devour the wood of trees, without including those which eat into the pea, and other like grains or fruits. Thus, the pea is pierced by the Rhyncophoridæ, or Snout Bearers, a family of beetles named from the shape of their head. An account of them may be found on page 138 of our last volume, in the number for September, 1855. The plum weevil pierces the pulp of the fruit, and deposits its eggs, as described on page 139 of volume 8, in the number of our journal just referred to. The reader may there find a description of its habits, etc. Rice is pierced by the *Calandra Oryzæ*, or the *Curculio Oryzæ* of Linnæus, which also attacks Indian corn. It is described in the same number of our journal, page 140, but this and the other insects just referred to, are not properly included in the term adopted as our present title. We only refer to them, lest some one not properly appreciating the technical use of the term *borer*, should look for the description of such insects in this connection. P.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

COMMENTS ON "MR. YEOMAN" IN NOVEMBER NO.

Messrs. Editors:—While perusing the November number of *The Plough, Loom, and Anvil*, on page 293, I noticed a piece headed, "Observations;" and I send you a few lines for publication, if you think them worthy, as comments upon Mr. Yeoman's letter. He says: "Is not the time coming when those enterprising young men who have left the *handsome two-story house*," etc., etc. I answer, No; *never*. No man of energy or enterprise ever will regret, or look back with sorrow to that day when he left the barren rocks of the East, so rough and hilly that the farmer can plough three sides of it. Why should he ever regret? Should he regret because here, in the West, he has a handsome, smooth farm to plough, where there are no roots or stones to keep his blood in circulation? Should he regret that he has come West because he can raise corn here from twelve to fourteen feet high, which yields from seventy-five to one hundred bushels per acre, instead of corn of four feet in height, and a yield of forty bushels per acre, with a cost of double the labor?

Supposing that Mr. Yeoman's ancestors had thought and felt as he thinks and feels, where would have been his "nice two-story house and his long barn?" Who would have prepared these things for him? Can it be found upon the pages of history, where there was a passenger on board the "May Flower," when she landed on the bleak shores of Plymouth, that ever regretted that he left the "nice two-story house, the long barn, and the well-watered fields." Enterprising young men never will regret that they have left the rocks of New-England for the smooth prairie of the West; none but those that have not courage enough to leave father and mother, and if they should leave them, haven ot ambition enough to get a living; they are the ones that will miss the "nice two-story house." Although we Western frontier fellows live in log cabins at present, we are in hopes to have better ones soon. We can build as "nice two-story houses" here as in Worcester, Mass., and have the "well-watered fields," even a much more fertile soil. It is my opinion that Mr. Yeoman has never paid a visit to this prairie country. If he has not, it would be injurious to him to make a trip out in these parts. If he is one of those enterprising young men, he will never want to go back to New-England to farm it again. We have churches and schools here as well as in New-England. L. S. Spencer.

Lynn, Warren Co., Iowa.

BONES AS MANURE.

A WRITER in the *New-Jersey Farmer*, copied into the Richmond *Whig*, says:

"Last fall a lot of bones were thrown in a heap of horse manure in the barn-yard, and for no other purpose than to get them out of sight. To this heap the manure of the horse-stable was daily added. In the spring, upon carting out the manure, the bones were found apparently the same as when thrown in—whole and sound; but upon being handled, were found to be soft; when lifted, would fall to pieces of their own weight; when exposed to the air, would crumble and become as ashes, emitting a strong and offensive odor. This incident led to a trial of the same experiment last spring, in the same manner, and with the same result.

"We do not pretend to fix the chemical process by which this result is attained; we merely know that such is the result. And if a result so happy in its effects is produced at so little trouble, and with such little cost, our farmers may well spare an odd day in gathering together the old bones lying about their farms, and for the mere trouble of gathering them, add to their lands one of the most fertilizing materials that can be obtained."

The fact is as the writer states, and that whether the bones be thrown into a heap of horse manure, or put into any other situation, where heat will be communicated and fermentation ensue; as for instance, if they be covered with coal-ashes, wood-ashes, loam, or even sand, and left exposed some time in spring or summer to the influence of the sun. The bones will retain their shape, and will retain their size, or be a little enlarged, but will fall into pieces if handled or removed with an implement.

Now let us see what has taken place:—the bone being about thirty-three per cent. of animal matter, mostly gelatine, (glue,) and sixty-six or sixty-seven per cent. of mineral matter, mostly phosphate of lime, with very little of the carbonate of lime, has undergone a fermentation by which the animal matter is nearly all separated from the mineral. But where has the animal matter gone? In the case above, not all of it had gone anywhere, for the writer says the odor was offensive. There would have been no odor whatever if the animal matter had all been separated. But most of it had left the mineral part, or the latter would not have crumbled to pieces. The principal value of the animal portion, which had left the bones, was ammonia, and where this had gone, depends upon the condition in which the manure was. If the surface was moist during the whole time that the bones were in it, then the ammonia had diffused itself about among the manure, where it would be retained by the moisture, to be used by plants, if the manure were plowed in soon after removal, or even if spread as a top dressing, provided it were spread in a rainy time, and spread so evenly as to bring it into close contact with the soil. But if the manure was in a dry state from its surface downward to the bones, which would imply a high fermentation, approaching to *fire-fanging*, then the ammonia went into the air, and the greater portion of the value of the animal part of the bones was lost to the owner. If we are understood, it will be sure to follow as an inference, that animal manures should be preserved in a moist state, as thus the ammonia will be preserved. We do not mean drenched in water, for that would wash away the soluble salts, but moderately moist; and this rule, as far as it conveniently can be, should be observed in the preservation of barn manures, that neither the salts may be washed away nor the ammonia steamed away. But for the mineral part of the bones:—almost its whole value lies in the phosphate of lime. This, in such a case of fermentation, remains in the mass, as insoluble phosphate—a very different thing from the soluble super-phosphate of commerce, but still valuable, because we believe it becomes soluble in the soil, and constantly gives as great an increase of crops as the super-phosphate, but does not give it all the first year, nor the second—not as soon as the enterprising farmer desires his returns. Bones in large quantities should certainly be treated to sulphuric acid, and thus changed into super-phosphate of lime and sulphate lime, (plaster), both of which act quickly, and give an early return. How to dispose of the few bones that may be collected on a farm, is another question. They would not be worth the establishment of a super-phosphate factory, and there is some trouble in procuring sulphuric acid, and besides there are no bone-mills for grinding them. The farmer very justly says, they are not worth the time and trouble of manufacturing into super-phosphate. To deal with them as the writer above describes, is certainly better than to leave them as a nuisance about the farm. We think, however, there is a better way, and we will point it out in a future number. In the mean time, the bones should be preserved. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CULTIVATION OF WHEAT IN NEW-HAMPSHIRE.

Messrs. Editors: Wheat has been much neglected for a few years past, owing to the uncertainty of the crop in our vicinity, till the last two years, when the extremely high price of flour has induced our farmers to try wheat. In my opinion wheat can be grown in New-Hampshire on soil adapted to its growth, with as much certainty as any of the cereals. We are more likely to get a good set of grass after wheat than after oats or barley. Wheat injures the land less than the two latter crops.

The successful cultivation of wheat, in the first place, requires a soil adapted to its growth; in general, with us, a loamy ridge not liable to be too wet, or where the water will not stand after rains, or land that will, by good cultivation, produce forty or fifty bushels of shelled corn to the acre.

Second: break up the sod and manure twenty-five loads to the acre, and plant with corn. Work it well, and allow no weeds to seed after the corn crop is taken off. Late in the fall plough again, and let it lay as loose as possible, to have a free action of the frost of winter, which will pulverize the coarser particles of the soil and reduce it to a fine tilth. I apply no manure to the wheat after corn.

As early in the spring as the season will permit I harrow well, and if the soil is obstinate I take a sharp cultivator and go over it once or twice, and then smooth it down with a harrow, and sow the seed about one and a half bushels to the acre.

Seed should be well washed and mixed with lime before sowing, and if the ground is not too wet, smooth down with a light roller. Harvest as soon as the kernel is full and begins to harden, or when by a hard pressure between the thumb and finger, you can jamb the kernel, it is time to reap and cure it with care.

In case of a mildew, as soon as it is discovered, if the straw is green, reap and cure it well. Do not allow it to stand, for the kernel is bleeding at every pore.

As to varieties, much depends upon the earliness of the kinds sown; two or three days oftentimes makes half a crop. If the kernel is half full, the maggot will not injure the grain. A week gained here is of some importance. I cannot tell why it is that so many varieties that have been successfully cultivated since my remembrance, have ceased to be profitable and have passed away and have been succeeded by new and more profitable ones. Varieties seldom do well more than eight or ten years in one location. For the last ten years I have cultivated the red beard, Black Sea, but it has been gradually failing. The last spring I obtained a bushel and a-half of the Canada Club, from a distance of twelve hundred miles, and cultivated according to my system. The product was twenty-three bushels on about one acre of fine wheat land. We do not say that this was a great crop, but is a paying one for New-Hampshire. I also obtained one peck of the Fife (Russian) of my friend Averry, of Wolfboro, N. H. The yield was four bushels. A late plant I think better adapted to sod and late sowing. The plant is so late that it will not clear the maggot. It is at least ten days later than the Club, but is not liable to mildew. I have made preparation to sow about one acre of it on a sod, ploughed in September last, and manured with twelve loads to the acre. I intend sowing about the 25th of May to avoid the maggot. Where I now reside, I have not failed with a crop of wheat for five years. It perhaps would not be out of place for me to give an opinion in relation to the Canada Club. For rich soil I think it has no equal that I am acquainted with, being proof against lodging, its early maturity, and the good quality of its flour, are sufficient recommendations, but for ordinary land it will not make straw enough. D. L. Harvey.

Epping, N. H.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FARMERS' DAUGHTERS.

Girls, don't look towards the city with longing eyes; if you would preserve the roses fresh in your cheeks stay in the country air and sunlight.

Don't persuade your fathers to sell their farms and go into town to deal in "dry goods"; if you do, they will probably lose farms, goods and all.

Don't ape city customs by wearing cloth gaiters when you walk; they are not suited to rough country roads; or by inviting an evening party of your neighborhood friends to meet at nine o'clock; for that is their usual bed-time.

When you would adopt a custom, ask if it is suited to country life, not if it is fashionable in the city.

Don't paint your faces; exercise and the fresh air will do that.

Don't stand in awe of a young lady "just from the city." I should rather look for a wife where there is less paste and paste-board, among farmers' daughters who have the glow of health on the cheek and the sparkle of intelligence in the eye.

Don't look upon city beaux as a superior order of beings; you know nothing about them.

Rest satisfied to be farmers' daughters; you know not what you would sacrifice were you to change places with the envied city girls. Go to work and make yourselves and your homes as attractive and lovely as you can.

Read and study and use all the means within your reach to cultivate your minds. Select from your associates of both sexes those who are equally aspiring with yourselves, and meet in social gatherings to improve your conversational talents, and perfect easy, unembarassed manners.

Persuade your fathers to furnish means for supplying you with books and papers, and keep yourselves informed on the literature and history of the times.

Seek the acquaintance of those who are older than yourselves and have superior intelligence, that they may advise you in selecting your reading and other pursuits.

Cultivate the graces that shine brightest in the domestic circle, and make the farm-house warm with a genial hospitality that is unknown in fashionable city blocks, and make the farmer's daughters rich in qualities that are not found in the hollow heads and hollow hearts of fashionable city society.

Encourage your parents with loving attentions and willing hands, and they will in nine cases out of ten gladly assist you in your laudable efforts for self-improvement.

Make you homes tasteful with those little inexpensive arrangements which women can manage so well. Be not ashamed of being familiar with all the business of the farm-house; study and practice until all its duties can be performed in the most acceptable manner.

Associate your brothers in your pursuits and in your efforts to make your homes centers of intelligence and taste, and you will be proud that you are farmers' daughters. You will have done for the world a great and good work. JUNE ISLE.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

REMARKS ON "FARMERS AND FARMING IN NEW-ENGLAND."

FRIEND NASH:—I have much satisfaction in the receipt of your Journal for January, 1857, and more especially in the perusal of your remarks on farmers and farming in New-England. They are just what are wanted for the instruction and encouragement of *the farmers*, so far as I know and understand them. It is true there are gentlemen who do much to improve and beautify their neighborhood by the purchase of fertilizers, and the procurement of fine stock, and the production of crops corresponding; but the question still recurs, are these things any benefit to the neighborhood? When such a man gives out that he will take all the manure that is to be obtained at all the stables around, and pay a liberal price therefor, the keeper of the stable rejoices in his generosity; but how is it with the small cultivator, who is accustomed to pay for what he buys by the sweat of his brow? He cannot afford to pay an extravagant price, because he has not the money with which to pay it, so that while one man is made *joyful* many are made *sad.* This is not a fancy picture; in my mind's eye I have the reality, and not many miles distant from the window out of which I am now looking.

Do not misunderstand me as censuring such gentlemen; they have the right to do as they please with their own. All I mean to say is. if they rightly understood what they were about, they would do better. No mode of culture is worthy of encouragement that will not sustain itself. P.

Essex Co., Mass., Jan. 3, 1857.

We dislike to differ from this worthy correspondent; but we would rather say: "No mode of culture is worthy of" imitation *by the farmer who wishes to live by his art*, unless it "will sustain itself" and more; for in order to answer his purpose, it must sustain itself and sustain him besides. We beg our friend P. not to think lightly of what these fancy farmers are doing in the way of improving soils and stock. As for those paying a generous price for manure, we do not believe that much harm will come of it. If our foreign policy is right, we do not believe they will make farm produce so cheap but that the more practical farmers can afford to pay a fair price for manure also. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

GROWTH OF THE LOCUST TREE IN ESSEX CO., MASS.

Messrs. Editors:—The suggestions of your correspondent from Richmond, (Mass.,) in relation to the culture of the yellow locust, (pages 418 and 419,) are worthy of great regard. Within a few miles of me, are now growing plantations of trees of this description, that have sprung up within the last thirty years, of the value of more than $200 per acre; on land when planted, that was not considered worth $10 an acre. I particularly remember going with my father when a boy, more than fifty years ago, to an elevated piece of ground, then recently purchased by him and one of his neighbors, in a naked condition. They took with them a few locust sprouts that they pulled up on their farms at home, and set them out on this land. Now the entire hill is one of the best wood lots in the region round. What then cost them less than $200 is now worth more than $2000. I have not calculated the profits or loss on the investment; but this is certain, there has been no occasion for the payment of insurance, or a guarantee premium. This is more than can be said in relation to most loans of money, or investments in trade.

You, Mr. Editor, are a shrewd calculator, please tell your readers whether these old men made a judicious investment in purchasing and planting this barren hill with young *locust sprouts*. J. P. W.

January, 1857.

We do not profess to be so very good at calculating, nor has our correspondent given us the exact data. He says *above* fifty years ago. May this mean fifty-five years? If so, and if the schoolmaster was in the right who told us, in our boyish days, that money at 6 per cent. annual interest, doubles in eleven years, then this investment should have doubled five times; and had the purchase money been $200 instead of less than $200, and the present worth $2000 instead of more than $2000, there would be a loss of just 1,200 dollars, because $200, by the old schoolmaster's roll, should have amounted to $3,200 in fifty-five years.

But we suppose that the good man made no allowance for losses; and our correspondent has said nothing of any income from the wood lot during the intervening time. Perhaps $200, after making due allowances for the slippery nature of money, and the more slippery quality of some borrowers, would not amount to more than two thousand dollars in fifty-five years, and then again we rather think the owners of those acres have taken off timber and wood enough to cover the interest on the outlay. We believe there is many a "naked hill" in that old State in which it would be possible to cultivate locusts, so as to get large interest on their present value in wood and timber, and to leave the land greatly improved for a future generation. It should be remembered also that the covering of these bald, rocky, unproductive hills with growing trees greatly improves the appearance of a country, mitigates the severity of drouths, and renders the climate more favorable to the cultivation of the intervening lands. We are by no means sure that, in a climate like ours, it would not be for the interest of farmers to have patches of wood growing on the poorer portions of their farms, even if the timber were not wanted and would bring them nothing when grown. As a covert for birds, with maws always hungering for insects, the wooded portions would be worth much, but they would be worth more as amelioraters of climate, and still more for their products of fuel and timber, when we take into the account the future wants of the country.

Thanks to our correspondents for their suggestions on this subject. They are important not only for that State, but for many others.

N.

Egyptian Wheat.—During the seven years foretold by Joseph in the land of Egypt, "the earth brought forth corn by handfulls," (Gen. 12 : 47,) "seven ears on one stalk," (ibid, ver. 22.) It is not said certainly that this was wheat; but its description exactly corresponds with the *Triticum compositum* at present cultivated in that country, and also with the *mummy wheat*, discovered in a sarcophagus in Egyptian tombs, which had probably lain there for more than 3000 years, but which when planted vegetated, and has afforded us a new variety of that grain. I have some ears of this now before me, exhibiting the same phenomenon of "seven ears on one stalk." This wheat is made into Colne flour, and the London bakers use it to dust the kneading-boards. Thus we have the fact distinctly brought before us, that the wheat of that period possessed features in common—allowing for the changes effected by differences of soil, character, and cultivation—with that of the present day.—*Mark Lane Express.*

EDITORIAL CORRESPONDENCE.

In pursuance of our resolve to pass a portion of our time among the farmers, we left New-York in the wain of the old year, hoping to play a little by the way, and yet to reach Washington in time for the U. S. Agricultural Society's annual meeting on the 14th day of the New Year.

A week's delay in Central New-Jersey brought us acquainted with many excellent farmers. Better farming than we have seen here, it has seldom fallen to us to witness. A fact here, and a moral;—we judge that not more than one farmer in three, in all this region, takes an agricultural paper; and now, reader, if you should anticipate our moral, and infer that the good farming of which we have spoken, is a legitimate consequence of not reading agricultural papers and books, we are ready to head you on that track. It is not all the farming hereabouts, that is so good. A few farmers in each town are neck and breast ahead on the track; and these are the very ones who read on the subject, while the others rail at book farming. And yet these decriers of books and papers are following their neighbors, who read the agricultural journals, but are following them afar off, much farther than is for their interest.

The argument of these bibliophobians, if we may coin a word to mean book-haters, is that the farmer should be *independent*, should exercise his own judgment. Aye, that is right, but we should have a judgment first to exercise, and the better informed his judgment, the more independently and the more safely he may follow. If a man walking in Broadway or Chestnut street, on a moonless night, should blow out the street lamps for the sake of following his own eyes, he might find his eyes of little use. They might lead him against an awning pole, or an assassin's knife. The lights and the eyes would do better together. So with books, and the farmer's judgment. If light is a help to the eyes, books are a help to the judgment as well. Don't blow *out* the lights if you would walk safely among awning-posts and lamp-posts, and more dangerous men and women; and don't blow *at* the books, if you would run for a high prize from the soil.

There is *folly* in books; yes, and there is *wisdom* too—there is *knowledge*, and who are those that hate knowledge? Ask Solomon. We do not like to use a harsh term. If the tendency of reading was to take away a farmer's judgment, to make him less a thinker, to leave him less independent, we would seize the plough and scout books. But we know it is not. It gives him a better-informed judgment, makes him conscious of high discernment, self-reliant. It lifts him up to the rank and respect and social influence, which of right belong to his all-important avocation. Astonishing is it, that these decriers of knowledge do not perceive that they are doing all they can to depress their own class. If they could have their own way, they would make the American farmer what the tillers of the soil are in too many foreign countries, peasants, boors, to be looked down upon by every other class. Thank God they cannot. They may ruin themselves, but they cannot ruin all farmers, and ruin the country by ruining them. If they do not mind their policy, they will find themselves so far behind the world soon, that the world will not hear them when they call after it. They will cry, Stop! stop! but the world won't stop. It is not so much for the world's sake that we write as for theirs. The world will go along in spite of them. For their own sake we want them to jump on and go with it. Otherwise they will find their more progressive neighbors employing labor, purchasing fertilizers, manufacturing rich composts out of home materials, ploughing as deeply as the nature of the soil admits, under-draining, pulverizing, enriching, growing crops at a fair profit, when they can only grow them at a loss. Get on, ye scoffers at books, journals, knowledge, before it is too late. How sorry we should be to see you coming to a seedy, tattered old age. The car of improvement is wide enough for you all.

In a lecture in Central New-Jersey, we explained how a farmer may gradually bring up a run-down farm, so as to get better profits on his outlays than to cultivate it as it is. After laying the thing out in terms to be understood and appreciated by intelligent, observing, reading men; but which your unthinking, unreading farmers, followers of those who left the earth in other times, never will understand, we cried out, "Is it so, or is it not? we pause for a reply." The reply was, "It is a great deal cheaper to make land better than to make it worse." It came from men, whose land, buildings, and stock, show that they know what they are about. One farmer added: "We can't afford to wear out land." It is just so; and if the land is already run down, the cultivator cannot afford to crop it, without bringing it up.

One farmer among our hearers told us that his farm of 175 acres, now divided into twenty-five acre lots, cost him less than $10,000 seven years ago, and that he could now take $18,000 for it, and that without having expended any thing of consequence on the buildings and fences, his main object having been to raise great crops in such a way as to keep the land constantly improving. Farms in the immediate vicinity, now in about the same state as seven years ago, had risen but little. The rise on his, was far more a consequence of high cultivation, than of any general advance on land. And yet this farmer was confident that he had cultivated no more highly than would give him the best profits, as he went along, or than would have been for his interest, if he had been cultivating another man's land on a ten years' lease, a very different idea from the common one, that the most profitable way to cultivate a rented farm is to spoil it.

We hope to receive from this gentleman, for a future number, some statistics of his farming, showing the amounts expended for labor and manures, together with amount of crops, receipts for the same, etc.

The New-Jersey farmers have two great advantages over almost all others;—one in their proximity to the two largest cities in the country, and the other in the inexhaustible supplies, and the wide diffusion of the green-sand marls of this State. The New-Jersey Fertilizer Company is offering this marl at seven cents a bushel. We have before assured our readers that we believe it cheaper, delivered as they are delivering it, on shipboard, at that price, than any foreign fertilizer brought to our market. Within the last ten days, we have conversed with scores of farmers who have used it at a cost of ten to fifteen cents a bushel, according to their distance from the nearest pit, and not one has expressed a doubt of the economy of its employment at either of those prices. To one we said: "From its composition, containing so much potash, it ought to be good for potatoes." His reply was that, "It is good, first rate, nothing better." We now repeat with renewed assurance, that wherever a farmer is so situated that he can get it to his land without much increased expense from land-carriage, it is a cheap fertilizer, probably as cheap as any other now in the market.

In Philadelphia, it has been our happiness to attend some of the meetings of the Philadelphia Agricultural Society, and to become acquainted with its officers and members. This is the oldest Agricultural Society in the Western continent. It is certainly among the most useful. David Landreth, Esq., is the retiring, and Aaron Clement Esq., the incoming president. It is pleasant to see such men as these, and their associates, Elias Boudinot, Dr. Emerson, Dr. Elwin, and others, banded together in so good a cause. This Society sends ten of its members, delegates to the U. S. A. Society's annual meeting at Washington on the 14th of January.

Peter A. Browne, Esq., the distinguished trichologist, is a resident of Philadelphia. Some eight or ten years ago, Mr. Browne, we believe, after having secured ample means by a successful engagement in commerce, devoted himself to the study of natural history, particularly to investigations with regard to hair and wool, taking for his motto, "*Ducit amor Patriæ*," implying that he would undertake something for the good of the country. He has made the undertaking, and as we believe, has succeeded. That great good will result from these eight or ten years' study and research, there can not be a doubt. American agriculture will be the first recipient. If Mr. Browne's discoveries should add more to the material wealth of the country than all the gold yet sent from California, we should not be surprised; as usually happens when an inventive mind takes to a new track. A Fulton cannot dream of a steamboat without meeting sneers from the high and the low. Mr. Browne met with no encouragement from individuals, for long years of patient investigation, nor obtained any aid from the government, though his researches involved great expense. He persevered nevertheless; our government at length afforded him some small aid; several European governments have favored his inquiries, and he has built up a new science, has enlarged the boundaries of human knowledge, and has already ascertained several important applications to the industrial arts.

In a future number we will give an outline of Mr. Browne's researches and discoveries on the subject of hair and wool; and we are quite sure that our readers will not only be amused, and intensely interested in the facts ascertained, but will regard them as of very great practical value. At present, we will only say, what we suppose nearly all know very well, that the fleeces of some sheep will make a very beautiful flannel, most tempting when we see it on the merchant's counter, but almost worthless, because it shrinks even by the most careful washing. Those of other sheep make a flannel that shrinks, perhaps, less, but shrinks unequally, becomes uneven, full of deviations and depressions, looks so badly, that poor Bridget would dread a scolding after she had washed it, and mistress would be out of sorts, and turn the innocent girl out of place. Some wool will not make a cloth that will full equally well in the mill, and give a smooth, even surface, fit for outer wear. Of these and other evils, too many to name, Mr. Browne's investigations have ascertained the cause and an absolute and sufficient cure.

A company it seems has been formed at Philadelphia, with a capital of $100,000, to be enlarged if necessary, for the purpose of manufacturing a substitute for Peruvian guano, on a patent of Prof. Hare, to be called Hare's Patent Concentrated Guano. The character of the men engaged in it looks very much as if the experiment would be thoroughly made, and is a guarantee, that no unrighteous attempt will be made to gum the public. Success to them. It is a good movement for town and country. May the time not be far off when the Peruvian Government may hold its guano as high as it pleases. Our cities will ere long concentrate and render portable all the fertilizers the country will want, if not by Prof. Hare's mode, by some other.

We were delighted at Wilmington, Del., with the working of Allen & Osmond's Improved Patent Power Loom, for weaving ginghams, plaids, shawls, handkerchief, etc., etc. To see these looms, each carrying a dozen shuttles, each having a differently colored spool, and invariably throwing the one required to make the desired check, all so rapidly, so life-like, so as if endowed with thought and the power of volition, is certainly a triumph of mechanical skill not often witnessed.

At Havre de Grace we listened to a temperance lecture by a *Hinglishman.* Between real wit and unsuccessful efforts to be witty, there is a heaven-wide difference. Jokes that have been laughed at a quarter of a century, in every city, and village, and rural district, grow stale. If such lecturing is useful in John Bull's dominions let them have it; but we doubt its adaptation to brother Jonathan's latitude. A rowdyish boy or two and one man, if man he could be called, undertook to get up a disturbance; and we thought the promptness with which the people put them into order, the more honorable, from the fact that the lecturer gave, as we thought, too much occasion. But there can be no sufficient reason for putting down a meeting by such means. We have a right to keep away, but not to prevent those hearing who choose. N.

ACCLIMATION OF VEGETABLES.

THE French Government are making experiments at Algiers, in the acclimation of vegetable productions. They have a specimen of the Ficus Elastica, or Caoutchouc tree, which seems to thrive. It has grown to be eighty centimeters in circumference, near the ground, and some caoutchouc taken from it was exhibited at the Universal Exposition. The Wax Palm, from China, is also thriving. The Gutta Percha tree and the Quinine, are not so successful. We commend such experiments to the skill and care of gardeners and others of our own country. We have no doubt that many of the products now confined to the Eastern continent, might be made productive in this. No doubt the physical and chemical properties of some would be considerably modified, but the product would be essentially the same. As in our North American Flora, many species of flowers which have been regarded as "new" are now considered the same with European species, modified by geographical position. Scores of such species may be enumerated in the list of flowering plants, among which are included some of the most common of herbaceous plants, as the Ranunculus repens, or Butter-cup, the Solidago, or Golden rod, etc., as well as shrubs, as the Ribes rubrum, or Currant, and forest trees, including the Castanea vesca, (Chestnut) Bitula alba, (white Birch) and others. P.

Mechanical.

THE STEAM PLOUGH.

A correspondent in Illinois of great mechanical ability, writes us in reference to our recent paragraphs on steam ploughs. After writing about other matters, he says:

"In regard to a steam plough, *it must be built.* I may not be the one to do it, but that there are men enough in the United States that can do it, no one having any faith, will doubt, though you do not interest yourself farther with the subject. I find that the fools are not all dead here. I have several offers of all I need, should I undertake it, from those who have greater faith in my abilities than I have myself.

"It is a question as yet undecided in my mind, not having made the necessary close calculation, as to the profit, when it does work. I only, in a few leisure moments, made this calculation; that with a six-horse-power, forty acres of prairie can be broke or ploughed in a day. In fact, I do not see a single obstacle in the way.

I *do know* what I have done. I made and used the first horse-power corn-sheliers in the West, and used them more than two years before I applied for a patent—and of course was denied one—all of the varieties are now using my improvements. I made the first corn-planters, the first drilling-machine ever used in this State; made two two-horse-drills for the Swedes colony, in Henry County, and I suppose they are in use yet—have drills attached to the plough, and design between this and spring, to make one to plant on the furrow as turned by the plough. Furthermore, I have made numerous machines that satisfied others, but not one that ever satisfied myself.

"Yours, H. I. H."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ANTI-FRICTION METALS.

Messrs Editors:—In your two last numbers you noticed some useful inventions that were exhibited at the recent Fair of the American Institute, as deserving a high rank in the scale of useful modern discovery; and among them all may be classed Dr. Lawson's Anti-Friction Metals; several fine samples of which, were shown, together with his ingeniously arranged Dynamometer, for testing the same, and showing practically, their superior qualities over every other journal or box alloy.

By a due observance of the principles of science, physical and chemical, in the application of heat to metallic compounds, the Doctor has gained great knowledge of the proper combinations of metals for this valuable purpose; and his truly valuable anti-friction metals could be usefully and profitably employed on all railroads, steamboats, and other machinery. These metals may be truly noticed as a valuable achievement in the arts, for the public good. By them, alloys are obtained, which were hitherto unknown; and which seem very fully to supply a long-sought desideratum in this department of mechanics; for it is a well-known fact, that a large proportion of the difficulty in operating machinery successfully, is caused by an unequal wear of the rubbing parts, and serious accidents are attributable to this cause.

During the last half century, but few scientific men have attempted a remedy for these mechanical evils; owing, perhaps, in a great measure, to the extreme difficulty in selecting the most unctuous metals, together with a proper application of heat to them, in order to produce all the required results; or it may be true that a combined chemical and practical knowledge has not been brought to bear upon the principles, from whence originate alloys possessing great anti-friction qualities.

Some feeble efforts were made by Babbitt, Firth & Garratt, to interpose successfully between friction surfaces a composition to equalize their wear; but little was accomplished, until Dr. Lawton's composite alloys appeared, showing a superior fitness; and their proper application will soon produce a complete change in the friction surfaces of mechanism, causing uniform wear, and thus security, ease, and comfort, in their operations.

Great skill has been exercised in this invention, and Dr. Lawton's practical researches and careful experiments for the last few years, have been brought to bear upon the necessities of the public to discover a tenacious, tough, and fibrous alloy, that may be capable of sustaining itself under any ordinary pressure, without the protection of an outer casing of harder metal, and at the same time possessing unsurpassable anti-friction qualities for locomotive axle-bearings, cranks, piston-rings, water-wheel steps, car-boxes, of any size or pattern; likewise machinery-bearings of any kind, light or heavy, fast or slow. By a variation of the proportions of the constituents of these metals, an alloy may be rendered very hard, when circumstances require it; or of a medium tenacity, or very soft, and run into a shell, as many other metals are. When these metals are properly made, they present a compact lubricous surface, capable of receiving a beautiful polish, and may be successfully employed in the manufacture of numerous useful and ornamental articles, where brass, and the like metals, are now used.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

MANUFACTURE OF STEEL FROM SCRAP IRON.

Messrs Editors:—Among the many inventions which have signalized this iron age, the following is too important to be omitted. It consists in a process by which steel is made directly from scrap iron. The mode is very simple, and is mainly as follows. About fifty pounds of wrought iron is cut up into small pieces and placed in a crucible. To this, a few chemicals are added, whose cost does not materially increase the expense of the operation. The crucible is then placed in a furnace, melted, and poured into molds in the same way as blister steel. The product is cast steel. By varying the quantity of these chemicals, the steel can be rendered more or less hard as desired. By a particular arrangement, a soft and very tenacious kind of semi-steel can be made, suitable for car-wheels, etc.

This process is much cheaper than the old one, as the poorer kinds of iron make as good steel as the best Swedish. Cyanogen, which is the most important ingredient in the chemicals, has long been used in the form of prussiate of potash, for hardening the faces of hammers, and *surfaces* of iron generally, by a process called *case-hardening;* but the inventor's claim consists in the manner of application of the cyanogen, viz., by melting it with the iron.

The invention has been patented in this country and Europe, and a Company is now in operation under the name "The Damascus Steel Company," for manufacturing it on a large scale, and by its cheapness as well as superior quality, it bids fair to revolutionize many branches of manufacture. W.

Clothes Driers.—In a recent list of patents, we mentioned a *Cloth* Drier, by Mr Merrill of Andover, N.H. It should have read a Clothes Drier, and he gives us the following description of it. "It is a reel on the top of a post, so arranged as to tip down on one side, so as to put the clothes on the line, when it is raised up. It is high enough to walk under the clothes without inconvenience.

Manufacturers of Providence, R. I.—We find in the *Providence Journal* the following statistics of that beautiful and enterprising city:

"The city of Providence contains seventy-three steam engines, and within one hundred rods of the city line are twelve or fifteen more, that for all practical purposes belong here; fifty-six jewelry establishments, employing fourteen hundred hands, and yielding an annual product of $2,771,600; three bleaching and dyeing works, employing three hundred and fifty hands, and finishing 50,-980,000 yards of goods; twenty-two manufactories of machinery, steam engines, boilers, castings, etc., employing two thousand and sixty-two hands; 9,450 tons of coal, 11,095 tons of pig iron, 9801 tons of other iron, and producing annually 33,800 stoves, 9,000,000 pounds of nails and spikes, 30 steam engines, 220 boilers, 3,584,000 pounds of nuts, etc., and other articles, to the total value of $2,-561,000; two screw factories that yield an annual product of $1,086,000; two butt factories that produce $285,000, and a great variety of smaller manufactories, yielding together an annual product of $17,415,740.

Magnetism as a motive power was made a practical question as early as 1769, when one Rist. D. Rustigon, of Holland, announced that he could make a ship without sails, go faster against wind and tide, than any sailing ship now goes with the wind and tide.

Purification of Gas.—A new process has been discovered for purifying gas A mixture of sulphate of iron, lime or saw dust, is introduced into the purifiers of the gas works, which, after a sufficient exposure, is removed and replaced by another mass of the same mixture. The product is a dark-colored substance, granular, tolerably dry, with a strong smell of gas.

Material for Paper.—It is now proposed to use hop stalks in the manufacture of paper. The material is immersed in pits till a slight fermentation is produced. The fibre is then easily separated from the pithy and woody portions of the stalk, as in flax and hemp. Repeated steamings and washings may be required to remove the gum and resinous matters.

Jute, an East Indian grass, is also stated to be capable of being manufactured into very fine paper. It is sometimes used to adulterate silk. It is also used as bagging.

An Apparatus for Lowering Boats, when the ship is under full sail, has been successfully attempted and patented by a Mr. Clifford. A boat laden with its entire crew, with masts, spars, and necessary gear, was lowered from the ship *Oneida*, when she was at full speed, with a fall of nearly six feet from the davit-heads to the water.

A NEW ELECTRIC MACHINE has been contrived, consisting of an endless band of paper, placed over two rollers covered with silk. It may be used in an atmosphere unfavorable for a glass machine.

THE ELECTRIC LIGHT has been so improved by scientific experimentors in Lyons, as to burn steadily for twelve hours.

GLASS JOURNAL BOXES have been so improved as to remove the objections hitherto urged against them. The glass and iron are so firmly united, that a heavy blow upon the glass will not produce a fracture. It is the invention of Mr. Campbell, of Columbus, O.

GAS PROOF RUBBER PIPES.—We have seen an article of India rubber, prepared by Mr. W. F. Shaw, manufacturer of the gas stoves we have heretofore described, which is pronounced impervious to gases. He uses a chemical composition, which combines with the rubber, which renders it impervious to gas while it retains its elasticity. It costs but little more than ordinary rubber tubes.

AN IRON CAR is in process of construction, at Paterson, N. J., designed for sixty passengers. It will contain no wood-work, but will be lined with several layers of thick paste-board.

We purpose hereafter to illustrate these inventions, and we invite inventors and patentees to forward to us such engravings as may be appropriate to our pages. We make no charge for such, unless more space is occupied than would be desirable for general information, irrespective of individual interests. P.

Recent American Patents.

SELECTED AND PREPARED BY M. P. P.

LATHE FOR CUTTING FLUTED MOULDINGS.—This patent includes two adjustible rotating cutters, revolving in opposite directions attached to shafts which are fitted into frames, and worked in guides. It is designed for cutting spiral fluting on the legs of tables and other kinds of furniture, whether cylindrical or tapering.

TURBINE WHEEL.—A patent has been obtained by Stephen K. Baldwin, Guilford, N. H., for an improvement upon the Fourneyron Turbine Wheel. He extends the bucket further inward towards the centre of the wheel, in such a position as to receive the direct action of the propelling water against the extended bucket, on the outside of the wheel.

POLISHING LEATHER AND HARNESSES.—This invention, by Wm. Crane, Brooklyn, N. Y., is designed to supersede the hand-ball used in finishing leather, and moves the creasing ball, heretofore managed by the hand, by machinery.

THE MANUFACTURE OF COTTON YARNS directly from the gin is supposed to be practicable by the use of an invention patented by Geo. G. Henry, Mobile, Ala.

STITCH FOR SEWING MACHINES.—A. F. Johnson, Boston, Mass., has an invention for making a stitch of a single thread by throwing a shuttle and thread through a loop formed from the shuttle thread.

TURNING CIRCLES FOR CARRIAGES.—Geo. Kinny, Milford, N. H., has patented an annular box plate composed of two circles, so constructed as to exclude dirt from the bearing surfaces of the plates and preventing their rapid wear. He also provides against noise and jars.

Disk for Shelling Corn.—An annular concave shelling surface, with other adaptations, is patented by Mr. J. P. Smith, Hummelstown, Pa.

Gas Cock and Swinging Joint.—Mr. C. F. Thieme, of Philadelphia, has patentented a new arrangement for securing that very important matter—tight swinging joints in gas tubes. It requires an engraving to explain it properly.

A new Adjustible Cut Off has been devised, for steam engines, by William Wright, Hartford, Ct. His claims cover "the cylindrical hubs, disks and their adjustments," also "flap valve checks constructed and combined with the flap valve."

Hand Corn Planter.—T. A. Chandler, Rockford, Ill., has a patent for a new Hand Corn Planter.

Raking Attachment for Harvesters.—A new patent is secured by Wm. Whitely, Jr., Springfield, Ohio, in which the teeth of the rake extend across the platform and receive a reciprocating motion through a connecting rod and crank.

Sewing Machines.—A patent has been obtained for a cheap family sewing machine, by Wm. C. Watson of New-York. He claims "the revolving and reciprocating looping hook and the inclined and grooved brace-plate," so placed beneath the cloth as to deflect the lower end of the needle to one side of its path, whereby its vibrations are prevented, and it is less liable to be broken. It will cost only about ten dollars.

Self-Acting Rakes for Harvesters.—Mr. Jesse Whitehead, Manchester, Va., has a patent involving the following claims; a combination by which the rakes operate together, and independently of each other, a rod for the purpose of preventing the rake heads from binding on their ways, and a movement for varying the size of every gavel.

Feeding Printing Presses.—A patent has been secured by Mr. Moses S. Beach, Brooklyn, N.Y., for apparatus which seizes the back end of the sheet and returns it to the types for a second impression.

Backing Electrotype Plates.—Messrs. Wm. Filmy & Edward Bookhout, New-York, have patented a box so provided with ledges, spiral springs, etc., as to secure perfect backs to electrotype plates, without the risk of injury by warping, or irregular expansions, heretofore a source of considerable difficulty.

Drying Cylinders.—An invention is patentented by Horace W. Peaslee, Malden Bridge, N. Y., for a spiral tubular heater, upon a non-conducting cylinder, with an exterior metallic casing.

Wrench.—A new wrench is patented by Oren O. Witherill, New-York, which by pressing upon the handle in one direction seizes the nut, and by an opposite pressure sets its free, whatever the size of the nut. This must be a great convenience.

Straw, Hay and Corn Cutter.—A "contrivance" has been invented by Mr. Loring Weeks, now of Boston, Mass., which seems to simplify and operate economically, in comparison with many others. It has but one straight knife, which can be made or repaired by any blacksmith, which also feeds the machine. It cuts upon a strip of raw-hide. The length of the cut is adjustible from a fourth of an inch to two inches and a half by turning a screw.

Lathe for Irregular Forms.—Mr. Lemuel Smith, Plymouth, Ct., under a recent patent, claims two expanding jaws, placed on the carriage, which works on the bed of the lathe, in combination with the pattern. The cutter is attached to one of the jaws.

Rights of Patentees.—An important question was involved in a recent trial under a patent, in the U. S. Circuit Court at Providence, R. I., on the 24th ult., Judge Curtis presiding. The parties were J. S. Winsor against Kendall and others, for infringing the plaintiff's patent, granted for a harness knitting machine, on the 2d of January, 1855.

The case is an uncommon one, and we call the attention of manufacturers and inventors to it, as it relates to the use of machines, constructed before the patents for them are issued. The plaintiff charged defendants with an infringement of his right, in using (after his patent was granted,) ten machines constructed by them before his application for that patent. The point of defence was, that the plaintiff had, in legal effect, licensed the making of these machines; and the question presented to the jury under the Court's charge, was, "Did the defendants construct their machines under the belief, authorized by the plaintiff, that he consented and allowed them so to do?" A verdict of $2,000 damages was given to the plaintiff by the jury in half an hour after the case was submitted to them.—*Scientific American.*

The value of a crop depends much upon its being sown or planted early; a few days' delay will often reduce the yield one-half, and occasion a vast amount of unnecessary grumbling about the weather.—*Exchange.*

Except Indian corn. Plant that as soon as the ground is warm enough to bring it up quickly and carry it "right along," but not before.

There are few men whose friends will build them a monument so honorable or so durable as he builds for himself, who plants an elm, maple, or other good shade tree.

Recent English Patents.

SELECTED AND PREPARED BY M. P. P.

THE COMPARATIVE VALUE OF COKE AND COAL IN LOCOMOTIVES.

We learn by our foreign scientific journals, that this was one of the topics discussed at a meeting of the Institution of civil engineers, in November last. This comparison was made by noting the results of the performances of five engines burning coke, and five engines burning coal, on the main line of the London and South Western Railway. These experiments and the calculations based upon them, were of course based upon given prices for coke and for coal, which would not suit the railroads of this country. But with such modifications as may be required to bring the estimate to the value of these articles in our own country, those experiments are worthy of especial notice and we invite a careful consideration of them. The statements below are found in Newton's London Journal. P.

A comparison of the results of the performances of five engines burning coke, and five burning coal, on the main line of the London and South-

Western Railway, between London and Southampton and back, showed an average consumption of coke per mile of 20·7 lbs. with 10·4 carriages per train, against a consumption of coal of 18·9 lbs. per mile with 12·2 carriages per train. From this it would be seen that, that there was a saving of 8½ per cent. in consumption of fuel in favor of coal, whilst the number of carriages per train was 14¾ per cent greater. The average cost of coke was £1. 7*s.* 6*d* per ton, and of coal 18*s.* 6*d.* per ton, giving a cost of 3·04*d.* per mile in the former case, and of 1·87*d.* per mile in the latter; or a saving of 1·17*d.* per mile with trains 14¾ per cent. heavier; but notwithstanding this, the saving of fuel amounted to 38 per cent., and if the loads had been equal, then the saving would have amounted to 46½ per cent.

It was stated, that on the Shrewsbury and Hereford Railway, the results of burning all coal in the passenger engines—in place of half coal and half coke—taking the price of coke at £1 and of coal at 11*s.* per ton, was a saving of 0·69*d.* per mile. These engines when burning only coke could never be got below 18½ lbs. per mile, whereas now they only burn 18·9 lbs. of coal with the same average load and running at the same speeds. With the four-wheeled coupled goods engine there was a saving of 2·05*d.* per mile in the cost of fuel, by burning all coal, instead of one-third coal and two-thirds coke, with an average load of 168 tons in both cases. With the six-wheeled coupled goods engines, under similar conditions, the saving was 2·69*d.* per mile, with an avearge load of 188 tons. There was no difficulty in getting up steam, and there was a complete absence of all nuisance from smoke, which hitherto had been the chief difficulty to be overcome in the use of coal in locomotives. It was explained that the fire-bars. which were very thin, so as to allow of the free passage of air, were placed in a rocking-frame, by which the level could be varied, according as the condition of the fire and the work to be performed demanded.

On the Northern of France line scarcely any other fuel than coal was now burned, and the economy resulting was fully one-third in money value. It should be stated, however, that the coal used was the dry semi-bituminous coal of the Mons colleries, which was of excellent quality, whereas the coke was not good. The saving of 15 per cent. arising from the heating of the feed-water was admitted. It would, however, have been more conclusive to have tried coal and coke alternately in the same engine. The apparatus used in France was very simple, being merely a horizontal arrangement of the fire-bars, which were placed transversely, and in steps across the fire-box, so as to have wide air spaces, without risk of losing the fuel through the spaces.

In answer to questions, it was stated, that the boilers of the South-Western coal-burning engines were only a very little more expensive than ordinary boilers, and there did not at present, after very heavy running, appear to be any evidence of more rapid destruction of tubes, or of fire-boxes, than when burning coke. Indeed there was reason to believe that the particles of coal in combustion would do less mechanical injury to the tubes than the bits of hard coke rapidly traveling through.

Thin and careful firing was recommended, and with that there was no reason why the same results should not be obtained in the locomotive boiler with coal, as in a stationary boiler, under which coke would never be considered necessary.

It was generally admitted, that there was an entire absence of smoke in the engines of the South-Western line, which was not the case on several other lines where the system had been tried—yet bituminous coking coal had been tried, with the same good results. It was evident then, that the fire-tiles had considerable influence in producing that effect, as well as in enabling the engines to run home light, with scarcely any expenditure of fuel; the heat previously absorbed by the fire-tiles being given out again when required, and thus keeping up the steam.

Reference was made to a discussion at the Institution in 1839, where it was stated that, "to say that the 15 cwt. of coke produced from a ton of coal, was equal in heating powers to the original ton, was to say that there were no heating powers to be derived from the 9 or 10,000 cubic feet of gas produced, or the 10 gallons of tar." Now it was possible that, in the arrangement of his boiler, Mr. Beattie had just arrived at the rate of combustion, and mode of employing the fuel, to take the utmost advantage of the whole of the carbonaceous matter and all the inflammable gases contained in the fuel; if this were true, the progress was one of the most remarkable steps towards perfecting the locomotive engine.

In summing up the discussion it was observed, that although the subject had been treated with great ability by Mr. Clark, and the documentary evidence brought forward during the discussion was very conclusive in favor of the system, which indeed appeared to be generally admitted as a great and economical improvement, yet there still remained much to be done, practically, and to be described to the Institution. There were still several important discrepancies to be cleared up; and at this moment, when, for example, in India it would be most important to burn only coal, as indeed had been done on the East India Railway for some time, the best methods were most desirable to be attained, and the descriptions should emanate from the Institution.

Pile Driving Machine.—Mr. Robert Morrison, of Newcastle-upon-Tyne, has patented a machine or apparatus for driving piles by the direct action of steam, by which two or more rows of piles may be driven simultaneously without the necessity for any lateral or transverse movement being imparted to the pile driving mechanism, and consequently the expense of driving temporary piles and erecting platforms for the machine to traverse laterally upon, from one row of piles to another, is obviated.

According to this invention, one, two, or more steam cylinders and driving rams are employed, according to the number of rows of piles to be driven at one time, the distance between such cylinders and rams corresponding to the width between the centers of the rows of piles. The cylinders and valve gearing are carried in suitable supports on one end of a traveling carriage on wheels, and a vertical tubular boiler and small steam-engine for hoisting the piles and raising the cylinders when they have each driven a pile, are carried at the other end of the carriage. The boiler is fitted with a conical or tapered fire-box, the contracted end being uppermost. As fast as each pile in a row is driven, the machine is traversed forward between the rows to the next piles, and so on, until the whole of the piles in each row are driven. The driving rams are made solid, and the pistons are forged or cast in one piece therewith. A stuffing-box is fitted on to each end of the cylinders, and the driving rams work through both the stuffing-boxes, which thus serve as guides without the necessity for any other means of steadying them during working. The lower end of the ram, or that part which works through the lower stuffing-box, is made cylindrical, whilst the upper portion, working through the top stuffing-box, is made square, to prevent the ram turning round. Or in place of making it square it may be first turned cylindrical, and then have one side planed off, or it may be simply fitted with a feather on one side; any other form, however, would answer other than cylindrical.

The valves of the steam cylinders are so arranged that the steam may either be admitted on the underside only of the pistons for the raising rams, and then allowing such rams to fall by their own gravity to drive the piles, or the steam may be admitted on each side of the pistons, so that the force of the blow may be increased in proportion to the pressure of the steam. In the former case the upper stuffing-box will not, of course, require packing, but will merely serve as a guide to the ram. The small steam-engine which it is proposed to employ for raising the cylinders after they have done their work, and hoisting fresh piles to deposit under the rams, is an inverted trunk engine, the lower end of the trunk being flattened to such an extent as will balance the weight of the piston trunks and connecting rod.

New Castors.—A new form of Castors, for household furniture, has been invented in England, which is ás follows: The revolving part, which rests upon the carpet or floor, is a sphere, or ball, enclosed below its middle line in a metalic case, which at the top rests upon another small ball, both being free to revolve in any direction desired. The top of the smaller second ball rests upon a smooth glass surface, or upon any hard metal which will produce but little friction.

Improvement in Envelopes.—A mode of preventing a letter enclosed in an envelope from being read through the envelope, a process has been patented for printing and ruling in various colors over its interior surface, by which the whole interior is rendered confused, and every part of the enclosure is made illegible.

Gas Works in Great Britain.—The number of gas works in Great Britain, at the present time, is stated to be 876, employing, collectively, a capital equal to $62,500,000, on which an average annual dividend of 5 per cent. is paid. The number of person employed in the manufacture, is about 24,000.

The quantity of gas annually produced in these works is 10,800,000,000 cubic feet, requiring for its production, the consumption of 1,350,000 tons of bituminous coal. Owing to the greater cheapness of coal and labor in Great Britain, the gas is furnished to consumers at $1 per 1000 cubic feet, about one fourth of the price paid in this country.

A New Calculating Machine.—The French *Moniteur* gives some interesting particulars of a new calculating machine—from which we extract the following passages: "M. Thomas, of Colmar, has lately made the finishing improvements in the calculating machine, called the arithmometer, at which he has been working for upwards of thirty years. Pascal and Lebnitz, in the seventeenth century, and Diderot at a later period, endeavored to construct a machine which might serve as a substitute for human intelligence in the combination of figures; but their efforts failed. M. Thomas's arithmometer may be used without the least trouble or possibility of error, not only for addition, subtraction, multiplication, and division, but also for much more complex operations, such as the extraction of the square root, involution, the resolution of triangles, etc. A multiplication of eight figures by eight others is made in eighteen seconds; a division of sixteen figures by eight figures, in twenty-four seconds; and in one minute and a quarter, one can extract the square root of sixteen figures, and also prove the accuracy of the calculation. The arithmometer adapts itself to every sort of combination. As an instance of its wonderful powers, we may state that it can furnish in a few seconds products amounting to 999,999,999,999,999,999,999,999,999,999. A marvellous number, comparable to the infinite number of stars which stud the firmament, or the particles of dust which float in the atmosphere. The working of this instrument is, however, most simple. To raise or lower a nut screw, to turn a winch a few times, and, by means of a button, to slide off a metal plate from left to right, or from right to left, is the whole secret. Instead of simply reproducing the operations of man's intelligence, the arithmometer relives that intelligence from the necessity of making such operations. Instead of repeating responses dictated to it, this instrument instantaneously dictates the proper answer to the man who asks it a question. It is not matter, producing material effects, but matter which thinks, reflects, reasons, calculates, and executes all the most difficult and complicated arithmetical operations with a rapidity and infallibility which defies all the calculators in the world. The arithmometer is, moreover, a simple instrument, of very little volume and easily portable. It is already used in many great financial establishments, where considerable economy is realized by its employment. It will soon be considered as indispensable, and be generally used as a clock, which was formerly only to be seen in palaces, and is now in every cottage."—*London Athenæum.*

Good Paste.—Dissolve an ounce of alum in a quart of warm water; when cold, add as much flour as will make it the consistence of cream; then strew into it as much powdered rosin as will stand on a shilling, and two or three cloves; boil it to a consistence, stirring all the time. It will keep for twelve months, and when dry, may be softened with water.

Domestic and Miscellaneous.

. Crops, Weather, etc., in Indiana County, Pa.—A correspondent at Newman's Mills, in the County above named, under date of December 8th, writes as follows:

The past season, from the first of June till near the last of September, was on the whole, a very fine one. There were some three weeks in July that vegetation seemed to suffer for want of rain. Hay, and grain of all kinds were got in in fine condition. Wheat and Rye are rather scarce and dear. The harvest in these was small and light. So also of the hay crop. Oats are quite plenty and good in quality. Corn, owing to bad seed and early frosts, is rather a small crop. About half of what there is, is frost-bitten and soft. Buckwheat was quite good and rather plenty. Potatoes were excellent in quality but rather small in quantity, owing to scarcity of seed. Nearly all the potatoes in this vicinity were frozen last winter. The crop of garden vegetables was very small here the past season. The little black bugs, and striped bugs, and grass-hoppers, and plant-lice, made us almost think of Egypt, just before the children of Israel came out of it. I think I never saw them so numerous.

It has been a fine season for clearing new land. A large breadth has been cleared and sown to wheat, besides many acres of the old land. Since about the middle or last of September, the weather has been very variable. As a general thing, the streams have been very low ever since last May, till last week, so that it has been very difficult, much of the time, to get any grinding done at the mills. Last Tuesday and the night following, it rained to some purpose. The wind was in the East; but on Wednesday about noon, the wind shifted into the West and the weather became freezing cold, and continues so to the present time. Yours truly, D. M.

Fisheries in New-England.—The fishermen of Gloucester, Mass., are making money by engaging in the Halibut fishery. They cruise about the Isle of Sable, and George's Banks, but the business is deemed hazardous, and sometimes does not pay. The fishermen of Orleans, on Cape Cod, are earning, it is said, $300 a day by catching eels. Five tons were shipped to New-York recently, on one day. These "spears," with which this fish is caught, will not probably be turned into "pruning hooks" very soon, at this rate.

How to Get Rid of Emmets.—The *New-England Farmer* says: "Wet a large sponge in sugar water, and lay it on the shelf. When it it is filled with ants, drop it into cold water and drown them. If dropt into hot water, the ants will be killed in the sponge, and give trouble in removing them.

How to Get Rid of the Flies.—"It is a curious fact," says the *Courier de Lyon*, "that although the butcher shops at Geneva are all open, and immense numbers of flies may be seen on the outside walls, not one comes in. This is caused by the inner walls being rubbed over with laurel oil, which is an effectual preventive against the intrusion of these troublesome insects. The same oil is also used with success in preventing the flies from spoiling the gilt frames of looking-glasses, pictures, etc." The *Couriér du Havre*, in alluding to this fact, states that no fly will enter a room in which a wreath of walnut leaves has been hung up.

Illuminating Gas.—The credit of inventing gas lighting is given to Philip Le Bon, an engineer of roads and bridges in France, in 1785. He commenced by distilling wood, in order to obtain from it gas, oil, pitch, and pyroligneous acid, but his work indicated the possibility of obtaining gas by distillation from fatty or oily substances. He eventually died, ruined by his experiments. The English soon put in practice the crude idea of Le Bon. In 1804, Windsor patented and claimed the credit of inventing the process of lighting by gas; in 1805 several shops in Birmingham were illuminated by gas manufactured by the process of Windsor and Murdoch; among those who used this new light was Watt, the inventor of steam engines. In 1816, the first use of gas was made in London, and it was not until 1818 that this invention was applied in France.

Fluidity of the Blood.—The cause of the fluidity of the blood has been for a long time studied. Dr. W. B. Richardson, who has recently received the Astley Cooper prize for an essay on the subject, thinks he has proved that the fluidity of the blood is due to the presence of a minute quantity of ammonia, probably in the form of a neutral carbonate. When the blood is at rest and coagulates, it parts with ammonia; and in the disease known as purpura, or watery condition of the blood, subjecting the person to hemorrhage from all parts of the body, even the skin, an excess of ammonia is found in the breath. These facts confirm the theory of Dr. Richardson.

Ammonium.—Dr. Hoffman lately claimed before the British Royal Institution, that he had obtained the metal Ammonium. It was in the form of a bright glistening mass, somewhat resembling butter. If this is so, all the constituents of the atmosphere are metallic.

Appearance of Jupiter.—Astronomers have recently discovered that the lowest apparent belt of Jupiter "is a perfect assemblage of clouds, and below this is a very fine line of a yellow color, which appears like a microscopic thread stretched across the planet."

The Telegraph in India, now extending 4,000 miles, is to be increased to a length of 7,000 miles.

The Copper Mines of Tennessee.—The Nashville *Union and American* says:—"The copper fields of Tennessee lie in the Eastern Division, and were but a few years ago entirely unknown, Their exploration and development are yet in their incipient state. Nevertheless, there have been shipped this year from all the mines, 14,291 tons. It is estimated by the able and experienced President of the Hiwassee Mining Company, Samuel F. Tracey, of New-York, that if they had had a branch railroad from the mines to the East Tennessee and Georgia Railroad, the different Companies could have shipped 29,000 tons. The Hiwassee Company alone, sold their ore and copper in New-York for $150-000, but the cost of transportation was $65,000. Much of this enormous sum was paid for wagoning, and freight on the Oconnee River, and boxing, which might have been saved by the proper railroad facilities."

The copper ores of Tennessee are exceedingly rich, averaging from eighteen to forty per cent.—the general average being eighteen per cent. The English ores are said to yield an average of eight per cent.; Chili, twenty; the Cuban, about fifteen per cent. The world produces about 60,000,000 pounds of copper annually. Of this amount, in 1852, Great Britain and Ireland produced of ore and metal, 28,820,000 pounds; Chili exports 18,000,000 pounds, and Cuba produces 8,000,000 pounds, which she sends to England for smelting, being destitute of fuel.

Profits of Sheep.—The *Ohio Farmer* estimates the profit on sheep in that State, the last year, at $6,000,000, and the whole capital invested, at $60,000,000. The number of sheep is estimated at five millions, and the wool clip last year reached 10,196,000 pounds—one-fifth of the entire wool clip of the Union.

Influence of Railroads.—During eight months ending with November, there were sent from the railroad station at St. Albans, Vt., to market, 1,888,903 pounds of butter, which at 20 cents, the average price paid, would make the sum of $377,758 60. The amount of cheese is 1,207,613 pounds, and the average price being about 8½ cents, would make the sum of $102,732 10. Butter used to be sold there for ten or twelve cents a pound.

Fees of Hairdressers.—A ladies' hairdresser in New-York, informs his patrons that, owing to his present style of dressing ladies' hair, the charge will be two dollars each time, during the season, after the first of January, 1857. Bridges, in the fashion of Louis XIV, XV, ect., as heretofore, five dollars.

Progress of Railroads.—The annual statement of railways in the Union has just been published by the United States Railroad and Mining Register. It estimates the total number of railways 24,192, showing an increase of 3484 over last year. Averaging the cost of building these miles of railroad at $30,000 as a low estimate per mile, the amount expended on our internal lines of communication the last year, is not less than $90,000,000.

Australian Cotton.—An arrival at San Francisco from Australia brings intelligence that the colonies were felicitating themselves on the prospect of successful cotton culture.

"This week," says the *Sydney Herald*, "has been productive of an event which (trifling as it was in its immediate momentary results) is one which must be regarded as most important, and one which may hereafter be chronicled with more than ordinary interest. We allude to the public sale, by Messrs. Mort & Co., of two bales of New-South Wales cotton wool, grown in the district of Moreton Bay. This product was declared by experienced persons to present a highly favorable sample, free from seed and of a fair staple. The prices obtained was two shillings per pound. We may remark that the latest quotations in England for the best Sea Island cotton of the United States was 2*s.* 3*d.* It is not intended at this early moment to institute any comparisons, because of the price realized for this the first sample of Australian cotton wool offered for public sale; it having been got up with extreme care, and the understood object of the purchaser being to transmit it to the Paris Exhibition of 1855. It may not be out of our place to remind the cotton growers of Moreton Bay that sixty-five years ago, the United States did not send one pound weight of cotton wool to England, whilst the gross exports of the States at the present date are about 1,000,000,000 pounds; of which the United Kingdom takes about 600,000,000 pounds.

PHOTOGRAPHY IN THE EYE.—Dr. Sanford who examined the eye of Beardsley, murdered at Auburn, to test the truth of the statement that the last scene viewed by a dying man remains fixed on the retina of the eye, publishes the following interesting statement:

"At first we suggested the saturation of the eye in a weak solution of atrophine, which evidently produced an enlarged state of the pupil. On observing this, we touched the end of the optic nerve with the extract, when the eye instantly became protuberant. We now applied a powerful lens, and discovered in the pupil, the rude, worn away figure of a man, with a light coat, beside whom was a round stone, standing or suspended in the air, with a small handle stuck as it were in the earth. The remainder was debris, evidently lost from the destruction of the optic, and its separation from the mother brain. Had we performed this operation when the eye was entire in the socket, with all its powerful connection with the brain, there is not the least doubt but that we should have have detected the last idea and impression made on the mind and eye of the unfortunate man. The thing would evidently be entire; and perhaps we should have had the contour, or better still, the exact figure of the murderer. The last impression before death is always more terrible on the brain from fear than any other cause; and figures impressed on the pupil more distinct, which we attribute to the largeness of the optic nerve and its free communication with the brain."

TRANSPORTATION OF FLOUR BY CANALS AND RAILROADS.—The Buffalo papers state that the railroads now carry from that city to New-York more than five times the flour which is transported upon the Erie Canal. During the past season there has arrived at Buffalo by the lake 1,078,206 barrels of flour, only 76,081 barrels of which were shipped by canal, the remainder, over a million barrels, all going forward by railroad.

This single fact shows more conclusively than a whole volume of theoretical argument, the ability of railroads to compete with water communication, and the success which will attend them in developing the resources of all those countries where the construction of canals is not feasible and there are no navigable rivers to bring the produce of the interior to markets on the sea-coast.

OIL FOR THE LIGHT HOUSES.—We mentioned yesterday that the contract for ninety-five thousand gallons of Sperm Oil for the supply of the light-house service for the coming year had been awarded to contractors in this city. From the Washington correspondence of the *New-York Times*, we learn that "among the bids received was one from the Breckinridge Coal Company of Kentucky, proposing to supply oil made from their coal. This was something quite unexpected; and as the bid for this novel article was a low one, the Board found themselves in something of a quandary. The Government, however, has laid before it such apparently indisputable evidences of the superior illuminating quality of this oil, of its inaptness to gum, and its power to resist a lower temperature than the Winter strained sperm oil, that it has ordered a scientific test to be made. If the result proves satisfactory, the Breckinridge Company will get the contract next year, at a price far below the lowest bid for the necessary quality of fish-oil."—*New-Bedford Mercury*.

RECIPE FOR PRESERVING CABBAGE.—If farmers would enjoy that almost inseparable appendage to a fine ham, a very little care and trouble will insure it. I have succeeded admirably by the following method: Let the cabbage remain in the hill as long as is prudent against frost or snow. When ready to be put away, prepare a long trench in a dry spot of earth, more or less deep and wide in proportion to the size of the heads. The cabbage should be placed in a trench, after being despoiled of all imperfect leaves, with the stock upward, and well covered with earth, raising a mound the whole length of the trenches, high enough to turn off water. This process will bleach them perfectly white, and make them crisp and tender. Large heads of greens will bleach, and sometimes head very well, if placed in the trench alternately with a firm and solid head of cabbage. The heads should be packed close to each other in the trench.—*Louisville Journal.*

In as mild climates as that of St. Louis this might do well. In colder regions it would be better to earth them up, in a similar manner, in the cellar, where they would be accessible during the whole winter.

Improvement in Soap.—The wife of an American agriculturist has been experimenting in soaps, and finds that the addition of three quarters of a pound of borax to a pound of soap melted without boiling, makes a saving of one-half in the cost of soap, and three-fourths the labor of washing, improving the whiteness of the fabrics; besides the usual caustic effect is thus removed, and the hands are left with a peculiar soft and silky feeling, leaving nothing more to be desired by the most ambitious washerwoman.—*Farmer and Visitor.*

A Wrinkle in the Age of Horses.—A few days ago, a gentleman from Alabama gave us a piece of information in regard to ascertaining the age of a horse, after he or she has passed the ninth year, which was new to us, and will be, we are sure, to most of our readers. It is this:

"After the horse is nine years old, a wrinkle comes on the eyelid, at the upper corner of the lower lid, and every year thereafter, he has one well defined wrinkle for each year over nine. If, for instance, a horse has three wrinkles, he is twelve: if four, he is thirteen. Add the number of wrinkles to nine, and you will always get it." So says the gentleman; he is confident it will never fail. As a good many people have horses over nine, it is very easily tried. If it is true, then the horse dentist must give up his trade.—*Southern Planter.*

Mulching Potatoes with Straw.—*Editors Genessee Farmer:*—Having seen the advantages of covering potatoes with straw this season, I deem it of sufficient importance to jot a few lines to your (or rather our) paper on the subject. The ground selected for the purpose, was a side-hill facing south, and had been in corn the two previous years, without manure. The ground was ploughed on the last day of March, as deep as two horses could well do it, and harrowed twice crosswise. The potatoes were planted in drills on the fifth of April, and covered by hand. We then left them until a few tops were visible, when we covered them with straw, to the depth of four or five inches. This was on the 24th of April. We left them to their fate, not stirring the soil in any manner until digging time, when on taking off the straw, some of the finest potatoes that ever greeted mortal eyes, lay at our feet, on the surface, requiring very little digging.

The same piece of land is now wheat, and although it was sowed exactly one week later than the other portions of the same field, it has outstripped it in height, and is much more thrifty every way. Any one can see, almost to an inch, where the straw has lain. R.—*Cheviot, O., Nov.* 12, 1856.

Why did not R. tell us how much straw it took to cover an acre? and at what rate the potatoes yielded? Four inches of tolerably compact soil, weighs about 666 tons to the acre. Straw, to be sure, is lighter, but it would take an enormous quantity to cover a considerable field, four inches thick. There is no doubt that such a dressing would produce a great crop of potatoes, and that the land would be found in very high order for a next crop; but can straw be afforded for such a purpose? We think not. If the mulching process is to be adopted, it must be done with leaves from the woods, with a sprinkling of straw to keep them from blowing. That great crops of potatoes can be grown in this way, we know by our experience; but whether they can be thus grown economically, we doubt. N.

To Preserve Herbs.—All kinds of herbs should be gathered on a dry day, just before or while in blossom. Tie them in bundles, and suspend them in a dry airy place, with the blossoms downwards. When perfectly dry, wrap the medicinal ones in paper, and keep them from the air. Pick off the leaves of those which are to be used in cooking, pound and sift them fine, and keep the powder in bottles, corked up tight.—*Can. Ag.*

Trees Gnawed by Mice.—In your paper, I see several articles about protecting apple trees from mice, etc. The best remedy I know is to paint them with coal tar. J. W. [We have published several different preventives lately, for this purpose, all of which have their advantages in different circumstances—but we have never found any thing yet, that is cheaper and more effectual than the long-tested mode of banking up the stems with earth, about a foot high. One man will do hundreds in a day, and if grass or weeds are not thrown up with the earth, the mice will never approach the trees.]—*Country Gentleman.*

Chinese Sugar Cane.—All reports from those who have grown this plant, so far as we have seen, have been highly favorable—so much so, that all the seed which can be procured, will be planted the coming season, when its value as a syrup plant will be thoroughly tested. So strong is the confidence in it, that several gentlemen in the Southern States, intend to plant from ten to fifty acres, and we hear of one who proposes to plant one hundred acres, from a belief that very excellent syrup may be made from it at a great profit, even should he fail to make it into sugar.

We are indebted to a correspondent at Baltimore, for some notes in relation to it, from which we learn that Mr. Asa Whitney, near Washington City, raised last summer, one hundred bushels of the seed, which have been purchased by the Patent Office at $5 per bushel, for gratuitous distribution. One bushel of it is to be sent to each of the Secretaries of the several State Agricultural Societies for distribution.—*Sat. Eve. Post.*

Large and Small Potatoes.—Mr. J. H. Hamilton gives a sketch of his experience in planting large and small potatoes. The produce of the large potatoes was one-third greater than that of the small seed. He is "inclined to the opinion that large potatoes are preferable for seed." No doubt he is right in his opinion. It is a general law of nature that "like begets like," though it is well known there are exceptions to all general rules.

In the *Irish Farmer's Gazette*, 8th November, a Mr. Dixon gives the result of his experiments in planting large and small seed potatoes the past season. The large potatoes selected weighed about half a pound each—planted exactly a yard apart, each way; product, a few pounds short of eight tons per acre. The small seed, either whole or cut in the usual way, yielded seven tons per acre. The samples from the large seed were *decidedly* the best.

Yes, large seed potatoes are preferable to small, beyond a doubt; but those of medium size, *uncut*, are better than either; and although small ones will give nearly as large a crop, especially if the season is wet, yet they never should be planted, except when others cannot well be obtained, and then the produce should not be used for seed the next year.

To double crops, on most farms, about all that is necessary is, for our farmers to sell of one-half their land, and with the proceeds buy manure for the other. The larger the farm, the less a man gets to the acre.—*Farmer & Visitor.*

Why not double the labor and the manure, and make the increase of crops pay for both, and leave a profit? *It can be done.* We want a farmer to have land enough to call out his faculties and make a man of him. He can't be much of a man on a mere patch.

VERMONT VERD ANTIQUE.

Our readers may recollect that we made statements in relation to this rock in one or two numbers of the last volume. The facts there stated, have been made the subject of careful investigation by some of our learned chemists, and among others, by Dr. Chas. T. Jackson and Dr. Hayes, of Boston. A paper on the subject was read before the Boston Society of Natural History in February last, and is published in the January number of the *American Journal of Arts and Sciences.* From this we learn more of the details of the various experiments than we have seen elsewhere. It appears that the white veins are composed of carbonate of lime, chiefly, (as we asserted) with a small portion of carbonate of magnesia and carbonate of iron. It differs very little from the verd antique of Europe. The proportion of silex in the serpentine part is about 42 per cent., and of magnesia, from 30 to 35 per cent. A specimen of verd antique from Lynnfield, Mass., contained only 37·5 of silica and 41 of magnesia. These analyses prove the identity of composition of the verd antique of Europe and this country. Dr. Jackson also reäffirms what we have before stated, that the Vermont rock is uncommonly durable, and is remarkable for its power of resisting atmospheric agencies, acids, and fire.

Our original statement is fully confirmed by Dr. Jackson, that this valuable material for ornamental architecture is a "serpentine mixed with and containing numerous veins of magnesian carbonate of lime." We only add that it is exceedingly beautiful, beyond any other ornamental "marble" we have ever seen, and is more durable than almost any of the pure marbles. P.

Artificial Milk.—The savans of Europe have discovered a mode of preparing "artificial milk," which though more expensive than that adopted by our milkmen, may be more worthy of imitation. But even this, they say *is* not milk, though it resembles milk in color, consistence, odor, and even taste. It is prepared as follows: In a Papin's digester, put one kilogram of meat, with five times as much water. Seal the top hermetically. A current of steam between its double sides raises the temperature to 140° F. In forty minutes, open a small stop cock, and a vapor issues having the odor of broth; but after a few seconds there issues a white liquid, which is the artificial milk. The residuum is only bones, meat, and soup of inferior quality. This milk is, obviously, an emulsion produced by the fat and water, with gelatine. It is quite nutritious. Its utility, etc., are under trial in some of the hospitals in Paris. P.

Laughter.—We have long regarded free, unrestrained laughter as conducive to health; but if the Messrs. Fowler, of the *Water-Cure* and *Phrenological Journals*, are right, it is a more potent remedial agent than even we had suspected. Hear what they say:

As a remedial agent nothing equals it. One hearty laugh every day will cure each and all who are sick or any way ailing of whatever complaints, and keep those in health always well. The laugh-cure will even beat the water-cure, potent as it is. And the two combined, if universally applied, would soon close up every apothecary shop, lay every physician, water-cure included, and banish every disease from among men

All its giggles effectually stir up every visceral organ, churn the stomach and bowels more effectually than any thing else can possibly do—hence the easy laughers are always fat—hurrying the blood throughout the system with a real rush, burst open closed pores, and cast out morbid matter most rapidly—for how soon does hearty laughter induce free perspiration—set the brain in motion to manufacture emotions, thoughts, and mentality, as nothing can excite it! and universally practiced, would be worth more to the race than if California gold deposits covered the whole earth! Laughter is life; while sadness and long-faced sedateness is death.

A cotemporary relates the following story of a medical gentleman of the benefits of a good hearty laugh:

While on a pic-nic excursion with a party of young people, discerning a crow's nest on a rocky precipice, they started on in great glee to see who could reach it first. Their haste being greater than prudence, some lost their holds, and were soon rolling and tumbling down the hill-side, bonnets smashed, clothes torn, postures ridiculous, but not one hurt. Then commenced a scene of most violent and long-continued laughter, and in which, being all young people, well acquainted with each other, and in the woods, they indulged to a perfect surfeit. They roared out with merry peal on peal of spontaneous laughter; they expressed it by hooting and hollowing when ordinary laughter became insufficient to express the merriment they felt at their own ridiculous situation, and those of their mates; and ever afterward the bare mention of the crow's-nest scene occasioned renewed and irrepressible laughter.

Years after, one of their number fell sick, became so low that she could not speak, and was about breathing her last.

Our informant called to see her, gave his name, and tried to make himself recognized, but failed, till he mentioned the crow's nest, at which she recognized him, and began to laugh, and continued every little while renewing it; from that time she began to mend, recovered, and still lives a memento of the laugh-cure.

Here is something for those who wish to be Beautiful.—A truth, which we have often appreciated, is beautifully expressed in the following:

"As we were about to start, I saw the captain move to an elevated position above the wheel; and it was interesting to see how quickly and completely the inward thought or purpose alters the outward man. He gave a quick glance to every part of the ship. He cast his eye over the multitude coming on board the ship, among whom was the American ambassador to England, who, if the captain may be said to embody the ship, may be said with equal truth to embody in his official person a nation's right and honor. He saw the husbands and wives, the mothers and children, intrusted to his care; and his slender form, as he gave the orders for our departure, seemed at once to grow more erect and firm; the muscles of his face swelled; his dark eye glowed with a new fire; and his whole person expanded and beautified itself by the power of inward emotion. I have often noticed this interesting phenomenon; and have come to the conclusion, if man, or woman either, wishes to realize the full power of personal beauty, it must be by cherishing noble hopes and purposes—by having something to do, and something to live for, which is worthy of humanity, and which, by expanding the capacities of the soul, gives expansion and symmetry to the body which contains it."—*Prof. Upham.*

Association of the Sexes.—The author of a work on amusements well observes: "The natural and only safe mode of enjoying amusements, is in common. Where one sex, or any one particular class, enjoy their amusements alone, they are sure to run into excess. The division of the human family into man, woman and child, father, mother, brother and sister, is the only conservative principle of society; they act and reäct upon each other like the different seasons of the earth. Each age and each sex has its peculiar characteristics, that serve to modify and check certain mischievous tendencies in the other sex, and in others of different ages.

"For one sex to attempt to amuse themselves agreeably and innocently alone, is like trying to make music on a one-stringed instrument; it has about it a sameness that is tedious and annoying. The union of the aged with the young, the fair with the manly, in our diversions, brings every source of social improvement and enjoyment together—age with its gravity and experience, mid-life with its energy and its cares, and youth with its vivacity and its hopes. Is it right for the aged to censure and discourage the innocent amusements of the young, merely because they fear that they may be carried to excess, when, by presiding at those diversions, they can effectually prevent it?"

THE FOLLOWING IS HANDED TO US AS A PRETTY RESPECTABLE PIECE OF NONSENSE ABOUT GUANO.—Although some people may be inclined to doubt the truth of the following yarn, we can bring forward any quantity of vouchers. An old salt of our acquaintance, says that when he was in the guano trade he sailed as mate of an old brig which might have been a tender to Noah's ark. On a return trip with a load of guano, the hatches were left open one night, and a tremendous shower wet the guano in the hold, and produced the most surprising effect. The timbers of the vessel sprouted and grew in all directions. Between decks was a complete bowery. The forecastle became an almost impenetrable thicket, and the cabin a beautiful arbor. The rudder-post being made of white oak, grew up into a "live oak" tree, which afforded a grateful shade to the man at the helm, though he was sometimes annoyed by the acorns rattling upon his tarpaulin hat. The masts became very imposing with their evergreen foliage, and, strange to relate, the foretopmast, which had been carried away in a gale, grew out again, and the altitude of all the masts was so much increased as to render the brig exceedingly crank. The vessel had boughs on her stern, and the figure head (speaking figuratively) was as full of boughs as a dancing master. They were obliged to prune the bowsprit and some of the spars twice a week. The quarter-deck was covered with shrubbery, and the cook's caboose resembled a rustic summer-house. Crab apples grew on the pump handle, and a cherry table in the cabin bore fruit. Perhaps the most remarkable circumstance occasioned by the stimulating and fertilizing influence of the guano, was that the cockroaches on board became so large that they could get up the anchors and make sail on the brig. One of the owners of the craft facetiously remarked that she went out a full rigged brig and came home half *bark*. There is nothing like guano to make things grow, and for strict truth and veracity give us an old sailor when he lays himself out on a big yarn.—*Boston Herald.*

FLAX.—The best ground for this plant is an open, somewhat friable clay, mingled with sand and mould—the seeds ought to be sown thick, whereby the stalks are forced to grow more slender, and thus the fibres of the bast or harl are not only smoother and finer, but more uniform in length—should be sown in rows in this country for irrigation; if the raising of the seed be the principal object, the seed should be more thinly sown.

When the flax is ripe, which is shown by the bottom of the stalk becoming yellow, and the leaves beginning to drop off, it must be immediately pulled up by the roots. The seeds in this state, are still immature, fit merely for the oil-press and not for sowing. When the seed crop is the object, the plant must be suffered to acquire its full maturity, in which case the fibres are less fine and soft.

CONGRESS has passed a bill in reference to unoccupied Guano Islands, which is regarded by the agricultural interests of the country with deep solicitude. The bill provides that when any American, in a vessel of the same nationality, shall discover an island, vacant and unappropriated, containing deposits of guano, he may take possession of it for his own advantage, the eminent domain being reserved to the United States, and provided that the price of guano, when imported into the United States, shall be limited by a certain standard name in the bill. The Navy Department has taken lively interest in this matter, and has given all the assistance within its power to the attempts from time to time made for securing to the United States some of the numerous unclaimed islands in the Pacific, covered with guano. Commodore Mervine, in the sailing frigate Independence, set out from San Francisco in December, 1855. Commodore Mervine's instructions were to search for these islands alleged to have been discovered by Caleb Baker of New-Bedford, and if they were found, to take possession of them for the United States. There are six other ships of war in the Pacific, whose commanders have instructions to search for guano islands. Commodore Mervine has returned, but his report is not at all satisfactory to the parties interested.—*American Farmer.*

ORIGIN OF THE WORD TARIFF.—At the southern point of Spain, and running out into the Straits of Gibraltar, is a promontory, which, from its position, is admirably adapted for commanding the entrance to the Mediterranean, watching the sight of all ships. A fortress stands upon this promontory, called now, as it was in the times of Moorish domination, *Tarifa*. It was the custom of the Moors, to watch all merchant ships going into or coming out of the midland sea, and issuing from the stronghold, to levy duties according to a fixed scale on all merchandise passing in and out.

And this was called from the place where it was levied, *tarifa*, and from this comes our word tariff.

A Manufacturer Made a Peer.—England is fast progressing in Democracy and sound policy. The Manchester *Guardian* states that Mr. Strutt, a manufacturer, has been created a peer, under the title of Baron Kepler. This is the first mill-owner who has been created a Peer, and is a new sign of times in England, as it marks the surrender of feudalism to industry. It is something for those who claim to be the descendants of the mailed barons to receive into their number and order a man who has made a fortune with spindles and looms, and who still pursues the same calling.

The House of Peers is more democratic than many may suppose. Lord Lyndhurst is the son of a portrait painter, and Lord Campbell, Chief Justice of England, was once a poor man, and the reporter of a newspaper.

Merit Rewarded.—Thomas Clark, Esq., favorably known to the city press as the gentlemanly manager and superintendent of the Newspaper Department in the City Post-Office, received on New-Year's Day a substantial token of the appreciation in which he is regarded by his fellow employees in that establishment. The present consisted of a solid silver tea service properly inscribed and elaborately ornamented. This token is particularly gratifying to Mr. Clark, as it was, we are informed, entirely unexpected on his part. We may add that the compliment was bestowed upon a most worthy gentleman.—*Scientific American.*

We cheerfully add our testimony to the uniform courtesy and gentlemanly bearing of Mr. Clark in all our intercourse with him. We are happy to note such incidents as that above mentioned.—Eds. P., L., & A.

Joseph Harris, Esq., editor of the *Genessee Farmer*, an excellent monthly, published at Rochester, N. Y., at the very low price of 50 cents a year, fully endorses our opinion that "a farmer should have at least two agricultural papers, one in his own region, and one more distant and general"; and that "a farmer who is feeble in body, and cannot do hard work, will get on better, if read up in his business, than one as strong as Samson without that advantage." He says, and we think justly, "It is the duty of every farmer to help sustain the agricultural paper published in his own nighborhood, and if it is not good, to try to make it better by communicating his experience; but he should also take a paper that elucidates principles which can be applied in all countries and climates."

Book Notices, Etc.

Neighbor Jackwood. By Paul Creyton, author of Father Bright Hopes, Martin Merrivale, etc. "A certain woman went down from Jerusalem to Jericho and fell among thieves." Boston: Phillips, Sampson & Co. 1857. 414 pages, 12mo.

If our readers remember our notice of Martin Merrivale, some year or two ago, they are prepared to see a very strong commendation of this author as one of the ablest writers of fiction now living. Who he is, we know not. But he has a talent for writing rare in any country and in any age; and though he weaves into this story a sprinkling of one of the *popular* topics of the day, his Martin Merrivale proves him to be quite competent to write a powerful book, without any adventitious aid of this sort.

The Principles and Practices of Baptist Churches. By Francis Wayland. New-York: Sheldon, Blakeman & Co. 1857. 336 pages, 12mo.

Dr. Wayland is too distinguished as a scholar and author to be unknown to our readers. Hence we only need to say that this reprint of what has before appeared in periodicals, is very handsomely printed, and in a condensed form, gives, in Dr. Wayland's pure Saxon style, the principles and practices of one of the great sects of this country. He tells us very many very important truths that would be useful to all denominations.

"THE MODERN WHITFIELD." Sermons of the Rev. C. H. Spurgeon, of London, with an introduction and sketch of his life. By E. L. MAGOON. New-York: Sheldon, Blakeman & Co. 1857. 320 pages, 12mo.

The "introduction" contains a very brief sketch Mr. Spurgeon, and is made an occasion for saying many good things about education, and not a few very foolish and harmful things. We do not like its spirit, and yet it presents some very fine hits. Thus a father who spends much money in the education of a son, without making a man of him is made to say with Aaron of old, "I cast gold into the fire and there came out this calf." It was not necessary to decry the value of education, even to one of small capacities, while he was poring incense before Mr. Spurgeon. Mr. Spurgeon's Sermons exhibit much valuable truth, in a very taking way, but more familiarly with books if of the right kind, would have led him to avoid such a phrase as "if I were to preach nothing but what would please *the whole lot of you*, what *on earth* should I do;" nor *before the dawn of creation*, would God have made "the placid clouds his canopy;" nor would he have described saints as those who "tread the golden streets borne aloft on the wings of the spirit;" the wings and being borne aloft might make his *tread* at least uncertain. He says "The will is somewhat worse than the heart to rend, but there is one thing that excels the will in its naughtiness, and that is the imagination." Perhaps he is correct in this. But the sermons are rich in thought, and abound in illustrations of very original character, and sometimes very beautiful, though marred occasionally with such imperfectations as we have just mentioned. The book will be read with great profit and pleasure.

ELECTRIC MAGAZINE OF FOREIGN LITERATURE. New-York: 5 Beekman street. W. R. BIDWELL, Editor and Publisher.

This well known journal still maintains its high rank in the literary publications of the country, without abatement. Its monthly issues contain 144 pages of choice foreign literature, handsomly printed and covered, at $5 a year. It occasionally contains elegant engravings of distinguished men.

List of Patents

ISSUED FROM THE U. S. PATENT OFFICE FROM NOV. 26 (THE TERMINATION OF THE PREVIOUS LIST) TO DECEMBER 24.

Frederic Allen, Worcester, improvement in mop-handles.

Moses S. Beach, Brooklyn, improvement in feeding paper for printing presses.

Edwin Bennett, Baltimore, improvement in earthen vessels for hermetrically sealing purposes.

John E. Derby, Boston, wristband fastener.

William Filmer and Edward Bookhout, New-York, mode of packing electrotype plates.

Robert Griffiths, Philadelphia, improvement in nut machines.

John P. Hayes, Philadelphia, improvement in ovens.

Jonathan P. Grosvenor, Lowell, Mass., improved method of champing cutters in cutter heads for planing machines.

Stephen R. Hunter, Courtlandt, N. Y., improved raking apparatus for harvesters.

Martin Gore and John P. Gore, St. Louis, improved rock drilling machine.

James H. Morley, St. Louis, improvement in railroad chains.

Henry Newmenger, Nacaugie, Pa., improvement in pentagraphs.

Horace W. Peaslee, Malden Bridge, N. Y., improvement in drying cylinders for fibrous manufacture.

E. Y. Robbins, Cincinnati, improvement in the baby waker and jumper.

Harley Stone, Uxbridge, Mass., and Mason D. Cole, Blackstone, Mass., improvement in expanding tap.

Stephen Scotton, Richmond, Ind., ice-saw.

Wm. H. Saunders, Hastings, N. Y., improved axle box.

Henry M. Walker, Watertown, Ct., improvement in the Siphon a' Clapit.

Albin Warth, New-York, improvement in converting rotary into reciprocating motion.

Jesse Whitehead, Manchester, Va., improvement in self-acting rakes for harvesting machines.

Job White, Belfast, Me., improved method of applying steam to and of cutting scarfs from wood.

Orin O. Witherell, New-York, improvement in wrenches.

Theodore T. Woodruff, Alton, Ill., improvement in railroad car seats and couches.

Thomas Floyd, Chambersburg, Pa., assignor to Thomas Floyd and Geo. H. Meraling, of same place, improvement in vault covers.

Vespasian O. Falcolm, Bedford, Mass., and Charles H. Hill, Bellerica, Mass., improvement in engines for grinding paper stock.

Edwin Jones, Greenfield, Mass., improvement in the Bramah planing wheel.

Andrew L. Fuller, Clinton, Mass., improvement in covering thread with wool.

David W. Smith, Boston, improvement in steering apparatus for ships.

Jas. Smith, Jr., Norton, Mass., improvement in casting metalic tubes.

Nathan Ames, Saugus, Mass., assignor to the Boston Hand Stamp Co., Boston, Mass., hand stamp.

Design—George Bruce, New-York, design for printing types.

David Baldwin, Godwinville, N. J., machine for feeding paper to printing presses.

Henry M. Bonney, New-Bedford, Mass., improvement in sail hanks.

Timothy Brown, Georgetown, N. Y., alloy composition.

Alfred S. Beebe, Fall River, improvement in valve gear for steam engines.

Robert J. Brown, Perry, Pa., improved yielding joint for portable fences.

Wm. S. Blake, Boston, improvement in floats for steam boilers.

Martin Buck, Jas. H. Buck, and F. A. Cushman, Lebanon, N. H., improved machine for pressing hollow bricks or building blocks.

James W. Campbell, Brooklyn, improvement in elliptographs.

Job Cornell, Brooklyn, and Barnett McDougall, New-York, gas burner.

Wm. B. Coats, Philadelphia, improvement in machines for cutting the stalks of standing corn.

Erastus W. Ellsworth, East Windsor Hill, Ct., improved arrangement of valves, etc., in siphon rams.

Elie Joseph Hamant, of the Kingdom of Belgium, process of mashing grain.

Horace L. Hervey, Quincy, Ill., improvement in pocket lamps.

Thos. Hoge, Waynesburg, Pa., portable prairie fence for stock pen.

F. A. Hoyt, Boston, improvement in water gauges for steam boilers.

M. G. Hubbard, Penn Yan, improvement in teeth for reaping machines.

Wm. Mussehl, New-York, improvement in potato diggers.

Hudson Osgood, Waterville, Me., improved planing machine.

Silas S. Putnam, Boston, improvement in machines for forging iron.

Wm. G. Phillips, Newport, Del, improved approach-opening gate.

Charles Ratcliff, Cincinnati, improvement in nut machines.

Obediah Rich, Cambridge, process of preparing tannate of lime. Patented in England Dec. 18, 1854.

Isaac S. Roland, West Earl, Pa., improvement in washing machines.

Hamilton E. Smith, Philadelphia, improvement in corn shellers.

Lemuel Smith, Plymouth, Ct., improvement in lathes for irregular forms.

Chas. A. Shaw, Biddeford, Me., improvement in churns.

Wm. Tinker, Kelloggsville, Ohio, improvement in harvesters.

Anson Thompson, Glenn's Falls, improvement in implements for rolling seeds in the earth

Wm. H. Walton, New-York, improvement in cleaning the top flats of carding engines.

John J. Westerfield, New-Brunswick, N. J., improved method of cutting curved moldings.

Henry Wyant, Knox county, Ind., improvement in seed planters.

Chas. Atwood, deceased, late of New-York, per his administrators, improvement in machine for sticking pins.

Wm. P. Surgery, Hackney, Great Britain, assignor to Chas. A. Stanley, New-York, improvement in cigars. Patented in England, Sept. 25, 1854.

Tohn Taggart and Leonard A. Grover, Roxbury, Mass., assignors to themselves and E. W. Banker, Boston, Mass., improvement in machines for husking corn.

John Underwood, Lowell, improvement in the cylinder and piston of hydraulic and steam engines.

Wm. A. Vertrees, Winchester, Mo., improvement in churns.

Robert Bryson, Schenectady, improvement in machines for husking corn.

Frederick Berry, Harrisburg, improved machine for stamping leather, combined with a rolling machine.

Erastus W. Ellsworth, East Windsor Hill, Ct., improvement in feed water pumps for steam boilers.

R. L. Haws, Worcester, machine for paging books, etc.

James M. Kern, Morgantown, Va., improvement in seeding machines.

Goodrich Lightfoot, Elgin, Ill., improvement in churns.

C. A. McPhetridge, St. Louis, candle-dipping machines.

Edwin Moore, Avon, improvement in seed planters.

Joseph Nason, New-York, improvement in connecting tubes,

John Neville, New-York, assignor through himself and Lemuel Curtis, of New-York, to the Damascus Steel Manufacturing Company, Croton, New-York, improvement in making cast steel.

Willis H. Johnson, Springfield, Ill., mode of incorporating bituminous liquids with wet earths for cement.

James Reynolds, New-York, mode of making gutta percha cord.

Marshal Turley, Galesburg, Ill., improvement in prairie mows.

Levi Van Hessen, Westville, Ct., trap for catching fish.

George Watt, Richmond, Va., improvement in ploughs.

Moses D. Wells, Morganstown, Va., improvement in seeding machines.

Samuel Carson, New-York, assignor to the American Railway Manufacturing Company, New-York, aforesaid, method of charging the receiver of a locomotive with compressed air from fixed stations.

Charles G. Sargent, Lowell, and Abram Keach, Boston, assignors to Abram Keach and Caleb M. Marvel, Lowell, aforesaid, improvement in printing presses.

Mark Allceett, Hancock, N. H., improvement in adjustable cant hook for moving logs, etc.

Emanuel Andrews, Elmira, improved machine for grinding saws.

Solomon Andrews, Perth Amboy, improved case for padlock.

Clark H. Brown, Forest Port, N. Y., improved method of placing and tapering wooden hoops.

William Beach, Philadelphia, improvement in rake pans.

John Butler, Dunmore, Pa., improvement in valve motions for steam engines.

Wm. E. Copeland, Fall River, improved spring bolt.

Jabez Coney, Boston, improvement in pumps.

Chas. Flanders, Charlestown, Mass., improvement in railroad car coupling.

John Edwin Forbes, Hoboken, N. J., improvement in skate runners.

George H. Fox, Boston, and Henry J. Siller, East Cambridge, Mass., improved filtering faucet.

Harvey Gray, Bristol, Ct., improvement in lifting jack.

James E. A. Gibbs, Mill Point, Va., improvement in sewing machines.

John Heller, East Lampeter, Pa., improved portable water-mill.

James G. Hunt, Reading, O., improved portable field fence.

Lewis Jennings, New-York, improvement in sewing machines.

Peter H. Jackson, New-York, improvement in ship's windlass.

Joseph Kingland, Jr., Franklin, N. J., improvement in machine for grinding paper pulp.

Horatio Keyes, Leominster, Mass., improvement in machines for paring apples.

Samuel Klahr, Reamstown, Pa., improved boring machine.

Wm. Lewis, and Wm. H. Lewis, New-York, improvement in photographic baths.

Joseph Thomas McIntyre, Middletown, Del., improvement in railroad gate for cattle-guard.

Robert J. Morrison, Richmond, Va., improvement in harvesting machines.

William Moultrie, New-York, for press for printing hat linings.

Patrick Mihan, Boston, improved chimney cowls.

Jeremiah W. Mulley, Amsterdam, N. Y., improved mowing and reaping machine.

Thomas Nelson, Troy, N. Y., improvement in machinery for weaving shade cord.

Thomas B. Stout, Keyport, improvement in grinding-mill.

John S. Sanson and Wm. P. Farrand, Philadelphia, improved machine for making metalic slats for blinds.

Daniel C. Smith, Tecumseh, improvement in reaping and mowing machines.

Thaddeus F. St. John, Le Roy, N. Y., improved machine for wiring blind rods.

William H. Seymour, Brockport, N. Y., improved finger bar for harvesting machines.

Wendell Wright, New-York, mode of securing springs in upholstery.

Richard Shroder, Darlington, Pa., assignor to John S Russell, of Pittsburgh, Pa., and Richard Shroder and Alexander Anderson, of Beaver county, Pa., improvement in apparatus for coal oil.

Chas Moore, Hartford, Ct., assignor to William G. Sheldon, of New-York, and Lorenzo B. Chandler, and Charles Moore, aforesaid, machine for cutting and folding paper.

Solomon W. Ruggles, Fitchburgh, Mass., assignor to Silias Ruggles, of same place, improvement in wind-mills.

Thomas D. Burrall, Geneva, New-York, improvement in reaping and mowing machines.

John C. Pedrick, Washington, D. C., improved apparatus for drying grain in the mass.

Jonathan Adams, Eastonton, Ga., improvement in ploughs.

Harry Abbott, Huron, N. Y., improvement in cider mill.

John Armstrong, New-Orleans, La., improvement in steam boilers.

G. H. Babcock, Westerly, R. I., improvement in printing presses.

Wm. W. Bryan, Schaghticoke, N., Y., improved mode of securing brass in the snath of a grain cradle.

Wm. B. Burnett, Lyons, N. Y., improved portable field fence.

Chauncy O. Crosby, New-Haven, Ct., improvement in machinery for folding paper.

Ralph Collier, Baltimore, Md., assignor to Alfred H. Reip and Ralp Collier, same place, improvement in rotary egg beaters.

Theodore Cook, Springfield, Mass., improvement in stoves and furnaces.

Henry Davenport, New-York, N. Y., improvement in machines for cutting India-rubber thread.

Platt Evans, Jr., Cincinnati, Ohio, hand printing press.

Andrew L. Fuller, Clinton, Mass., improvement in looms.

John T. Garlick, New-York, N. Y., improved spring hinge.

C. B. Galentine, Samuel Galentine, and Andrew J. Russell, Nunda, N. Y., improved hoof expander.

Andrew M. Hall, West Falmouth, Me., improvement in mowing machines.

Edward B. Howe, Lowell, Mass., improvement in trimming card clothing.

Sandy Harris, Philadelphia, Pa., improvement in bedstead fastenings.

Jacob Heckeedorn, Elkton, Md., improvement in ploughs.

Joseph Kingsland, Jr., Franklin, N. J., improvement in paper-pulp engines.

Edward W. Lacy, Oak Park, Va., improvement in hemp brakes.

Jesse Ladd, Holderness, N. H., improved machine for pointing shoe-pegs.

Wm. R. Landfear, Manchester, Ct., improvement in sewing machines.

James Letort, Wytheville, Va., improved door fastener.

Wm. Mather, Slack, Ky., improvement in blacksmiths' crane.

Samuel Gissinger and John W. Kellberg, Alleghany City, Pa., assignors to D. A. Morris, Pittsburgh, Pa., improvement in converting reciprocating into rotary motion.

Wm. Mason, Warren, Mass., improved device for operating fluid meters by hand.

Wm. H. McNary, Brooklyn, N. Y., improvement in the manufacture of hoisery.

Lea Pusey, Downington, Penn., arrangement of railroad platform scales.

John H. H. Perkins, Utica, N. Y., improvement in hot-air furnaces.

Hermann Schroeder, Lewis Sulewski, and Wm. Schmidt, Bloomington, Ill., improvement in breech-loading fire-arms.

Seligman Strouse and Joseph Strouse, New-York, N. Y., improvement in shirts.

Levi Skeels, Ostrander, Ohio, improvement in tinners' shears.

Edgar M. Stevens, Boston, Mass., improvement in corn shellers.

Sylvester J. Sherman, New-York, N. Y., improvement in truss pads.

Werner Staufen, Prussia, improvement in preparing vegetable fibres for stuffing mattresses and cushions. Patented in England Nov. 2, 1855.

Alfred E. Smith, Bronxville, N. Y., improved mode of connecting shafts with the axletrees.

John Stowell, Charlestown, Mass., improved method of hanging reciprocating gig saws.

Gideon O. Spence, Elmira, N. Y., improvement in melodeons.

Clark Tompkins, Troy, N. Y., improvement in knitting machines.

Joseph Welsh, Philadelphia, Pa., improvement in lubricating spindle steps.

A. F. Warren, Brooklyn, N. Y., fountain pen.

Allen B. Wilson, Waterbury, Ct., improvement in portable head rests.

Wm. Hannah, Middlefield, N. Y., assignor to L. H. Bowen and Wm. Hannah, aforesaid, improved machine for trimming bolts.

Elnathan Sampson, Vergennes, Vt., assignor to the "Vergennes Scale Manufacturing Company," of Vergennes aforesaid, improvement in weighing scales.

Andrew Grimes, Lancaster, N. Y., assignor to Chas. Day, of same place, improvement in burning charcoal.

Sylvester H. Gray, Bridgeport, Ct., assignor to himself and Francis Ives, same place, improvement in machinery for sizing hat bodies.

Benj. G. Dawley, North Providence, R. I., assignor to Z. Allen, same place, improvement in looms.

Elkan Alder, New-York, N. Y., improvement in spring-bed bottoms.

Moses S. Beach, Brooklyn, N. Y., machine for feeding paper to printing presses.

James Bolton, Richmond, Va., improvement in horse fastening.

Jos. Carpenter, Yorktown, N. Y., improvement in harvesting machines.

N. C. Sherman and S. Mason, Hazle Green, Wis., improvement in seed planters.

A. F. Johnson and F. A. Houghton, Boston, Mass., improvement in sewing machines.

Jos. Kingsland, Jr., Franklin, N. J., improvement in the process of grinding paper pulp.

John Case and Isaac Soules, Amsterdam, N. Y., improvement in smoke consuming furnaces.

John J. Squire, St. Louis, Mo., improvement in hay rakes.

John Worsley, Providence, R. I., improvement in manufacturing calendar rolls.

Charles Winship, New-Haven, Ct., improvement in refrigerators.

Jerome B. Woodruff, Washington, D. C., improvement in sewing machines.

E. K. Hayares, assignor to A. M. Mowe, Lebanon, N. H., and E. K. Hayares aforesaid, improvement in machines for sewing seed broadcast.

James A. Bazin, Canton, Miss., improvement in counting machines.

Additional Improvement.—Abner N. Newton, Richmond, Ind., improvement in breech-loading fire-arms. Patented June 27, 1854; additional improvement June 17, 1856.

RE-ISSUES.

Henry A. Chapin, Springfield, Mass., improved machine for reaming and tapping gas fittings; patented July 1, 1856.

Edward Lindner, New-York, N. Y., improved magazine, repeating and needle gun. Patented June 27, 1854.

Edward Lindner, New-York, N. Y., improved magazine, repeating and needle gun. Patented June 27, 1854. Re-issued on division.

John G. Machair, Norwich, Ct., improvement in manufacturing carpet. Patented August 7, 1855.

Thos. D. Worrall, Lowell, Mass., assignee (through Mifflin Paul) of Thos. Worrall, for multiform moulding plane. Patented August 29, 1854.

DESIGNS.

S. W. Gibbs, Albany, N. Y., assignor to G. W. Ball & Co., Cincinnati, Ohio, design for cooking stoves.

Garretson Smith and Henry Brown, Philadelphia, Pa., design for cooking stoves.

John T. Davy, Troy, N. Y., design for parlor grates.

John T. Davy, Troy, N. Y., design for cooking stoves

John T. Davy, Troy, N. Y., design for parlor cooking stoves.

John B. Wickersham, New-York, N. Y., design for metallic bedsteads.

Antoine Glominski, Lansingburg, N. Y., assignor to Deborah, Albert E., and Nathaniel B. Powers, same place, design for floor-cloths.

AGENTS FOR THIS JOURNAL

Are as follows: and no other names are recognized, as such, at this office.

S. D. Allen, Paul A. Davis, in the Northern and Middle States; James Deering and Henry M. Lewis, in the Southern States. Require a certificate of agency from all others who present bills, the date of which is as recent as July, 1856.

The Plough, the Loom, and the Anvil.

Vol. IX. MARCH, 1857. No. 9.

Agricultural.

EDUCATION FOR THE YOUNG FARMER.

It would be erroneous to suppose that education for a particular employment could fit any one for it without practice. The idea would be too much like that of the hero in one of Æsop's fables, who, after a narrow escape, "swore not to touch the water until he had first learned to swim."

It would be hardly less laughable, to expect that education alone, without practice, would qualify a young man to take charge of a farm. We would about as soon trust to a swimmer, who had never touched the water, to save us from drowning, as trust the care of agricultural property to a man who had been educated aloof from the farm. Education, in the limited sense of *training and informing the mind*, is not sufficient to make a farmer.

No amount of education, in the foregoing limited sense, nor even if conjoined with practice, can make a young man as well qualified to manage a farm, at twenty, as at a later period of life. Some things *must* be learned by experience; and farming is one. We have not the remotest idea of making the young men wiser than their fathers. If they can learn more than their fathers had learned at their age; and then can by due diligence maintain that advantage through life, a progress, from one generation to another, will be indicated; and there will be a ground for the hope that the farmer will ere long—in another generation, if not in this—attain that position and influence which the public good requires that he should hold.

Discarding then all extravagant expectations, as that books and schools alone can make good farmers, or that any training whatever can make the sons at twenty as skillful in their business as the fathers at sixty, but indulging what we regard as only a reasonable hope, that there may be some progress among farmers, as among those of other callings, from one generation to another, we inquire, *What is the education wanted by the young farmer*, and *How is it to be obtained?*

So many foolish things, as it appears to us, have been said on this subject, that we fear to say much, less we should seem to others to talk as foolishly, as *some* others seem to us to have done. The questions we have proposed are susceptible of a great variety of answers. Indeed, a great many are already before the public.

The first question is, What is the education wanted by the young farmer? Is it peculiar? To some extent it is; and for this reason we highly approve the expression so often used, "educated for the farm." But we remember that the ox is educated for the farm. Many an ignorant laborer, with only one degree of intelligence above the ox, is educated for the farm. Both will do good service if directed wisely. But when we speak of education for the *farmer*, we mean something very different. The idea of an unintelligent drudge does not enter our head. We think of a man who is to work—work is in our esteem honorable, health-giving, promotive of happiness—but not of one who is to work himself *down*. The farmer should be *up* in the world, and if we could have our way he should be.

The idea that the farmer must necessarily work with such severity as to reduce him to a drudge, to disqualify him for society, for enjoyment, for general usefulness, to put him behind others in point of elasticity of mind, cheerfulness, courage, influence, and a decent conformity to the usages of society, is only because too many farmers will have it so. They first create, and then complain of, a low estimation of their calling. When we speak of education for the farmer, we always mean more than we say. We mean education for an American citizen—one who choses to cultivate the soil for a livelihood, but who means also to be a good and a useful citizen, at home on the farm, but not unknown beyond it, cognizant of his duties to the town, the county, the State, and the country.

Nine tenths, then, of what the farmer needs to know, is just what all other good citizens should know. He wants a mind, cultivated by study, its powers so developed as to afford him a consciousness that he is not inferior to those around him. The object of a large portion of the education suitable for a young farmer, is not primarily to make him a farmer, but to make him a *man*, such a man as would grapple with any profession and do honor to any. If, then, he chooses to devote himself to what has too often been called the very humble calling of agriculture, that calling will be less humble for his being in it. No calling can long be thought low if filled by intelligent, educated, reading, *thinking* men. That farmers of the present generation even can be such, if they will; that their children, *if they will*, can advance somewhat beyond their fathers; and that each succeeding generation can elevate themselves and consequently their calling still higher, is our firm belief.

Whatever is peculiar, in the education required for the young farmer, seems to us to be, that while he should strive to be as well informed as others in all the branches constituting a good general and business education, he has more need than any others to be instructed in natural history. Analytical chemistry has become a branch of business by itself. To excel in it requires very much time and patient study; and we have always doubted whether the practical farmer should divide his time between that and the labors of the farm. Others, and among them Prof. Mapes of this city, for whose opinions on all subjects of this kind we have a thoroughly sincere respect, think otherwise. Whoever may be in the right in this matter, one thing is certain;—a knowledge of the general principles of chemistry is of great value to the farmer, both as affording pleasure to the cultivator, in the way of explaining many phenomena on the farm not otherwise understood, and of enabling him to comprehend and put into successful practice the instructions of scientific men who write for the farmer. But the natural history of soils, plants, animals and insects is of more practical value to the farmer than to any other class of men. Mechanical philosophy is of hardly less interest to him than to the mechanic; and what is known of climate, he, of all others, should study. Such is his connection with nature, that if his mind be early directed to her laws and operations, he can hardly avoid learning more and more of them through life. Nature herself becomes his instructor. He dwells in her domains, and she will be always imparting lessons to him, if his mind was sufficiently cultivated in the outset to enable him to comprehend them.

Reading, spelling, writing, arithmetic, English grammar, history, natural philosophy, political economy, and some other branches are wanted by the young farmer, in common with all other young men. If, in addition to these, he can get a pretty good knowledge of the general principles of chemistry and an insight into botany, the formation of soils, zoology, entomology, and climatic peculiarities, he will have an education fit to begin life with—such a foundation that he can hardly avoid building upon it, and turning the whole to practical use all the rest of life. Let us be understood. We do not mean that the young man should be withheld from the farm till he has mastered all science; but why should he not be so taught by the best masters, as to enable him to take lessons all the rest of life from nature herself? A man without eyes might wander through gardens, orchards, meadows, and cull no flowers, gather no fruit, admire nothing. It will be so with the farmer, if he enters his profession uninstructed. Nature will invite him, open her cabinets before him, tender him her revelations; but alas! he has no eyes to see, no ears to hear, no disciplined mind to arrange, classify and remember her instructions; whereas, if he had learned but the A B C of chemistry and the natural sciences, these would have been as eyes and ears, through which his daily converse with nature would have poured knowledge into his mind for the rest of life.

Our second question is, How is the young farmer to acquire such an education as is desirable for him? The answer is, that so far as the branches desired are common to him and all others, and these constitute by far the larger portions, he is to seek them at our schools and academies in company with all other young men. As regards the few branches peculiarly important to the farmer, because connected with the every-day business of his life, it is hard to say what should be done. Shall these branches be pressed into our public schools? If so, it would manifestly be only for the benefit of the older pupils. The majority would be too little advanced to be able to receive much benefit; and two great difficulties seem to be in the way;—one, the impossibility of supplying these schools with adequate teachers; the other, that if you could procure very Isaac Newtons and Hugh Millers for all our schools, even *they* could not do justice to these sciences, without more expensive apparatus and collections than parents would be willing or able to furnish, nor without neglecting their equally important duties to the smaller children. We leave this matter here for the reflection and suggestions of others.

Shall we have colleges for this purpose? We mean colleges in which farmers' sons, and generally such as desire an education suitable for the farmer, shall be separated into a sort of a clan, and kept apart from all others, during the time devoted to such studies; and we are perfectly free to say that we should want to think a long time, and to anticipate all possible consequences of such a cause, before we could commend it. We see, or think we see, difficulties, more than we have now the space or the disposition to trouble the reader with; and although we have rejoiced in the willingness manifested by legislatures and by individuals to endow such institutions, and that because we have been ready to jump at anything which seemed to promise advancement to the agriculturists, yet we now seriously doubt whether an agricultural college, in any proper sense of that term, ever will be, or ought to be, established in our country. We hope at least that the friends of agriculture and of agricultural education will consider well before they invest large sums in brick and mortar, in the shape of dormitories for such a purpose. It may be well, but we doubt it. If we are not entirely wrong, our colleges for general, or rather for professional education, consist quite too much in tall buildings, and in grossly rude manners, arising from separating those of one sex and of one age from all the rest of humanity, and shutting them up to become vulgar in a too great familiarity with each other. We should be slow to commend any plan which would subject a still larger number of our young men to alike seclusion from general society, with like consequences. That our old colleges are behind the age, nobody doubts. Certainly they are not to be imitated in the construction of new ones for other purposes.

It has seemed to us that instruction in chemistry and the natural sciences in their relations to agriculture, should be given mainly by lectures, the students to read on the subjects, to converse with each other, examine collections, take drawings, etc., as would be best calculated to impress the facts to be retained on the memory. All this would imply that they should have attained some age and mental cultivation beforehand; and what would especially commend this plan to our mind is, that it need not be confined to children, nor to any young persons, but would be suited to persons of any age. Say for instance, that six lecturers, one on chemistry, one on practical agriculture, and four on as many branches of natural science immediately connected with farming, should give each a lecture a day, one from 8 to 9, another from 10 to 11, another from 1 to 2, another from 3 to 4, another from 5 to 6, and another from 7 to 8 o'clock. It would be rather hard work to attend six lectures in a day, and to keep it up five days in a week, for say six weeks in succession, but then farmers expect to work rather hard, and here a great object would be presented. A prodigious amount of instruction could be given. Our idea would not be, that cold, stiffly written lectures should be read, but that the lecturer, being master of his subject, and brim full of it, should *talk* it into his hearers more rapidly, with more familiar illustrations than accord with formally written lectures, with permissions on the part of the hearer to propose an occasional question, and with the passing round of samples or specimens adapted to illustrate the subjects.

A corps of six lecturers, with such apparatus, cabinet, and books, as could be collected, with suitable rooms in which to deposit them, and a large lecture-room, might constitute a sort of agricultural college for a State, made up more of living men than of dead building materials. We would propose that the lecture term should be in the winter, embracing the months of January and February; that these courses should be repeated each winter, with such improvements as the faculty of instructions might be able from time to time to make; and that essentially the same courses should be given by the same lecturers in at least two other important locations within the State each year, say in one just previously to the winter's lectures at the central location, and in the other subsequently to them, so as to bring the whole instruction in the three places between the first of November and the last of April, a time when farmers can better leave home, and better spare their sons than in summer. The places where these courses of lectures should be given, aside from the central point, should be selected with reference to a just distribution of their benefits over the whole State. The faculty might first go to some place where a large and convenient lecture-room should be tendered by the people, and where a guaranty should be given for boarding at a reasonable price all who might wish to attend their lectures; the next place might be in a different part of the State, where the same conditions should be offered; and so round, till in a few years every part of the State should have been reached.

A model farm might be connected with such an institution, or not, as should be thought best. For our own part, we have seen a good many model farms, but the best we have seen are those owned and carried on by private individuals; and we very much doubt whether any one owned by a State, and carried on by its agents, ever has been or ever will be conducted as well.

We have no space to defend the view we have taken against the objections that may arise, nor have we taken space to state it sufficiently in detail, to be quite sure that we shall be understood. Any project by which a few might be instructed at great expense to the State would not suit us. We want a plan by which many may *directly* participate in the benefits without great expense to the State.

Would our plan reach the wants of the many? We think it would. For the already pretty well educated schoolboy, it would be just the thing. The young men already in charge of a farm could attend these lectures with the greatest advantage; and if he should take his young wife along with him, it would not do her the least harm in the world. And the farmer still older, but not too old to learn, might attend, and if his wife, and sons and *daughters even*, should attend with him, so much the better. Recent indications in Bond street, N.Y., and in Higham, Mass., look as if women are *dangerous;* but after all we don't believe it.

With an enormous pile of buildings, a broad farm to be conducted without the owner's presence, and all the uncertainties of an untried enterprise, we should *fear* there would be a failure to make the benefits equal the expenditures, and that the best friends of agriculture would be mortified with the results.

With a corps of lecturers, willing to give their lectures under the most favorable circumstances, at the center of the State, and with such accommodations as could be secured in its circumference, we should expect greater benefits at less cost.

In all this we may be wrong. We are not over confident. Objections we know there are, and we are willing they should be stated in their full force. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

WILL WHEAT TURN TO CHESS?

Whether wheat, under any circumstances, will so degenerate as to turn into Chess—or Cheat, as it is more commonly called—(*Bromus secalinus*,) has long been a subject of controversy; and although much has been said, both *pro* and *con*, the whole matter, as yet, remains *lis sub judice*. This question, although it has excited much interest amongst farmers, will, perhaps, never be answered satisfactorily to all; because all are not capable of reasoning, nor do they seem to appreciate reasons when offered by others. We should think that this controversy might be decided by actual experiment; but this would require much labor and patience, and people in this *fast* age—this age of *steam* and *electricity*—are too anxious to become rich, to spend their time in making experiments which will add nothing to their stores.

We do not expect to be able to say anything new on this hackneyed subject. Our object is rather to elicit the opinion of others, and induce those who may differ from the views here advanced, to bring forth their strong reasons. Perhaps we may be able, after a while, to arrive at the truth on this subject—if not, a good-natured discussion will do no harm.

We shall not attempt to argue this question *experimentally*—for, a satisfactory experiment we have never made—but we think that we may arrive at a pretty fair conclusion, respecting this matter, by observing the laws which nature pursues in the production of plants.

It is an established law of nature, that "everything shall yield seed after its kind." This is one of Heaven's laws, and we have never known a departure from it. If we plant *corn*, we confidently expect the yield to be *corn*—not wheat or rye; if we sow *oats*, we expect a crop of *oats*—not barley or rice; and so of any other grain. Nature is always uniform in her operations, and will never disappoint us. Our success in farming, and our encouragement to cultivate the soil, are based on this unchangeable law. We may be disappointed as to the *quantity* and *quality*, but never as to the *kind*. It may depreciate—the quality may be inferior; and by the mixing of pollen, a *hybrid* may be produced, or new *varieties* originated, but the *kind* will be the same. Or to speak more *botanically*, the *species* may be varied, but the *genus* remains the same under all circumstances. A departure from this law, would introduce disorder and confusion into all the works of nature. We would have no encouragement to sow, because we would have no certainty of reaping what we should sow; and this would contradict an express declaration of Scripture, that "Whatsoever a man soweth, that shall he also reap." It is true, this has reference to man's *moral* conduct; but the language is figurative, and will hold good in *nature*, as well as in *morals*, otherwise the figure would not be a proper one, and would not carry out the important truth intended by the apostle.

It is believed by many, that wheat forms an exception to the general rule; for, under certain circumstances, they say it will produce Chess, which is not a *species* of wheat, but is "*sui generis*"—something of its own kind—distinct in its nature, and entirely different from wheat. Now, this is assertion without proof, or any evidence to support it. Such a thing would be an infringement on the laws of nature.

We admit that, sometimes, there may be a *lusus naturæ*, both in the animal and vegetable kingdoms; but instead of this being a law, it is an exception to, or rather a departure from, a known law of nature; and as such, it has nothing to do with the case in hand, unless it can be made appear that chess is something of the same nature; and this, we think, would be hard to do; for it is a remarkable fact, that in all cases, where nature departs from the common law, there is an end of the race. If, therefore, chess is a sport of nature, then it will follow incontrovertibly, that it never can reproduce itself. But this is contrary to all facts in the case. We know that chess is a kind of grass, perfect in its producing a seed which will readily vegetate, and produce a grass, identically of the same kind; and this, no doubt, it would do, if sown fifty years in succession. It has not the botannical properties of wheat. If chess is either a degenerate plant, or a *sport* of nature, we might suppose that, under certain circumstances, it would *sport back* again, and instead of chess, we might hope to reap a crop of wheat or some other grain; but no, this is not the case. It may be grazed, tramped, and badly frost-bitten, so that we might suppose that it would produce something *inferior* to chess; but no, it turns out to be chess still! If it be sown in good ground, cultivated with the utmost care, and everything being favorable to its improvement, whatever our expectations may be, it still turns out to be chess; and chess, no doubt, it will continue to be, in spite of all our efforts to the contrary!

If wheat forms an exception to every other plant, and will change its nature, turning itself into another *genus*, essentially different from itself, why is it that it does not, sometimes, at least, turn into something else? We never hear of it—even in its most sportive moods—turning into rye or barley, although they more nearly resemble it. Why should it discover such uniform partiality for this particular kind of grass? If chess bears any resemblance to wheat—if any traces of affinity can be discovered between them, so as to prove them as belonging to the same family, then we will give up the point.

We conclude, then, that chess is neither a *hybrid* nor a *lusus naturæ;* but a distinct plant or grass of its own kind, and is, in no sense, an offspring of wheat.

By the natural process of hybridization, we may, and often do, obtain new *varieties* of wheat, but never a new *genus*. Hence, we have the *bearded* and the *smooth headed* wheat—the *early* and the *late*—the *red* and the *white*, etc., etc.

But it is often asked, If wheat never turns to chess, why is it that we so frequently find it amongst that grain? The same question may be asked with regard to cockle. This seems to be as peculiar to wheat as chess; yet no one believes it to be degenerate wheat. The same may be said of yellow seed amongst flax; it seems to be peculiar to that plant; yet no one believes it to be degenerate flax. The truth is, there are certain plants which grow and mature at the same time with others; of course, their seeds become mixed, and it is very difficult to separate them completely—they will be either amongst the grain, or in the soil, after our greatest care to get rid of them. We have known chess to come up spontaneously, in the same ground, for several years in succession, even when it was not permitted to mature its seed. This proves that it is a hardier plant than wheat, and much more retentive of life.

Some seeds have the power of resisting the influences of decomposition, and of retaining their vegetating principle much longer than others. This, no doubt, is owing to the quantity of essential oil contained in the seed. As long as this remains, the seed will vegetate; but when this is destroyed, its vitality is gone, and it will not grow. Some seeds, as the parsnip, carrot, etc., will seldom grow after the first year; while the melon, cotton, castor beans, etc., which abound in oil, will grow for many years, if properly excluded from the influences of air and moisture. It is not improbable that some seeds were so securely deposited in the earth by the flood, that their vitality remains, to this day, unimpaired; and nothing but favorable circumstances are wanting, to cause them to sprout and grow. It is in this way that we may account for the occasional appearance of new plants in different parts of our world. J. R. B.

ROSEMONT, near Nashville, Tenn., Jan., 1857.

It is undoubtedly true that every thing produces after its "kind;" but the word "kind," we think, should be taken as synonymous with species, not with genus. Instead of saying, as our correspondent has, "New varieties may be originated, but the kind will remain the same," or, as he repeats, "more botanically," "the species may be varied, but the genus remains the same under all circumstances," we would have said, *varieties may, and actually do occur, in the same species; but still the specific character remains unchanged.* The term variety, we suppose, is always used to mark peculiarities, not of different, but of the same species; as the Durham, Devon, Hereford, and Alderney cattle; or the red, white, and Egyptian wheat. The former, we understand to be varieties of the same species of animals, and the latter of the same species of plants.

As to the much discussed question of our correspondent, we have no special claim to decide it *authoritatively;* and we will only say that, to us, he seems to have the truth on his side, and to have reasoned justly and forcibly. We believe that all living things, animal and vegetable, were created in "kinds," or species, that improvements and deteriorations are possible, and consequently varieties will spring up in all species; but that each species is destined to remain essentially the same; and that to secure this perpetuity of species, it has been provided that all hybrids shall be incompetent to perpetuate their mongrel nature, being doomed by the unalterable laws of an infinite, overruling mind, either to extinction, or to a return to one or the other of the species from which they sprung, the blood of that species to which they return more or less rapidly resuming its purity, and that of the other disappearing, after a short time in some cases, but longer in others.

With these views we never could believe that wheat will turn to chess. If it were possible, as we do not believe it is, for a hybrid plant, resembling chess, to be produced from wheat and some other plant, we should not expect it to retain its resemblance to chess; but either that its seed would not germinate, or, if it did, that it would return, perhaps gradually, but surely, to one or the other of the plants from which it sprang.

It seems to us that wheat will always be wheat, and chess always chess; that the one will never turn into the other, and that if possibly, either should be so hybridized, that the produce should resemble the other; no permanent, enduring change, would have been wrought.

N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CURE FOR THE GARGET.

Messrs. Editors:—The last Spring, I had a valuable cow that was attacked with the garget, soon after calving. One of the hinder quarters of the bag was so caked and inflamed, that, though ordinarily gentle, she would kick at the touch of it. Finding the following recipe in an agricultural journal, attended with recommends from reliable sources, I was induced to try it, and the result was a perfect cure in a short time.

Take an ounce and a half of the hydriodate of potash, put it in a glass bottle of sufficient capacity, with fifty-five tablespoonfuls of cold water. Shake it until dissolved, and give a tablespoonful three times a day, in shorts or Indian meal wet with water. HUBERT.

CLEAR YOUR APPLE TREES.

You may keep off the caterpillar, if you will; and it will cost you nothing to do it—nothing but what you will be paid for in dollars and cents as you go along, leaving the pleasure of seeing a clean orchard, and the reputation of being a tidy farmer, to be set down as so much clear profit; and certainly it is not small, if self-respect and the esteem of the neighborhood are worth having. You should keep a clean orchard for your own sake, and for the sake of your neighbors. It will be more for them to keep clear of pests if your orchard is a hot-bed for them.

Perhaps you say, your neighbors propagate the pests, and it is vain for you to attempt to keep your orchard much cleaner than theirs. There is something in this. You cannot drive them. Man kind are a little like the Irishman's pig—"won't be driven." But they are like that nobler animal, the horse, in another respect—"love to be led by the nose;" especially if they like the man that leads them. Suppose now, that you clean your own orchard, and then say to your neighbors, "Come on, let's have a clean neighborhood of orchards." "Come" is a softer word than "go." More are persuaded by it.

Yes, clear off the caterpillars. The time is from now as long as as you live, for the Giver of all good never meant that there should be a rose without a thorn; or good, fair, delicious fruit, without care and labor. If he had made the earth prolific of all good things, with no enemies in the shape of caterpillars, canker-worms, weevils, frost, drought, tempest, something to keep man awake, to burnish up his powers, to scrape off the rust, the human race would have been extinct long ago. In baffling, therefore, with the farmer's enemies, think that you are fulfilling one of Heaven's merciful appointments; and do the work cheerfully, hopefully. You'll conquer, if you *will* to conquer.

We have said the time is while you live. Rather discouraging. Not very. If you do the work well from January to August this year, there will be little to do next year, and less year after next, and so on. But how? is the question. Your agricultural papers will tell you a score of ways, all very good perhaps. The agricultural papers are about as good as they can be, till the readers will let us give them better. Farmers miss it, that they do not let us pour the light of science on them; give them hard words when necessary, pages which it would take them a winter evening to conquer, but which they *could* conquer nevertheless, and become scientific men, but for the ridiculous idea that a farmer cannot learn much. The way would become easy, when once entered, just as the caterpillars are more easily kept down the second year than the first, and still more easily the third. But as the farmers will not come to us, we will go to them. Science is bound to bless the farmer. This is its benignant mission.

Science *should* be clothed in her own beautiful garb, and the farmer *should* learn to look upon her with the same pleasure as upon his neatly-clad wife and daughter. But in our practical recipe for expelling caterpillars, we will dress her in a less comely garb—will use no word that would be new to a child; not because this is the best way, but because the farmers, *mistakenly*, as we think, will have it so. Aye! we humor them at their own bidding, but to their own hurt. They are a little like spoilt children in this respect. The naughty schoolboy says, "It will do me no good to learn English grammar; what's the use of algebra for me? I care nothing about geography; I'm to be nothing but a farmer, or a mechanic." So, too, many farmers refuse to learn a few scientific terms, which would be the key to a flood of light on their business, and do more than a little to raise their calling and themselves to a high pinnacle of glory in the eyes of mankind. But let that go.

There are two batches of caterpillars that infest apple and other trees, which have a bitterish and tonic bark and leaf. The apple and the choke cherry, and the common black, or rum cherry, seem to be their favorites. Hence, if the farmer would keep his orchard clear of these pests, he must either cut down the wild cherries and cast them into the fire, or must consent to watch them with the same vigilance as his apple trees. If cherry trees are tall, it is more difficult even to keep them clean. We once had a large orchard with a single black cherry tree in it, tall, straight and beautiful, productive of abundant fruit, a feeding place for flights of birds, which we loved to see gathering there for their food. The tree had grown up spontaneously, and we could not but feel that God had given its fruit for the birds, and as they were willing to take the fruit in its simple God-given state, without adding fire-water, we suspected our right to cut it down. But tall ladders, long poles, and much climbing, were all in vain. It was next to impossible to keep that orchard clean. In spite of all vigilance, the caterpillars bred in the cherry top, made it look like a scarecrow, and came down in swarms upon the apple trees. It was more labor to keep a dozen trees in its vicinity clean, than all the rest of the orchard. We spared the cherry tree, nevertheless, and the caterpillars and birds, under a less vigilant owner, divide its leaves and its fruit to this day.

The batch of caterpillars which comes out in April or May according to the latitude and season, seems to prefer the apple leaf to the cherry, and will do considerable mischief, though not very great, if let alone. Larger broods come off in June or July, and do their mischief in July or August. These seem to have a stronger liking for the black, or the choke cherry, but will do great mischief to the apple tree, if not headed off, or fought down. The eggs from which the apple tree caterpillars are produced, are deposited on a small twig, in August or September, in a ring extending quite round the shoot but a little protuberant on one side. Each egg is deposited in a separate cell, like the cells of a honey-comb; but, if possible, arranged with more exactness, and in more beautiful order. The whole are covered with a transparent water-proof cement, leaving the color so much like the natural color of the branch, that they are not easily discovered. A person might tend an orchard a life time without seeing one, if his attention was not specially called to it. These, if let alone, will remain till the warmth of spring hatches the young, when they burst the cement, and crawl downward to the first convenient offset of shoots, a little army, where they make their encampment, spin their thread, weave it into a sort of web, spread their white coat, and thus become so distinctly visible as to be a fair subject of attack; and if taken in time, it is no great trouble to eject them. The branch, if not large, as it seldom is, should be cut off and burnt. If the branch is large, or if you insist upon sparing the small branches, rub the encampment down with a leather glove, and the enemy is extinct.

The June or July broods may be treated in the same way. The work, in this case, should be a little more thoroughly done, because, at this season, the weather being milder and less subject to North-east storms, if you let a few stragglers escape, they will sometimes rebuild their tent, and continue their mischief; whereas, in May, if the nest is broken up, little harm need be anticipated from an occasional wanderer. The limbs, if high, may be cut by a long pair of pruning shears, or just as well by a sharp scythe affixed to a pole. But the limbs should in all cases be gathered and burnt. There has been much said about blowing these nests with powder. An active boy would destroy ten of them in the way we have named, sooner than he would load his gun. It has been recommended to burn them with a torch at the end of a long pole. If the torch light is hot enough to extinguish the insects, it would do the limb no good. Washes of vinegar and pepper, of salt and water, of lime, of soap-suds, and, we believe, of cheap rum—which certainly would kill if any thing would; at least does kill—have been recommended. Those who want to increase the labor of extermination, would do well to try them.

But prevention is always better than cure; and we will now propose a plan in which we should put the greatest reliance, and will suggest a method of carrying it out most effectually. Those deposits of eggs, of which we have spoken, are hard to be seen. But a keen eye will detect them; and the best time is in the winter; and if the ground is covered with snow, so much the better, because it reflects the light advantageously. Go through the orchard on a clear sunny day; and with your back towards the sun, look for a slight enlargement of the twigs, a swell in those from the size of your little finger down to that of a pipe stem. If you notice one, examine it with a microscope. A glass from grandmother's spectacles will do if you have no better. If you observe something of the appearance of a honey-comb, you may calculate that you have a host of embroyonic enemies in your power. Note the appearance carefully, and you will detect another tribe more easily. But this is the best work for the boys. Their eyes are better. Let them cut off and burn these enemies, while yet in the egg. But will the boys do it? Yes, if you will inspire them with a motive. We do not much like the idea of *hiring* boys to work for their parents. And yet, why may not a boy have the opportunity to earn something for himself, while other boys play? There can be no harm in it, if he will at the same time learn to value money and to spend it wisely. You may have two or three sharp-eyed boys from ten to sixteen years old. We propose that you show them a half-eagle. Explain its value. Tell them you will hold it for them, subject to their drafts for such little expenses as you approve of their making, on the condition that they will break up all the caterpillars' nests before spring, or that if any should escape their search, they will destroy the young before you find them; the money all to be theirs with interest, if they succeed perfectly; but you to deduct a shilling for every nest not destroyed in the winter, or broken up before it meets your eye in the spring or summer.

We fancy, that by such an arrangement, the boys would learn something useful to them in after life, and that the caterpillars would learn not to trouble your premises. N.

To kill Insects on Fruit trees.—M. Tessler has sent a communication to The Imperial Horticultural Society of Paris, stating that the ammoniacal water of gas-works will destroy the insects which are so destructive to our fruits. In the neighborhood of cities, this is worth trial. The water of the gas-works should be diluted with three-fourths its own quantity, and sprinkled over the leaves and branches. Trenches should be dug in proper directions to receive the water as it falls, and this will destroy the insects below the surface of the ground.

P.

WATER RODS—POTATO ROT—REMEDY.

A CORRESPONDENT from Deep River, Conn., with whom we once had a good-natured controversy about the finding of underground springs by means of water rods in the hands of certain nervous persons, assures us that "he still holds fast to the utility of it." He says: "It is practised with great success here, and we have men who can show where subterranean springs can be found."

Now we do not much wonder that he believes this, for we have ourselves seen at least a score of instances, in which the water hunter pointed out the very spot where water was subsequently found; and in none of all the cases coming under our own observation has there been a failure. This would tend, certainly, to create a belief of an ability in the water-rod-men to do what they profess to be able to do—to point out the place of underground springs. But then there is a difficulty; we want to see a reason for the rods bending towards a spring—some connection between the running water and the bending of the rods; and as yet we can see none.

Let us see twenty instances in which guano has made the wheat grow, and not one in which it has failed, and we shall of necessity believe in the efficacy of guano. But here is a reason—a connection between the application and the result. If we were told of twenty cases in which 200 lbs. of beach sand had increased the wheat crop, and that it had not been known to fail in any case, it would be very different. We could see no connection between the application and the increased crop. We should doubt our neighbors' testimony, could hardly believe our own eyes, should think there must be some mistake.

Very much so we feel about the water rods. We have seen them work in many persons' hands—have seen what others, as sound thinkers perhaps, as ourselves, have regarded as conclusive evidence in the matter; in short, have seen enough to establish any reasonable proposition, but have as yet withheld belief, because we can see no connection between the water and the action of the rods. Much is said about electricity; but we know no law of electricity which throws the least light on the subject; and we have generally found that those, who in attempting to explain this and other phenomena, say most of electricity, know least of it; and their explanations, like those relating to spirit knockings and table tippings, only make the whole thing more inexplicable.

This same correspondent says that forty years ago, he put four hundred bushels of ashes on four acres of land, and that no potatoes since grown on that land have rotted. Thirty bushels to the acre, he thinks, would have done as well for awhile, but the effect would not have been as lasting. On six rods, in the same field, no ashes were put, and there the potatoes have rotted badly, and do still; while all the rest of the four acres still give sound potatoes. He says: "I have learned of many instances of ashes preventing the potato rot;" and then adds: "few persons know the importance of returning to the soil what they have taken away." We should have mentioned that bone dust, in the form of clippings and parings from a comb factory, were applied 40 years ago to that same four acre field. The writer philosophizes on the durability of the effect thus:

"There are certain parts of ashes called insoluble, which will be years in dissolving, according to management and circumstances. A neighbor of mine denounced ashes as worthless on his farm. He let a large piece to his brother to plant. The brother put a handful of ashes on the hills of one-half, planted with corn. No kind of difference did it make the first year. The next year it was sown with oats; and one might stand on the fence, and see where every hill of corn had stood by the tall green spots the ashes made. No other manure was applied to either crop. Bone dust, if it does not dissolve at first, will operate the same way, and its effects will be slow but lasting."

That ashes are favorable to the potato crop, both in promoting a healthy growth, and in preserving the tubers in a sound state, we have not the least doubt; and if there was any one thing which we could recommend as a grand specific against the rot, it would be ashes. The fact that the New-Jersey green sand marl is so very favorable to this crop, goes far to establish this view, since potash is one of its prominent ingredients.

What our correspondent says of bone dust—that it is slowly soluble, and consequently slow, but lasting in its effects, is true. You will get as much return in a lifetime from bone dust in its natural state, as if it were manufactured into a superphosphate. But as no man wishes to wait a lifetime for a return from his labor and capital, it is the best policy to convert the bones into a soluble superphosphate, provided a fair, just division of profits can be had between the manufacturer and the consumer of the article.

Where a few bones, not enough to make it an object to manufacture them in a more scientific way, are found about a farm, they should either be calcined by heat, or decomposed in a fermenting muck heap, or pounded into small fragments, and worked into the soil, on the ground that a slow return is better than none at all.

Finely broken bones, and it is no hard matter to break them if first boiled in strong ley, are excellent for fruit trees. They should be dug into the soil about the roots. If worked into the soil of cultivated lands, or even spread upon pastures, they will give a sure, though a slow return.

We believe we have before stated, that in Cheshire, Eng., pasture lands are now renting for nearly double of other lands, equally good naturally, solely from the effect of heavy dressings of coarsely broken bones, applied more than a quarter of a century ago. N.

AN ERROR—CORN PLANTING.

It is a mistake that some agricultural journals are making, to recommend early planting indiscriminately, and without noting the exceptions.

The farmer of course will think for himself; will use his agricultural paper to suggest thoughts and plans for his own acceptance or rejection, and not as an oracle by which he is to be led captive at another's will.

Hence wrong advice is not in all cases very harmful. We verily believe that the worst agricultural paper that could be concocted, would do some good—would be worth more, in the absence of better journals than its cost—because it would lead to thought, would sharpen the farmer's powers of observation and reflection.

Still wrong advice may prove injurious to some. The young, inexperienced farmer might be misled. Take, as an instance, the indiscriminate recommendation to plant early. It is good advice, so far as it is sound. The oats will be heavier if the seed is sown about as soon as Jack-frost lets go his hold of the ground; potatoes, taking a succession of years, oftener do well with early than late planting; winter wheat is on the whole more likely to escape its enemies and mature heavily, with early than with late sowing. It is so with crops generally; and then the enterprising farmer loves to see his work done in good time—would rather drive his work than be driven by it.

But how is it with Indian Corn? Does the earliest planting always give the best crop? No. Planting at the right time gives the best result. And when is the right time? It is important to know, for when that time comes, not a moment is to be lost. Corn is a tropical plant; it loves a great deal of heat and but a moderate degree of moisture; it will flourish only in tropical countries, or those which have the summer of tropical climates. Under favorable circumstances, it grows rapidly. Three months will carry it from germination beyond the danger of injury by frost, provided the weather be warm and not over wet. Without these favoring circumstances, it "gets contrary," so to speak, and won't grow. These are essential to its tropical nature. There is hardly a more important problem for the corn-grower, than to hit upon the time for planting, when the seed will come in three or four days, and then grow "right on" without stopping.

Wheat, rye, oats, almost anything else, will wait for growing weather, without injury to the final result. Not so with corn. The farmer must give it the three hottest months in our climate, so nearly as his judgment will enable him.

The true advice with regard to this crop is, not to plant early; but as soon as the ground is warm and there is a reasonable hope of its continuing so, not to lose a moment. N.

TOO MUCH LAND.

On pages 416–17 you very properly remark that some farmers have too much land when owning a few acres, whilst others have none too much though they may own by the thousand. This is no less true in the cotton region than in grain or grass districts. It can be shown to be true even on the best cotton lands in the South—the Valley of the Mississippi.

Two causes operate to produce this;—the one, due to indolence—putting off, too cold or too wet, too hot or too dry; a hunt or a fishing to be done; an election on hand, a visit to or from a neighbor—anything but close attention and diligence in business. The other, a morbid appetite, craving too much—putting in too much land, or not providing a good team or good tools.

There are cotton planters with one to five thousand acres in cotton, who manage such an estate to better advantage than other men do a ten or twenty acre field. There was an instance a few years since where a fence divided the properties. One man, a young Kentuckian, had some ten acres of cotton to the hand; he attended to his business, and gathered, with some help, *sixteen bales* per hand. The other, some "sand hill" genius, who had time to hunt and fish, and sit about the house when the sun shone *hot*. He could not work over six acres, and made *about four bales*. He worked himself sometimes. Yet another instance; a young man born in England, energetic and thorough-going, with only one negro to help him, made over one hundred bushels per acre, and his neighbor, with quite a number, made some twenty to thirty bushels—a fence dividing fields. The first had green blades to the earth, the other "fired to the ear;" seasons made the difference of course!

Much has been written about large farms, too much land in cultivation, and much nonsense—in my humble opinion. I have seen poor farmers who cultivated little land, and poor farmers who cultivated largely, and *vice versa.* Give me an attentive, energetic, industrious man, and give him experience, and I will insure him to make a better per acre yield than the "poke-easy" one who cultivates about half the acres per hand.

The man to succeed must be devoted to his calling. Why, sirs, i it not true of the doctor, or lawyer, or mechanic? And why not so of the farmer? I cannot advocate the farmer's claim to success, as earnestly as I would wish, and it is his own fault. He does not regard his profession as does the doctor or others. Who would employ a doctor or a lawyer if found anywhere save in his office? Why should this not hold with the farmer? The merchant has his clerk, the mechanic has his journeyman, the lawyer may have his clerk, or even a doctor his office clerk, yet each one deems it a duty to give strict attention to his business, and strive to at least keep up with his calling. Yet the farmer, with far more varied interest, and a far greater knowledge to acquire, can leave his interests to an irresponsible agent. It is a mockery, a solemn farce, to thus dare to carry on business. I have been asked, "Why do you not employ an overseer, you are out on the farm all the time?" My answer was, to attend to a detail, that I care not to do, or to see that the detail of a plantation is observed. Employ a stranger to my interests and expect him to feel the same interest that I do! It is a farce.

When farmers will attend closely to business, provide a proper team and proper implements, they will see that "too much land" is far too indefinite a phrase. That it is cheaper to get a full and fair return from ten acres than a half return from twenty acres, is admitted; it is better to dispose of labor so as to make the full return from ten, even if manures should be used; yet what would be "too much land" for one, would be "child's-play" for another.

Yours, P. P.

That's so. If a farmer is not energetic, contriving always, working when necessary, a real business man, a little land is too much; if he is, give him room. We would cut the land to the man, much as the tailor would his cloth.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE STUMP PULLER.

MESSRS. EDITORS:—Knowing your interest in the progress of every good invention designed to help the farmer, we take the liberty to state that in Western New-York, Willis, famous as a stump puller, has made some commotion among stumps in that region. Large trees, we are told, deeply rooted, covered with a foot or more of frost, tops, body, roots and all, have been uprooted by Willis' Improved Machine, as by a hurricane. Success, we say, to this pioneer stump puller! He deserves it, and judging from what we saw at his manufactory at Orange, Mass., a few days since, we infer that he has it. The workmen informed us that they were forging out between thirty and forty, in one lot, for some foreign markets. The remark is old and threadbare, "he who makes two spears of grass to grow where but one grew before is a benefactor." Willis is doing this on no small scale. He is making the rough places smooth; he is doing a good work, and is a Reformer in his way. PROGRESS.

CLOVER AND TIMOTHY.

RANDOLPH, N. Y., Jan. 20th, 1857.

MESSRS. EDITORS:—I have read with no little interest the remarks in notes of Western Travel, and the communications of your correspondent, W. Tappan, so far as they relate to seeding to clover and timothy, their relative values, and the proper time of cutting them for hay.

The subject of grasses, and their cultivation, is of more than ordinary importance to the farmer of the "Southern Tier" of counties, and should be more freely discussed by the intelligent and practical farmers who are deriving their greatest income from the products of the dairy, and the supply of the shambles.

The little experience I have had, and my opportunity for observation, have satisfied me that neither clover or timothy should be grown alone, except it be for the seed. That the best meadows and pastures should not only include them both, as the two most valuable grasses we grow, but should include other varieties, of which the late Red Top (Agrostis vulgaris) should be one. The habits and growth of these grasses are very dissimilar, and the growing of them together improves the quality of each. I do not fix a very high value to thrifty, coarse clover, for hay, and certainly the same quality of timothy, cut at the proper time for cutting, makes but an indifferent quality of hay. The best hay for general feeding, to all kinds of stock, in my estimation, would be a mixture of "medium" red clover, timothy, and red top, grown on rich, well cultivated, meadow land, from a liberal (may I say *heavy*) seeding of their kinds. The red top, soon after seeding, forms a close, velvety sod, completely *covering the ground*, making of itself, a fine quality of hay, highly relished by all kinds of stock, and pasture not excelled by any other grass. Clover, it is well known, grows in stools, or single heads, from a long, carrot-shaped root; whilst timothy is also produced in stools, or heads, from one or more bulbs. The spaces between these stools, or heads of clover or timothy, and which are often a greater portion of the surface, are naked, and of course exposed to the drying effects of the winds and scorching sun, until, after years, white clover and June grass, have gradually crept in and formed a sod. These spaces, whilst thus exposed, are subjected to the action of the frost, and after the first winter, your correspondent would not only find his clover-roots upon the surface, but would find them well mixed with the bulbs of the *Phleum Pratense.* The red top sends out numerous long, slender, creeping roots, throwing up a multitude of long, slender stalks, extending and multiplying itself, until the whole surface of the ground is interwoven with a net-work of fibrous roots, and covered and completely shaded with a vigorous growth of most tender and delicious herbage; and which also favors the production of a finer growth and more tender quality, both of clover and timothy. The red top soon forms a most perfect shield against the drying and scorching effects of the winds and sun in the summer, and a protection against the heaving of the frosts in winter; a fine mulching, enriching the ground by its shade and moisture, improving the quality, and increasing the quantity of the product; affording all the advantages of *covering* claimed by Gurneyism, and forming a *permanent meadow* in the place of one that would soon *run out.*

Your views, Mr. Editor, in regard to the proper time to cut grass for hay, perfectly coincide with mine. I have cut grass when just coming into blossom, and in all its stages of growth, until it became quite ripe, and the seeds even, mostly shelled off. I now cut as nearly as I can, when the grass has just passed out of blossom, and the seed not fully perfected. My stock thrive better on it then, and seem to relish it better than when cut earlier, or later. I used to cut some quite early, and cure carefully, to feed to colts, calves, and such stock as I wished to give an extra care. I have abandoned that, after finding that they kept better, and had a higher relish for bright hay, cut and cured carefully at, or near, maturity. I am also well satisfied that many meadows of timothy grass are irrecoverably ruined by cutting too close, and too early, before the bulbs have sufficiently matured.

I differ with your correspondent respecting the quality of Western timothy seed. From what I have seen of cultivated prairie lands, I can hardly be satisfied that a purer or cleaner quality of seed can be produced. The cultivation of their fields of corn is not so much for the purpose of destroying noxious weeds, as to stir and freshen the soil. Our best seed here, is from the West, forwarded from reliable sources, and is pure. We have no fears of daisies or Canada thistles, or any other of the pests of the farm, that are frequently introduced to our acquaintance in some such way.

Yours respectfully, SPENCER SCUDDER.

EXPERIENCE WITH MICE IN ORCHARDS.

A Correspondent of the *N. Y. Times* anxiously inquires as to how mice may be prevented from destroying young fruit trees. Having had some experience on that subject, I propose to communicate it through your paper, for the benefit of your readers, as well as for those of the *Times*. I desire to be brief, but you must excuse a short preface. My father had a large orchard of well-selected fruit, which had been managed with great care, and was very productive. Between the time of his death and that when I came into possession of it, about eight years—the farm having been rented out—the orchard, whether from mismanagement, or other causes, had begun to decline. Having no experience on the subject, I took the advice of my neighbors, and had the orchard ploughed; the effect of which was, that in about two or three years, almost every tree died. As the orchard had not been ploughed for many years before, the roots had approached the surface, and my ploughing cut them off and killed the trees. I had the dead trees removed, and determined to plant another in the same place, as most convenient for the purpose. In the meantime the ground was thoroughly cultivated and manured. The young trees grew tolerably well, but not quite so thriftily as I could have wished, nor as they probably would have done in another place. By the advice of my neighbors more experienced than myself, I mulched the trees copiously with green clover that was mown on the ground, and left it there during the following winter. The mulching furnished a fine harbor for mice, which they took possession of, and before spring girdled all my trees. This was my first experiment in raising an orchard. I then planted another, which I nursed for several years, taking great care not to place the mulching near the body of the tree, nor to leave it till late in the fall, carefully watching the action of the mice. In the meantime, I planted a Pericantha hedge along one side of my orchard, which grew luxuriantly, and in a few years furnished a shelter and a harbor for mice, which neither dogs or cats, owls or crows, could penetrate. The mice, thus protected, multiplied in numbers incredible. An adjoining field was so overrun with them that one or more could be seen at every few paces in walking across it. They committed such destruction upon the grass, that I became alarmed at the prospect of an incurable nuisance. The hawks came, and the crows came, and cats and dogs were introduced among them; but the mice found shelter under my beautiful hedge, and we could make but little impression upon them. Apprehending the destruction of my young orchard, I watched it closely; and one morning, in the month of October, I observed that almost every tree was slightly nibbled, and so recently done, that it must have occurred towards morning in the preceding night. I at first concluded that my orchard was doomed to destruction; but without consulting my neighbors, determined upon an effort to save it; and had several gallons of tar boiled down into pitch, and with a little swab, while warm, I pitched the foot stalks of my trees from the root, some nine or ten inches above it, having first removed the sod and grass around the body of the tree. The whole of my trees were served in this way during the day, and were carefully watched. For years afterwards, I never found the mark of another mouse tooth upon them. The same application was made to a number of peach trees on one side of the orchard, which effectually protected them not only from the mice, but from their fatal enemy, the peach worm. I have since applied to peach trees, common tar, merely warm enough to be put on with a brush; and have known gas tar to be applied in the same way to peach trees, but neither answered the purpose; they disappear before the next season, and the worm goes to work as usual. I conclude, therefore, that a coat of pitch is indispensible, which, expanding with the growth of the trees, will protect them for several years. It may be well to mention, however, that in addition to this work, I destroyed my pericantha hedge; and an open, wet winter greatly reduced my stock of mice, which have never given me much trouble since. I also issued a very positive order not to shoot hawks, crows, owls, nor to kill the garter or black snakes. S. D. Ingram.

Trenton, N. J.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE FARMER AND THE CIVILIAN.

Messrs Editors:—Our community may be described as being composed of two prominent leading classes, viz., Farmers and Civilians. Others may be regarded as subsidiary to one or the other of these. Professional mechanics fall into the former, and professional teachers into the latter. So it was under the Mosaic system, when a particular people were selected to become a model for regularity and economy in public social management, that the duties of all might be definitely and distinctly understood, and the welfare of all be most effectually promoted.

The country, meted out to them as an inheritance from the great Proprietor of all things, "who is the Giver of every good and perfect gift," was put into the hands of eleven parts of the nation, by them to be used for agricultural purposes, that food and raiment, and whatever conduces to bodily comfort, might be produced sufficient for the necessities of all. To the other constituent portion of the people was assigned the department of public instruction and government, with a remuneration for their services enough to place them on a level with their brethren, the laborers and producers of the general wealth. So long as fidelity and correctness were upheld and preserved from corruption, in each department, national prosperity, vigor, and security were the fruits. But when fundamental principles were changed, and sense of duty became stagnant, ruin ensued. The whole head became sick, and the whole heart faint. Health and soundness could not be retained in limbs having a vital connection with others infected with disease. The contagion, which had entered at any one inlet, did not long fail of diffusing itself through the whole mass, and universal putridity and dissolution ensued. Hence, the following prophetic moan is left on record for the admonition of all who are willing to be instructed by it. "A wonderful and horrible thing is committed in the land. The prophets prophesy falsely, and the priests bear rule by their means; and my people love to have it so; and what will ye do in the end thereof?"

Now, in what sense can we be interested in, and profited by, such a piece of ancient history? I propose to apply it in this way: make it an exhortation and a motive to the agricultural community, including all forms of industry, to look well to themselves, that by no fault of theirs, in neglecting or discarding right moral principles in the exercise of their appropriate function, the performance of what belongs to their calling, will they contribute to the downfall, or even to the dishonor or weakening of the political body, in which their standing is of so much importance. The meaning is, that they will not, by imitating such an example, give countenance to any unprincipled arts of intrigue and finesse to compass private ends, such as are laid to the charge of men who procure themselves to become rulers, not for the public good, but for their own personal emolument. It would be a foolish affectation and squemishness, to seem incredulous of the fact that most legislation and administration of law, in our country, and not in ours only, takes place without the least reference to what is the known will of God in the matter. Though it is admitted, as the apostle affirms, that "there is no power but of God;" and that rulers are his appointed ministers, whose true office it is to secure obedience to the divine law; yet the potentates of the earth, with few exceptions, finding themselves in power, adopt no standard and rule but such as their own policy dictates, regardless of the precepts and sanctions of Him who hath said: "Vengence is mine; I will repay saith the Lord." Shall this treachery to the world's Ruler and Benefactor be imitated by men who soberly set themselves to watch and profit by the laws which an Almighty Creator has impressed on the elements, which he has subjected to the use of man, with this injunction: "Be fruitful, and multiply and replenish the earth, and *subdue* it." And how subdue it? By a wise and judicious culture, "that it may bring forth abundantly seed for the sower, and bread for the eater." Can this be any other than a religious act, performed as it should be in obedience to Him, from whose lips the commandment came, and to whose honor the strict observance of it will redound? Let then the laboring, the producing classes, by their virtues, their just appreciation of their rank, their conscientious performance of what devolves on them, both invite and stimulate their brethren, the civilians, to vie with them in the laudable strife of being first in paying homage to him whose is the earth, and the fullness thereof. Need it be argued that moral virtue is of primary value in augumenting the usefulness of industrial occupations, in political action and economy also, excluding none of the arts of secular life? Let him who doubts, resort to such practical trials and experiments as are adapted to the case; and then let him make known the result.

J. F.

ON INSECTS—

With Descriptions and Directions useful to the Farmer, Gardener, etc.

INSECTS INJURIOUS TO THE BARK AND TWIGS OF TREES AND SHRUBS.

Having exhibited the more destructive species of insects which destroy our fruit trees by boring into the wood, we now turn to another class, whose name is legion, which injure the bark, and thereby destroy both tree and fruit. They all are Hemipterous, and are included in the name

Coccidæ, or Bark Lice.—But there are many species which are exceedingly destructive, and each has its favorite tree and shrub, and differs entirely in organism, etc., from others. We begin with the

Apple-Bark Louse.—This is a small, oblong, brown, scale-like animal, about one tenth of an inch in length, somewhat resembling an oyster shell in form, which adheres to the smooth bark. When examined in the winter or early spring, they will be found to conceal a large number (often thirty or forty or more) of small, round, whitish eggs. These insects are, oftentimes, very numerous. They infest orchards through the Northern and Western States, and must prevail in greater or less numbers, in all the States where apples are extensively cultivated. Sometimes, limbs appear to be almost covered by them; and when trees are thus invaded for a succession of years, they wither and die.

These insects are hatched from the egg in the last days of May, and onward to about the 10th of June. When first hatched, they are nearly of the form and shape of the egg. In about ten days they become stationary, throw out a quantity of blueish-white down, and soon after complete their transformations and deposit eggs. These are hatched during the summer, and the young come to their growth before the end of the warm season. This species is the *Aspidiotus conchiformis* of Gmelin, and the *Coccus arborum linearis* of Geoffroy and others. Several other species, of the same general appearance and habits, are found on apple trees, and pear trees, and on grape vines. Dr. Harris describes one, of which the body of the female is not large enough to cover her eggs, and a protection for them is furnished by a kind of membraneous shell of the color and consistence, almost, of paper.

These insects appear to the eye like dark-colored spots upon the bark, and they are often seen when no suspicion is entertained that they possess or conceal animal life. How many species there are of the general appearance above described, is rather a question of science for the naturalist than one of practical importance to the fruit grower. Different names may be given to the same insect, or the species may be more numerous than is generally supposed; but the same treatment is required for all, except as stated below, and the same means are to be used as preventives to their production or increase. We therefore proceed to specify

The Means of Prevention and Destruction of this kind of insect upon our trees. Among the many applications which are recommended, washing with a decoction or infusion of tobacco or of lye, smearing the trees with whitewash, or dry ashes, or a wash of very strong soap-suds, are more or less efficient in the destruction of these insects. A preparation made of two parts of soft-soap and eight parts of water, with lime enough to reduce it to the consistence of a thick whitewash, is commended by Dr. Harris and others. The application should be made to the trunk and limbs as extensively as is practicable, filling all the cracks and interstices in the bark. This service should be performed in June, or when the buds put forth. The insects are then "young and tender." A Western gentleman of great practical experience, commends the following: Boil leaf tobacco till it is reduced to an impalpable pulp, mix with soft-soap so as to produce the consistence of a thin paint, and apply it with a paint brush to the trunk and branches, and to the twigs even, as thoroughly as possible. This is said to be more lasting in its effects than the other preparations named. Such service should be done when the buds begin to burst.

Seventeen Year Locusts. Cicada Septemdecem.—This insect, "a very large black fly, with four glassy wings with orange colored ribs, and red eyes," (Fitch) was fully described in our issue for November, 1855, pages 205 and 268 of Vol. viii.

HOT-HOUSE PLANTS

are often seriously injured by insects which destroy the plant by preying upon the bark and leaves. Among these, we name from Kollar the following:

Orange Scale Insect. Coccus Hesperidum.—This insect appears like an elliptical nut-brown shield, and is plentiful on green house plants, paricularly on orange trees, where it fastens itself on the branches and leaves, particularly when the trees are kept rather warm. It is best destroyed by washing the branches and leaves. If done in autumn, it is of great advantage, as the old ones cannot creep up again.

Pine-Apple Scale Insect. Coccus Bromeliæ (Bouché).—A gray, elliptical, rather elevated shield, mottled with brown, very much like the former. It lives on the Pine-apple, Justicia, Hibiscus, etc. It propagates through the year. The young ones, when brushed off, ascend the plants again. Scrape off the insect from the pine-apple with the thumb.

Mealy Bug. Coccus Admidum (Lin.)—This is not shield shape. It resembles the woodlouse, is reddish and strewed with white dust. At the sides of the twelve segments of the body it is provided with small tubercles. The male is slender and gnat-like, with two rather broad wings and two long brush-shaped tail filaments. It attacks such plants as the Coffee tree, Justicia, Ruellia, Cestrum, etc., and is found plentifully on the Musa, Canna, Renealmia, etc. Brush them off carefully with brushes, at a distance from the hot house, or carefully kill them; but they must not be crushed, as their juice injures the leaves.

The Oleander Scale Insect. Aspidiotus Nerei, (Bouché).—The female appears as a yellowish, round, flat shield, almost destitute of limbs, which sucks plants with its rostrum. The shield of the male larva is smaller than that of the former. Its color is white. The perfect male is brownish yellow dusted with white, and white wings. Length one third of a line. It lives in amazing numbers on different kinds of plants, both of the stove and greenhouse, particularly on oleanders, acacias, aloes, palms, etc., and can only be destroyed by careful brushing. It is a native of America.

The Rose Scale. Aspidiotus Rosæ, (Bouché).—The female is like that of the former species. The male pupa is linear, doubly furrowed on the back. The perfect male is pale red dusted with white, and with white wings. Its length is one third of a line. It lives on stems and old twigs of rose trees, which are often entirely covered with them, and look mouldy. Brush them off with strong brushes before the rose trees sprout. They are very injurious.

Cactus Scale. *Aspidiotus Echinocacti*, (Bouché.)—The females are like the oleander scale, but more oblong, and darker. The male is an orange yellow; pupa linear, doubly furrowed, powdery, gray. It is a native of Mexico.

Rose Moth, *Tinea* (Ornix) *Rhodophagella*, (Kollar).—In early spring, as the rose trees begin to bud, an enemy, very dangerous to its leaves and blossoms—often overlooked from its smallness and the peculiarity of its shape—appears in the form of a little brownish scale, attached to the leaf shoots, within which is concealed a worm, the larva of a small moth, which gnaws the tender shoots. It removes from one to another, and one can strip a whole branch of its shoots. It is yellow, with a black head and black spotted collar. The moth appears at the end of May. It is three lines long. It carries its wings very close to its body, almost wrapt round it. The whole body is shining silvery gray. Its upper wings are strewed with minute black dots, deeply fringed at the posterior edge; under wings narrow, pointed with very long fringes. This moth lays her eggs in May in the buds of roses, and are hatched at the end of June.

Verbenas are infested by the *root louse*, and by a small worm that encloses itself in the truss, eating out the undeveloped umbels. Mr. Snow says he has "found no better way of destroying them than by picking off the bud or truss as soon as discovered, and before they have spread over the whole bed." For the root louse, apply a coating of wood-ashes—the fall is the best time—and spade the ground deeply in the spring. Guano-water is offensive to insects, and this, or guano scattered near the stem of the plant, will often rout the lice from the plant.

Parlor plants in general may be freed from these insects by the fumes of tobacco. Burn the tobacco on coals, underneath the plant, carefully exposing each part of it in the smoke, or a cloth may be spread over the entire plant so as to confine the smoke among the twigs. Continue the process for fifteen minutes. P.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

NATIVE CATTLE.

Essex Co., Mass., Feb. 11th, 1857.

Friend Nash:—Have we in New-England any *native cattle?* I know of no one whose opportunities for observation have been more favorable than yours to enable him to answer this question with propriety.(1) Will you say the question is not a proper one to be put? If you do say this, I must beg leave to demur to this assertion.

Within the last two weeks I have been present at two meetings of the Legislative farmers of Massachusetts, at the State-House in Boston, where I have heard it positively asserted that there is no such thing as a *native breed of cattle* among us; and some go so far as to say there is no such thing as *native cattle* among us, leaving out the term *breeds*. I presume both intend the same thing, although when hard pressed, those who use the term breed, have more plausibility in their statements, using the term breed as indicating animals that can beget or produce their like.

Last evening a prominent farmer from Sutton, Worcester county, said the animals that have been reared in that town for the last thirty years, and which have drawn so many premiums, and have acquired so much reputation for their beauty, energy and activity, are *natives*, and nothing else; and that he came in expressly to vindicate their character as such; that he had reared many of them, and so had his father and grandfather before. I was delighted to hear this, for you know I am a full-blooded Yankee, and am always pleased when the excellence of New-England cattle, or energy of New-England men, is presented in a favorable point of view. But then the gentleman nearly spoilt his testimony before he closed, by the coarse and harsh epithets that he applied to the Durhams, saying that he would not accept the best herd of them he ever saw, to be under obligations to keep them on his farm.(2)

Another gentleman, from Franklin county, who professed to have much skill in breeding, was equally denunciatory of the natives. Comparing the assertions of both these gentlemen, and several others who were present, who professed to give their *experiences*, it would be exceedingly difficult to come to any conclusion in the matter.

The further consideration of the subject is deferred for *one fortnight*, when I hope, if nothing moves, I may be instructed by you what to say. I was in such a maze last night, I said nothing, though I was taught forty years ago by my old master, Pickering, to believe that the *native cattle* of New-England were the best ground of hope for *improved stock* on our farms; and such is my confidence in his wisdom, that I do not like to abandon the idea, certainly not until good reasons are shown for so doing.(3) J. W. P.

1. The question whether we have native cattle, is little else than a play upon words, hardly worth the time of grave legislators. It seems to have arisen from a confusion of terms. Politically, we should be willing that all men, born in this country, should be considered as Americans, wherever their ancestors came from. By the same rule, all animals, born here, are natives, whencesoever their progenitors were brought here. Indigenous—*produced naturally in the country*—they are not; but native—*born in the country*—they are, in the only

sense, in which that word ought ever to be used; and this is true of all our cattle, except a few recently imported.

2. If the gentleman from Sutton meant to condemn Durhams for all countries, or for all parts of our own country, he must have been wise overmuch; but if he only meant that he, *in that climate*, *on that soil*, *by his mode of farming*, could buy, and milk, work, or fatten, and sell, the common cattle of that neighborhood, so as to do better than to accept a fine herd of Durhams with the obligation to keep himself supplied with such for a long series of years, we certainly should not despair of his being able to get through life without help from any of those beautiful institutions for charity with which his State abounds. Durhams are not the best cattle for that region; and he, if he is the man whom we suspect him to be, is the very one to know it.

3. Whether Mr. Pickering's views were correct, or whether we have any such thing as a *native breed* of cattle; that is, a variety, a family, so long and so judiciously bred together that the bad qualities are bred out, that the good qualities have become fixed, and that they may reasonably be expected, with good keeping and judicious pairing, to be transmitted from parents to progeny for ages to come, is more than we know. That it is possible to obtain about such qualities as you please, and that these qualities may be transmitted with all but absolute certainty, so long as the best keeping, kind care, and sound judgment are employed, the experience of English breeders has shown. We rejoice in all efforts to perpetuate in this country the qualities which have become established there. Men of wealth and leisure, and especially those who love notoriety, can afford to import the finest animals, without regard to price; and they will benefit the country by doing it; for whether their stock turns out, in the long run, better than stock bred and reared with equal care from the common cattle of the country, or not, they will have created a just appreciation of fine stock, and they will at least have convinced their countrymen that plenty of suitable feed, constant care, and the exercise of sound judgment in selecting breeders and in pairing them, are necessary in order to keep up a good stock, whatever be its source.

As to whether the mass of farmers—those who farm for a living, not to get rid of too much money—should go into fabulous prices, paying $500 for a cow, instead of buying two or three for $100, we cannot do better, in the way of advice, than to relate the words of a practical farmer in the valley of Aylesbury, Buckinghamshire, England. His pasture was exceedingly fertile. Buying cattle from the hills of Wales and Scotland, keeping them till fat, and then turning them over to the butcher, was his business. In answer to the question what breeds he preferred, he said, "I care nothing about the breeds; I want those that I can make money on; I have been in this business a long time; there is something about a beast by which I can judge whether he will do well; I sometimes misjudge, but generally hit about right; and if I find one that will be pretty sure to be worth a good deal more, after being in this pasture a few weeks, than is asked for him, I buy him; that's all. N.

PLANTS MUST HAVE FOOD.

VEGETATION annually appropriates to itself, and removes from the soil, a portion of the nutritive principles therein contained, and if they be removed without compensation in some way, barrenness will ensue.

Upon the facilities which the farmer may be able to command to secure an adequate supply of food for his crops, his success must in a great measure depend.

Manure is a term of broad application. It was formerly confined chiefly to the excrements of animals, but now has a wider signification, and may be understood as embracing any animal, vegetable, or mineral matter ,capable of improving and fertilizing the soil, or of correcting its faults and supplying its defects. Whether artificial fertilizers may or may not be profitably employed, is of far less moment for us to understand, than how to make the most of home resources; the true policy being to increase the productiveness of the farm from within itself. To accomplish this, every source of fertilizing material upon the farm should be made to contribute, and care should be taken that nothing be wasted. Not only should the solid excrements of animals, which too often is the sole dependence of the farmer, be properly cared for, but special efforts should be directed to the liquid also, which are not only more exposed to waste, but possess a superiority over the other, which renders their loss irreparable. An eminent agricultural writer says: "When it is considered that with every pound of ammonia that escapes, a loss of sixty pounds of corn is sustained, and that with every pound of urine a pound of wheat might be produced, the indifference with which these liquid excrements are regarded is quite incomprehensible." Another says: "The quantity of liquid manure produced by one cow annually, is equal to fertilizing an acre and a quarter of ground, producing effects as durable as do the solid evacuations. A cord of loam, saturated with urine, is equal to a cord of the best dung. If the liquid and solid evacuations, including the litter, are kept separate, and soaking up the liquid by loam, it has been found that they will manure land, in proportion by bulk, of seven liquid to six solid, while their actual value is as two to one. The simple statement then, in figures, of the difference in value of the solid and liquid evacuations of a cow, should impress upon all the importance of saving the last in preference to the first."

Excrementitious matter, whether solid or liquid, is by no means our only source of food for plants. Almost every farm possesses an indefinite, and often a most abundant supply, in the deposits of decayed vegetable matter known as muck or peat. This, to be sure, in its natural condition, is not readily available by plants; they would relish and thrive upon it about as well as we would on raw potatoes, but nevertheless, the food is there, and only needs due preparation to make it both palatable and nutritious. Muck or peat is also of great value, and almost indispensable as an absorbent of liquid manure, and of the gases generated during decomposition.*

In this way it not only proves a most effectual and economical means of preventing waste, but is itself, in so doing, modified or changed so as to be converted into valuable and available manure. Muck, treated with ashes, is found to do exceedingly well. Another mode of treating it, which has many advocates, is, to slake quick lime, with a saturated solution of common salt, and mingle with the muck, in the proportion of one cask of lime to a bushel of salt, mixed with a cord of muck. Thus prepared, it is not a simple mixture of lime, salt, and muck, but during its preparation as stated above, a decomposition of the salt takes place, alkali is liberated equivalent to the ashes used in the other case, and by its action the vegetable food in the muck is rendered soluble, and thus made available to plants.†—*Report of Maine Board of Agriculture.*

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* Too much can hardly be said of the value of dried muck, to be thrown into the stalls, as an absorbent for the double purpose of adding to the value of the manure, and of purifying the air of the premises.

† If convenient, it would be well to prepare this some weeks before applying it, and if turned over a few times, all the better.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE LAST OF THE SORT.

EXPLANATION; AND COMMENTS ON COMMENTS.

MESSRS EDITORS:—I notice in the February number of *The Plough, Loom and Anvil*, some comments on a former article of mine. Does your correspondent discover any asperity of manner? I hope not, for two reasons. First, because agricultural discussions are those of all others that can best dispense with the article; and secondly, because I think it wholly uncalled for in the article referred to.

I did not (or if I did it was done unintentionally) disparage any man's section of country, but only spoke a word in favor of one.

Friend Spencer appears to have misunderstood me, as referring to the ancestral roof, when I mentioned the handsome two story house. Such was not my intention. Your correspondent appears to discover new principles in his article of comments; namely, that corn is the standard of value, or that the man who grows the most corn necessarily makes the most money; and that the man who builds a house or makes other improvements, in the West, has superior claims on the gratitude of posterity, to the man who builds a house or makes other improvements in the East. At least, they strike me as original. Is a man to be set down for a dolt, because he buys a farm in the East, instead of the West? I am one who think it takes just as smart a fellow to resist the tide, as it does to follow the rush.

Your Western correspondent may think it an anomaly, that a young man, untrammelled by circumstances, after looking over our cities, where he found plenty of young men working for their board, and hopes of better pay by-and-by; and after taking a trip through the West, should settle down on a farm in Massachusetts. And he may be right; but I can show him an instance of the kind, if he will come to Massachusetts, which, by the way, I have just as much reason for suspecting he never saw, as he has for suspecting that I never saw a prairie. I say this not by way of disparagement. Man would indeed know but little of the world were his knowledge of it confined to that portion of it which his own eyes had rested upon. YEOMAN.

The above, is the last of the sparring between the West and the East that we shall admit. The West, and the East, and the South, are all good. We have a glorious country. Let us be grateful to high Heaven for it. It is certainly well for young farmers at the East, who have not much capital, to go West; and it is as well for those who have capital to stay East. At present, both the East and the West have, respectively, their peculiar advantages, and neither should envy the other. As the one prospers, the other will prosper in consequence; and as long as both are one, both should be satisfied. Union, now and for ever—union of every part of this great country with every other part, is our Ægis. This perpetuated, we cannot fail to be one of the greatest agricultural, manufacturing, and commercial nations, in the world; and when we look to our Smithsonian Institute, at our colleges, not as good as they ought to be, but destined to improve *in spite of themselves;* at our academies, and above all, at our free schools—the light and glory of the land—hope brightens in our vision, that we shall be the most intellectual, and the most generally educated nation. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE SEASON—BREAD FROM MAIZE, RYE, ETC.

NEAR BROWNSBURG, VA., Jan. 24th, 1857.

MESSRS. EDITORS:—I have been waiting for a rainy day to drive me within doors, that I might devote an hour or two to an article for your valuable journal.

The frosts of winter have, however, set in, and it is more than a month since any rain has fallen. Winter set in with us early. On the fourth of December we had rain, blowing off with north-west wind, and severe frosts followed to the twentieth, when we again had rain, clearing off with a snow shower, wind N.W., and very severe freezing; mercury falling to zero, and rising but little through the day. This weather has continued now upwards of a month, and the prospect is favorable for continued cold weather. On last Sabbath we had the most severe north-east storm of snow that has fallen for fourteen years. The wind was very high. The snow penetrated every crevice. The roads were literally blocked up with snow-drifts. The cars and stages have been temporarily stopped, and the farmer driven pretty much within doors; feeding his stock, and getting fuel, is pretty much all that can be done, the mercury not rising above the freezing point for some days.

The sleighing is good, except where the roads are bare from the sweeping wind. The beaux and belles are driving round, and joy reigns in the social circle.

I have been lately reading the patent office report of 1855, forwarded to me by our very excellent member of Congress, John Letcher, Esq. I read with some interest portions of a report on experiments made by the Prussian Board of Agriculture, on meal made from maize, or Indian corn, and its introduction in that country as a cheap bread.

In the same report it is stated that the Royal Police Department of Berlin, also in December, 1855, made a report upon "The applicability of Indian corn to the preparation of bread," in which it is stated that a few resident bakers in that city, "prepare in small quantities bread, of a mixture of maize and rye flour," and that maize is used in Dantzig also. It is inferred, from the information obtained from these, and other sources, "that a bread composed of two-thirds rye and one-third maize, is about ten per cent. cheaper than bread made of pure rye; a pound of rye and Indian meal bread costing about three cents." The report goes on to say that, "It is further ascertained that such bread is eatable, and not without a pleasant taste, although Indian meal is frequently found with a bitter taste." It is added that "it stales very quickly, and in this condition can scarcely be eaten."

There is much in this report that is strictly correct. I have only made some brief extracts. Living in a Southern State, where corn meal is much used, coming up daily on our tables, and being considered the most healthy and invigorating bread that we eat, I can speak of it as an article of food from long experience, and being a mill owner, know something about grinding and preparing it for bread; of which I will now speak.

To have it nice for family use, it should be ground in small quantities, and not ground too fine. Corn that is a little flinty, or hard, makes the sweetest and best meal; it should be ground high and round; if ground too fine, the bread is clammy and sad. The husks or bran, should be sifted out as the meal is used, as the meal keeps sweeter, and for a longer period, by having the bran in it. In summer, meal should be ground every week, as it will become musty and bitter in hot weather, if kept over ten or fifteen days. Where mills are convenient, it is always better to have it fresh ground.

There are many ways of preparing this bread, from the simple ash and hoe cake to the finest of batter bread. The more simple it is made, the better it is. Our servants frequently bake it in the ashes, simply mixed with water and a little salt. I have eaten it thus prepared, and thought it most excellent bread. The more usual way is to mix the meal and water with a little salt, and bake in a skillet or oven, or on a griddle. It is very good mixed with sweet milk, or buttermilk; and still better when a few eggs are added, and baked as batter bread. It is also made into pones, somewhat light—eat warm. In this way it is sweet and highly nutritious. I have frequently heard contractors of public works say that hands who eat corn bread, can stand it to work longer without getting hungry, than on any other bread. And I have also noticed, that my horses, when fed on corn, are much more sprightly and high mettled, than when fed on cut or mixed feed, and I believe as a general feed, our stage contractors prefer corn meal, ground fine, and mixed with hay, as the best food for their teams.

With regard to a mixture of rye and corn bread, I can speak most favorably of it. Fifty years ago, when a boy, I was in the habit of visiting some German families, famous for making this bread. The proportions were two measures of rye to one of corn; it was mixed, raised with yeast, baked in an out oven, and when warm, was very fine; but their custom was to bake but once a week, and their bread thus baked was laid away in a cool place, wrapped in linen, and kept well.

I am of opinion that corn meal cannot be exported, as it will get musty or bitter, and of course cannot make good healthy bread. But if the corn is kiln dried, and exported, then ground in small quantities, as we use it in America, I do not see why the bread should not be as good in Europe as in this country. The white flint corn, I greatly prefer f r bread. Much of the yellow corn, particularly of the gourd-seed kind, has a strong taste, and in my opinion, does not make good bread. The yellow corn is considered by many as best for stock. As a general rule, corn bread is always eaten warm, only enough being prepared for the present meal; when cold, it gets dry and hard in a short time. Rye meal added keeps the bread moist.

The corn, wheat, rye, and oat crops, in this part of our State, were hardly average crops the last season, and I am of opinion we have not much surplus on hand at the present time. The quality of corn was not as good as usual, owing to the drouth. The berry of the wheat was good, and made fine flour, but was cut short by the fly, chinch-bug, etc. Oats and rye, light.

The usual supply of cattle was also short, and less by about ten thousand, than usually pass down our valley, for the graziers, and Eastern market.

The prices of Agricultural products are still fair; Wheat commanding in the interior $1 25 to $1 30; Corn, 60c. to 65c.; Rye, 65c. to 75c.; Oats, 33c. to 40c.; Beef, $6 00 to $8 00; Pork, $7 00; etc., etc.

With great respect, I am dear sirs,

Your friend, and obedient servant, etc., HENRY B. JONES.

RIPENING OF MANURES.

BOYLSTON, Jan. 15th, 1857.

MESSRS. NASH & PARISH:—Being a constant reader of your publication for years, and being somewhat interested in agriculture, I take the liberty of propounding an inquiry respecting manure, which is beginning to be the staff and stay of all farming operations. Before coming to my main inquiry, I will state my present plan of using and preparing manure: We keep eight cows, two horses, and five or six hogs, the manure of which we deposit together in a good barn cellar with a tight floor.(1) We add loam daily, so that the urine is all preserved. In the spring of each year we overhaul this mass of manure, and let it lie a few days before using. We then cart it on to our interval ploughed grounds for planting,—spread it, cultivate and harrow it in for planting corn and potatoes. I do the same in sowing oats and grass seed. With the corn, I use in the hill Mapes' nitrogenized superphospate of lime, which, by the way, I find by experience to be far superior to that made by C. B. De Burg, (2) or even our manure, putting one shovelful in hill. My question is this: Whether our manures do not need either more age to ripen, or some ingredient to help and hasten its preparation for use; and if so, will you please show us and others wherein, and oblige a constant reader?(3) H.

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1. A tight floor is, in our judgment, a useless expense. A covering of loam, or swamp muck, to be removed with the manure each spring, is the best possible

floor for a barncellar, if the ground be dry, and if it be not, it should be made so by underdraining.

2. We think our correspondent must have been unfortunate in his purchase of C. B. De Burg's superphosphate. He may have dealt with an irresponsible agent who had adulterated the article. We have frequently visited Mr. De Burg's establishment, have been invited to make the closest inspection, to take samples from the factory, the wharf, from ships, from his agents, wherever we could find them, and to get them analyzed by the best analists we knew of. We have done so—have taken samples with and without his knowledge, had them analyzed, and received in all cases such reports as convinced us that the article he is now selling is of great value; and besides, our experience with his superphosphate on the Massachusetts State Farm in 1854 and '55 satisfied us that the article then sold by him and his agents, was at least equal to any other at that time in the market. As our correspondent has made a comparison unfavorable to Mr. De Burg's superphosphate, we felt bound to say so much, and here we leave the subject for the present. Our advice to farmers is and always has been, to make the most of the farm fertilizers, not to purchase manures at high prices from abroad, and at the same time to stumble over and waste cheaper sources of fertility at home, but when they require more manure than can be manufactured on their own premises, they may rely upon it that Mr. De Burg's superphosphate will be found a good article.

3. Yes; we want our manures to be in a more advanced state, and yet to be ready for use as soon as the spring opens; and your mode of treating it seems to us one of the best modes, if not the very best, of treating it, in order to preserve its whole value, and to bring it into the right state at the right time.

N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE TREATMENT OF CHILDREN.

A CHILD whose pulse bounds with health, and whose limbs have never been trammeled by its clothing, or otherwise distorted, is naturally graceful; its motions are such as nature designed it to make. Yet there are but few children, either in city or country, who enjoy these antecedents to grace and beauty.

Mothers do not inform themselves on the proper manner of treating their children, do not study what is natural, but do as fashions or ignorant nurses dictate. Hence the dwarfed race of sallow, ill-shaped children, who are to perpetuate the human family.

"The Woman's Educational Association" reports, that in the examination of a city school, out of one hundred and eight pupils, three fourths had headaches, and ailments, and thirty-five had curvature of the spine. In a country school of one hundred and nine examined, fifty had curvature of the spine. Such are the reports that come up to us, not from orphaned childhood, not from juvenile vagabondism, but from the children of loving parents. Better would it be to adopt a Spartan severity, and transfer to the state the mother's trust, removing from woman the office she will not discharge intelligently, than thus to curse the human family.

If we look in the city for the health, joyousness and elasticity natural to childhood, we turn from the search in disgust. The little behooped, beflounced, and befeathered butterflies of the higher and middle classes that are turned on the streets at stated hours to exercise (?) present a melancholy sight to a thinking person.

The suckling in the nurse's arms is sent out "to take the air" with its body encased in from one to six bandages, rendering the acts of inhaling and exhaling an almost impossibility.

The young "misses" and "masters," who are made up to order, are told they must not romp, (as though it were possible in their stays,) lest they soil their clothes; and they must not laugh, because it is not genteel. Children thus trained soon become listless and weak, and can be as genteel as their silly mothers desire. This process of "murdering the innocents" is the most approved, provided, in the meantime, they are sent, in paper-soled gaiters and cambric pants, over damp, cold pavements, to Monsieur Bamboozle's dancing academy, to *learn* manners, to learn to *seem* easy in their stocks and stays.

Country children, living freer lives, are more rugged than those of the city, but it is painful to see how far even they are from the standard which they can and ought to reach.

A farmer who wishes to raise superior stock is obliged to obey known laws. In order to produce peculiar qualities, he must observe peculiar conditions. It is no more reasonable to expect to excel in the business without intelligence, than it is to suppose that children can be reared haphazard, without thought or system, and the race continue to improve.

To produce superior intellectual, moral and physical endowments, there are laws and conditions to be observed, and when parents make as much effort to learn those laws and conditions as farmers do to learn the requisites for producing stock, there will be a corresponding improvement in the race.

Every teacher, from the college to the district school, should be prepared to give instruction in human Physiology, and use his influence in his sphere to make its principles practical.

Every preacher of the Gospel should be able and willing to instruct and influence those in his field.

Every physician should labor within the circuit of his practice to instruct and influence his patients.

Every editor should bring the subject before the people in his columns.

June Isle.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE ADVANTAGES OF SYSTEM IN FARMING OPERATIONS.

It has been well said, that "order is heaven's first law," for this is apparent in all the works of creation. Throughout nature's wide domain, every tree, or plant, or flower, when unobstructed by external causes, exhibits the most perfect order in its development. The combinations, also, formed in nature's laboratory, all unite with mathematical exactness. The crystal, whatever shape it assumes, is perfect, each angle is always alike. The air we breathe is a compound, one element of which is fatal to animal life when in a separate state, and yet it combines with the other in such proportions, as to become an indispensable requisite of our existence. The instinct of the various animals and insects, leads them to observe the strictest system in all their labors. And thus all the works of God are regulated by fixed and settled laws.

And the farmer, being conversant with the works of nature, ought to be a diligent student of her operations, and from them to learn the importance of system in all his labors. Agriculture cannot be successfully pursued, without thought, reflection, observation, and comparison. From these sources that knowledge is to be derived, in part, which is to guide the practical farmer in his labors. Books and periodicals are indispensable, if he would attain to eminence in his profession. But the knowledge thus obtained, must be digested by reflection, improved, and so reduced to system by experiment and observation, as to render it available in the labor of the farm. The man that labors at random, labors to but little purpose. He may possess knowledge, but unless that knowledge be systematically applied, it will be of but little use. What a spectacle do farms and farming operations often present, where no system is observed! Chaos appears to have assumed control, and Hafed's chance world to be realized in miniature.

The thorough, systematic farmer, will undertake no more business than he can successfully manage. His plans are all matured by reflection, before the time arrives for their execution. Business therefore invites, rather than drives him. Whatever is undertaken, is done in such a manner as to secure the best results. He is not, by want of forethought, so involved in business, that much of his work will be but half performed, and his farming interests thereby suffer, and the profits of his labor lost. Having a place for everything and everything in its place, his time is not wasted in searching for his tools when needed, nor in mending broken ones, when business hurries. He settles in his mind beforehand what fields to plant, what to sow with the different kinds of grain, when and where to apply his manure, and other fertilizers. Hence his labors are so directed, that his ground is prepared in the proper time, and in the best manner for the various crops. And when the time for their cultivation arrives, he is ready to engage in it without hurry or distraction, and able to perform the work well. And then his harvest; how different from that of his neighbor, whose land is but half cultivated, and this at the wrong time! His adherence to system enables him to gather and house his crops in proper order. They are not left in the field until half wasted by rains and the various animals and insects that are eager to destroy them.

The man of system will cultivate his crops in such rotation as to improve, rather than exhaust his land. Experiment and observation will guide to such a course as is best calculated to bring all the fertilizing properties of the soil into such a state as to be available in producing crops without exhausting its fertility. In this way, land may be cultivated from year to year, and still retain its productiveness. If properly fed and managed, the effects will be as apparent as they are in the animal creation, but if overworked at random, like the worn-out beast, it fails, and refuses to yield its increase.

The importance of system is also apparent in the management of stock. Most kinds of stock, in order to be a source of profit, need constant attention, especially in winter. An animal that is well housed, properly and regularly fed, and its wants supplied, will thrive on much less food than it will take to keep one alive, that is fed at irregular intervals, sometimes even to surfeiting, and then left to half starve for a time, and this too without shelter, in the most inclement weather, when they most need care. If their food must all be burned up in the stomach, to produce animal heat, to sustain the system, they cannot thrive, but must constantly deteriorate. Many farmers waste feed enough to half keep their stock, by throwing it out at random, without proper mangers and racks to keep it from being trodden under foot and destroyed. And by such a process, the manure that should be husbanded to enrich their grounds for future crops, becomes almost a dead loss. Manure needs care and attention, in order to retain its value, as well as the animal that produces it. Men who despise all improvement, and especially *book farming*, often err on this subject. With them the product of the barnyard is manure, if all its fertilizing properties have been leached out and evaporated; many a load is drawn to the field, that is about as worthless as the sand in the street. Thus while systematic farmers grow rich, their lands grow poor, their crops fail, and they spend their time in hurried, fretful, anxious toil, without hardly securing a comfortable livelihood.

System will also give an air of neatness to a farm, that will not fail to please. In this respect, the owner will seek to copy nature, and exhibit, in every department, symmetry and order. This will be seen in the division of his fields. All will be so arranged as to be easily accessible, fences will be erect and in straight lines, gates and bars in good condition, and in their proper place, and stumps, and rocks, and all unsightly objects removed. The orchard will be in the right place, and properly cultivated, and the gardens will exhibit not only order and beauty, but the promise of an abundance of the luxuries of life. The dwelling, and the fixtures around it, will show their owner to be a man of industry and refined taste. All things will conspire to render the situation an inviting residence, and to put to the blush the careless, ignorant, and chaotic farmer.

HUBERT.

UNITED STATES AGRICULTURAL SOCIETY.

THE following was prevented by the great snow-storm from reaching our office in time for the Feb. No. It would otherwise have been appended to the Editorial Correspondence in that number.

Meeting of the United States Agricultural Society, at Washington, D.C., Jan. 14th, 15th, 16th, 1856.

THIS Society held its fifth annual session at the Smithsonian Institution. The President of the United States, the Secretary of the Treasury, and many members of both Houses of Congress were present at the opening of its sittings.

The attendance was larger than at any former meetings. While Marshall P. Wilder, the President of the Society, was delivering his address, Mr. Pierce, the President of the United States, and Mr. Johnson, Governor of Tennessee, took their seats by invitation from him, on his right and left respectively.

It is not our purpose to give a full account of the proceedings. A few items may interest our readers. The Treasury is not overburdened. The total amount to its credit is $3,785 75. From all sources there was received at the Philadelphia Exhibition $42,062; and $40,990 was paid out.

Mr. Calvert, of Maryland, expressed an earnest desire that there should be funds to pay, as permanent Secretary, a man of sterling ability and capacity. He also wanted a department of agriculture with a cabinet minister at its head. He said: "Commerce is protected; manufactures are protected; agriculture is left to take care of itself. It pays everything and gets nothing."

From a debate which sprung up on the state of the funds and the use to be made of them, it was shown by H. F. French, Vice-President from New-Hampshire, that no money raised for the general purposes of the Society had yet been expended for the annual shows, but that these on the other hand had been fully sustained by money raised for that specific object.

Hon Humphrey Marshall, of Kentucky, made some remarks. He thought that if other nations considered it worth while to institute their great industrial exhibitions, it was quite proper for the United States Agricultural Society to do so. He considered the objects of the exhibitions desirable and praiseworthy. If the Society would come into his quarter and exhibit there, he would guaranty them ground free of expense. He desired an exhibition in the West; and he was sure that, accessible by land and water, it could be made successful. He hoped no prejudice would be any where raised against the meetings of the society.

Hon. James Guthrie, Secretary of the Treasury, stated that he was instructed to propose Louisville as the place of the next exhibition, and hoped the society would go West, and see what had been done by its people in every department of agriculture and husbandry.

The Chair then appointed as the committee on the next exhibition Messrs. Harrison, of Penn., Jones, of Delaware, Richardson, of New-York, Kellogg, of Mass., and Hartshorn.

At a subsequent meeting this committee reported "that having considered the overtures made by the citizens of Baltimore, Maryland, St. Louis, Missouri, and Louisville, Kentucky, they award a preference to the proposition made by the Southwestern Agricultural and Mechanical Association, which offers its grounds free of expense, and gauranties an amount of thirty thousand dollars as an indemnity against any excess of expenses over receipts at Louisville, Kentucky." This report was accepted, and so Louisville was fixed upon as the place for the next Exhibition.

The Chair then offered specimens of apples and pears from Oregon, which were placed in his hands by Mr. D. J. Browne, of the Patent Office, to whom they were sent by an Agricultural Society in that distant Territory. These apples and pears were of gigantic size and good flavor, especially considering the time and distance traveled since taken from the tree. Members of the society and reporters of the press regaled themselves on these fine specimens of Oregon produce.

A committee on trials of agricultural implements in the field was then appointed, with power to add to their number and make arrangements, subject to the control of the Executive Committee. It consists of Messrs. Benson, of Maine, Tench Tilghman, of Maryland, Waring, of New-York, Warder, of Springfield, Ohio, Olcott, of New-York, and Lang, of Maine.

Mr. Kimmel, of Maryland, after mentioning in terms of high encomium, for his patriotic liberty, courtesy, and public spirit, the name of George Peabody, Esq., now of London, but a native of Massachusetts and adopted citizen of Maryland, nominated Mr. Peabody as an honorary member of the society; which was seconded by Mr. B. P. Poore, who related the fact that, when on his last return to his native land, Mr. Peabody steadily avoided the ovations that awaited him from the citizens of Boston, and showed himself first to his old friends in Essex Co., and partook in the proceedings of their agricultural meeting there. The election of Mr. Peabody as an honorary member was then unanimously carried.

Mr. Kimmel then remarked that, as he thought it very desirable that the United States Agricultural Society and the Royal Agricultural Society of England be brought into closer connection, he proposed that Mr. Peaboby act as the representative of this society before the Royal Agricultural Society.

Prof. Fowler, of Massachusetts, claimed almost a right to second this motion, for he had been at the meeting of the Royal Agricultural Society in England, where he had been treated with the greatest kindness, and had good cause to acknowledge his indebtedness to the civility and hospitality of Mr. Peabody.

Mr. Prince, of New-York, hoped that Mr. Peabody would also be accredited to the Central Agricultural Society of France, which had done so much for pomology, and which would hold its exhibition in Paris next May. In the course of his remarks Mr. P. alluded to the exertions made by the French society, particularly in respect to the *Sorghum saccharatum.*

These motions prevailed, and Mr. Peabody was constituted a representative of the United States Agricultural Society to the English and French National Societies.

The Chair appointed a committee, consisting of Messrs. J. D. Browne, of the District of Columbia; Peters, of Georgia; Clapham, of New-York; Hyde, of Massachusetts; Gov. Hammond, of South Carolina, and Hart of Kentucky, to consider and report on the merits of the sorghum saccharatum, or Chinese sugar-cane.

Mr. Jones, of Delaware, moved the appointment of a committee to memorialize Congress to organize an agricultural department, with a Cabinet Minister at its head.

Mr. McHenry, of Maryland, hoped that before that be done the subject would receive the benefit of a careful investigation, and that something of the scope of power intended to be conferred should be determined on.

Mr. Jones replied, insisting on the propriety of his motion, and expatiating on the evils of the present system, and especially of the excessive importations we are now making.

Mr. Waring, of New-York, hoped that the committee would report this morning.

The Chair nominated as the committee Messrs. Jones, of Delaware; Crittenden, of Kentucky; McHenry, of Maryland; Waring, of New-York; and Kellogg, of Mass.

Hon. J. J. Crittenden hoped that some other member would be substituted for him. He said he was not a practical agriculturalist, and besides, was so busied to-day with legislative duties, and especially the Revolutionary claims bill, as to render him unable to give attention to the subject now pressed on him.

The Chair then substituted G. W. P. Custis, Esq., of Virginia, in Mr. Crittenden's stead.

Mr. Lewis, of Massachusetts, then moved the following resolution:

Resolved, That a committee be appointed to take into consideration the subject of carrying out the plan of the Commissioner of Patents in relation to collecting agricultural statistics in the several States named in his last agricultural report.

Mr. Walsh, of Maryland, proposed to refer the subject of the last resolution to the committee last appointed. This motion prevailed, but was almost immediately reconsidered.

Vice-President French moved the appointment of a special committee, which was carried; and the Chair appointed accordingly Messrs. Lewis, of Massachusetts; Walsh, of Maryland; and Wager, of New-York.

Vice-President French then proposed that the society informally discuss the merits of the *Sorghum saccharatum.* This did not prevail.

Mr. Secretary Poore submitted a report from the committee appointed to urge on Congress the subject of meteorological observations, and proposed that it be published.

Mr. Lewis, of Massachusetts, prefaced the series of resolutions following by remarks on the great want of precision of knowledge possessed by agriculturalists on agricultural and kindred subjects. Notwithstanding all that had been done, the ignorance abroad is astounding—every thing almost loose and uncertain, and unlike what prevails in other walks of science and human concerns.

His aim was to remedy this, and to obtain something like rule and order on these subjects. He therefore moved the following resolutions, to wit:

Resolved, That a committee of five be appointed to establish a scale of points which may be considered as constituting perfection in the various breeds of cattle, horses, sheep, and swine.

Resolved, That said committee cause accurate drawings to be made delineating each of the various breeds and sexes, with said points clearly indicated.

Resolved, That said committee recommend what number of points or degrees of perfection shall entitle any animal to receive any or what premium at the annual exhibition.

Resolved, That said committee recommend what further regulation should be adopted by the society for the direction of committees in passing their judgment on stock entered for premiums.

Resolved, That said committee submit their report to this society as soon as practicable, to be acted upon by the members.

After much discussion, the foregoing resolutions were adopted, with an amendment by Mr. Dyer, of Connecticut, as follows:

Resolved, That a committee of five be appointed on each of the prominent classes of neat stock, on horses, sheep, and swine.

We wish it were in our power to report as fully on the proceedings of the second and third days. But as our space forbids, we will only say, that the meeting was, in the main, harmonious, and was full of interest. On the morning of the second day the officers of the former year were all unanimously reëlected. The address of Hon. Marshall P. Wilder, on resuming the Chair for a new year was brief, but touching, evincing, when viewed in connection with his past doings, an admirable devotion to the great cause of Agriculture. One of the most important results come to was that of petitioning Congress for land for the purpose of endowing an Agricultural Institution in each of the States and Territories.

In the progress of the sittings, Prof. Henry, of the Smithsonian Institute, gave a lecture, detailing the investigations now in progress by that Institution on the subject of climatology, storms, etc. It was intensely interesting. and to our mind, afforded satisfactory evidence that the Institute, under the auspices of Prof. Henry, may be expected to effect a vast amount for the industrial interests of the country, and for none more than agriculture.

The sittings were closed by a valedictory address by George Washington Park Custis, the farmer of Arlington, across the Potomac from Washington City, now seventy-six years of age. Had the Father of his country been raised from the dead for the purpose of addressing the meeting, he could hardly have spoken more affectionately, or more eloquently, or more wisely. Mr. Custis is a descendant of Lady Washington, but not of the General. He is sometimes called the last of the Washingtons. If last, he is not least: nor can we admit that he is the last, since George Washington was the father of all the American people.

We sincerely hope that the proposition to come before Congress from a committee of this meeting, for the purchase of Mount Vernon for a model farm and a school of agriculture, will find favor from that honorable body. Why should it not? It is understood that the present owner, while he would not transfer this property for any private purpose, is willing to dispose of it to the nation, for such a purpose as is contemplated by this society. Herein is he right. It should be public property owned by the people, open for resort to all who would learn lessons of practical wisdom at the tomb of the father of his country; and at the same time, why not make it answer a great, practical and benevolent purpose, aiming at the good of the whole nation?

Manufactures, Mechanics, etc.

WOONSOCKET, R. I.—ITS INDUSTRY.

There are none so blind as those who will not see. How a man with only one eye, can read such statements as that below, from our friend E., without giving his whole influence to the encouragement of American manufactures, we cannot tell. We would not believe it possible, had we not actual demonstration of the fact. Why will not our Southern friends open their eyes so as to appreciate such results. But let our correspondent be heard. P.

Woonsocket, R. I., January 20th, 1856.

Messrs. Editors:—Did you ever hear of Woonsocket, in the little State of Rhode Island? Were you ever here? Both of these questions I hope you are able to answer in the affirmative, but as I do not recollect ever to have seen a notice of it in your excellent periodical, although I have been a subscriber and reader of it for the last five or six years, perhaps you will allow me to pass briefly before the view of your readers a few of its most notable and characteristic features. An industrial locality like this, though quiet and unassuming, yet so active and energetic, and daily sending forth, in the great channel of trade, so large a quantity of the manufactured fabrics of cotton, as does this same Woonsocket, will have its place, and make its mark, amongst the great producing communities of the country, and as such must share the interest with which the business and the reading communities regard all the sources from whose workshops and laboratories go forth the streams which, when united, make the great aggregate of our domestic trade and commerce. Woonsocket is not interesting alone for the extent of its manufactures. When the red children of the forest rested in their quiet haunts along the beautiful river, whose waters now turn the massive water-wheel and drive the noisy loom and spindle and indeed until the hand of the white man, in a great degree despoiled it of many of its charms, it was a place of singular and romantic beauty. A natural fall in the Blackstone river, at this place, of some twenty feet, over cleft, and jutting, and cavernous rocks, was one of its original features, and from some of the peculiarities in the original character of these falls an interesting writer on the derivation of Indian names has traced the name of our village, slightly modernized by the irreverent Yankee, by which the Indians used to designate this vicinity. The Indian name, or word, used, was "Woone-suckete," which signifies, in the Indian vernacular, *thunder mist;* and the idea of applying it, it is supposed, arose from the columns of spray, and the hollow and reverberating sounds produced by a full tide of water, plunging and tumbling amid the chasms and caverns of the rocks. Traces of its old beauty are still to be seen, but the unscrupulous hand of improvement has swept them mostly away.

But it is Woonsocket "as it is," that will most interest the practical reader of to-day. Woonsocket, then, is built upon the Blackstone river, some eighteen miles from its mouth, where, after turning, in its whole course, say five hundred water-wheels, it delivers its "industrial" waters into the Providence river, a mile south of the city. The Providence and Worcester railroad passes through it, giving its business most excellent facilities, and from which it receives more tons of freight, and more passengers, than it does from any other point upon the road, excepting its southern terminus, the city of Providence. It contains within itself, upwards of six thousand inhabitants, and within a radius of two miles, two thousand more. Its principal manufactures are, a first class article of cassimeres, cotton goods of various descriptions, and nearly all the different kinds of machinery used in the manufacture of both woolen and cotton.

It might be mentioned, also, as a singular fact, that perhaps three-fourths of all the "scythe stones" used in the United States are manufactured here. We have also a manufactory here of wind musical instruments, where instruments of a very superior quality are produced, that have a reputation in Europe as well as in this country.

But it is for its manufactures of woolen and cotton, and of machinery, that it most deserves public notice. It has, in reality, but one manufactory of cassimeres, though there are several large mills, all owned and conducted by Mr. Edward Harris, a man most indefatigable and successful in his business, whose fabrics you may see quoted in the New-York markets, as amongst the leading goods in the country, and are, indeed, very beautiful and superior, nearly, if not quite equal, in all respects, to the finest and best French goods. Mr. Harris, in his manufacture consumes yearly, about 600,000 lbs. of wool, producing about 475,000 yards of goods, valued at about 600,000 dollars. Such is the popularity of his goods that he wholesales many of them himself, and probably might do so much more extensively than he does, but being a man of generous principles, as well as great business capacity, he is quite willing that others, as well as himself, should participate in the profit of their sale. The cotton manufacture here is now divided, as well as diversified. There are no less than fourteen distinct manufactories, comprising twenty separate mills; some of them incorporated companies, and some owned by single individuals. These mills contain an aggregate of about 75,000 spindles, and 2,000 looms, consuming annually about 10,000 bales, or five million lbs. of cotton, and producing from fifteen to twenty million yards in the same period. Of the aggregate, we should say upon a rough estimate, one-fourth part was *coarse* heavy sheetings, one-fourth ditto *fine* heavy sheetings, and the remainder "printing goods" of various grades. The machine building is principally done by Messrs. W. & L. A. Cook, who have long been extensively engaged in the business here, and manufacture a very good article of machinery. I must not omit to say that we have two good institutions for the safe deposit of the earnings of the operatives and others, in which are now deposited nearly half a million of dollars. We have also six banks of discount, five commodious houses for religious worship, and an excellent system of graduated public schools, which have been recently established at a large expense, and are very efficient in their operation.

We, of course, have a plenty of commercial gentlemen who, with commendable liberality and disinterestedness, supply the wants of the village and vicinity.

Thus we give you a "bird's eye view" of "*our village.*" If you think it "worth the candle" we should be pleased to see it in print. If you think otherwise we shall not "stop our paper," nor sleep one wink the less.

Yours truly, E.

LIGHTS,—GAS LIGHTS, ETC.

Gas, Coal gas, Oil gas, Rosin gas, Mode of producing, measuring and testing, Reading the Metre, Defending from Frost, etc.

Let any one of us be deprived of the ordinary source of light to which we have long been accustomed to resort after daylight disappears, and we shall very soon appreciate the value of such conveniences. No matter if it is but a tallow candle, it is a step beyond any thing before tried, and is better than any substitute at hand. All improvements, available by our housewives, in the production or management of that domestic product, are of no inconsiderable value. We shall try, by-and-by, to make some useful suggestions on that point, in reference to candles, lamps, etc. But we now have our attention directed to the more brilliant of the combustible materials used for such purposes; and though we do not know how extensively gas, in any form, is used by our readers, it may be, that we can give such information as will put within their reach, in some form, the very best of all illuminating materials at a moderate cost. Those who have once used gas, with proper fixtures, will not wish to resort to any substitute. The use of gas, in any form, is comparatively modern. Coal gas has been known as an inflammable substance for some two hundred years, and received from different chemists different names. But no practical use of this discovery was made for a long time. A German chemist, Becher, attempted something of this sort about the year 1760, and entirely failed; and it was not for many years afterwards that any progress was made in that direction. In 1785. Lebon proposed to procure illuminating gas from the distillation of wood. In 1792, Murdoch first applied coal gas to purposes of illumination, and made the first public exhibition of the process and its results in 1802. The first London Gas Company commenced operations in 1805, distributing gas through one hundred and twenty-two miles of pipe. Now, the annual consumption of gas in London, is not less than three thousand millions (or three billions) of cubic feet, or sixty thousand tons of gas.

Illuminating gas, is heavy carburetted hydrogen gas. But the great differences in the quality of gas furnished by different companies, or even by the same company at different times, shows that, like city milk, the article is sometimes very badly adulterated. It would be a great security against swindling, should our householders know what is given them under this name, and if they could test, by a cheap process, the quality of their gas.

Gas, manufactured on a large scale, by city companies, always contains many impurities, from which it ought to be freed. The very offensive odor, so often perceived in the streets, is chiefly from sulphuretted hydrogen. But this is as useful to the gas company, as the pump is to the milkman; and the fact that it contains no illuminating power, is of no consequence, as long as every cubic foot of it is duly registered as it passes through the metre as pure illuminating gas. Heavy carburetted hydrogen gas, bi-carburetted and per-carburetted hydrogen gas, are synonymous. The terms *Olefiant gas*, as used by Turner, in his Chemistry, or *Marsh gas*, as it is called by Booth, refer to the same product. There is a light carburetted hydrogen gas, containing but half the proportion of carbon required in illuminating gas, and possessing very little illuminating power. This is always mixed more or less with the heavy, in our large gas works. It constitutes the "fire damp" of mines. A hundred cubic feet of it weigh 16·944 grains, and its specific gravity is ·5555. The heavier gas may be produced without difficulty, on a small scale, by a process we have often exhibited, by mixing in a large glass retort six parts of strong alcohol with sixteen parts of strong sulphuric acid, applying the heat of an argand lamp; though this gas will need purifying, to free it from the sulphuretted hydrogen. A hundred cubic inches of the heavier gas, will weigh 29.654 grains, and its specific gravity is .9722. Whenever the weight or specific gravity falls below these figures, the gas is impure, and of diminished value for illuminating purposes.

COAL GAS.

The destructive distillation of coal is the ordinary source of illuminating gas, though fats, rosin, and wood, are sometimes employed. One pound of Cannel coal, in experiments by Mr. Peckstin, was found to produce 5·29 cubic feet of gas. Other coals produced less, ranging all the way from the amount just mentioned, to 1·87 cubic foot. The same chemist found that a chaldron of Newcastle coal, in eight successive hours, produced constantly diminishing results, as follows:

1st hour	2000	cubic	feet,
2d "	1495	"	"
3d "	1387	"	"
4th "	1279	"	"
5th "	1189	"	"
6th "	991	"	"
7th "	884	"	"
8th "	775	"	"
In eight hours	10,000	"	"

The quality of the gas also changes, the first products being the best. In experiments by Dr. Henry, it was shown that the specific gravity of the gas given off during the first hour was 650, 620, and 630, while after five hours, it was 500, and after ten hours, only 345. After ten hours' distillation, the gas contains but very little illuminating power. Its proportion of carbon is very small, making only a light carburetted hydrogen; and, indeed, the compound gas seems to be decomposed, so that the flame burns with the blue which distinguishes the combustion of hydrogen gas. In experiments by Marchand, the quantity of carbon combined with a hundred feet of hydrogen gas, was diminished from 614, down to 7.

But the richest varieties of cannel coal will produce much more than this. That known by the name of Boghead Cannel, which is found about half way between Edinburgh and Glasgow, yields 13,000 cubic feet to the ton, of the specific gravity of .775. A gas burner which consumes one cubic foot per hour, of this gas, gives a light equal to 8½ sperm candles, each consuming 120 grains of sperm per hour. Scotch Parrot coal is next in the list. But different qualities of coal, beginning with those just named, and ending with the meanest of the Staffordshire coals, produce different amounts of gas, of a given quality varying from 18700 to 9200 cubic feet.—(Tomlinson.)

The quality of the gas is also injured by the presence of moisture in the coal. The action of steam, at a high heat, tends to produce carbonic oxide gas, light carburetted hydrogen, and hydrogen, or chemically expressed, $C_2H_2 + HO = C = O + CH_2 + H$. Ten per cent., hydrometric measure, of moisture in coal deteriorates the illuminating quality of gas, from that produced by dry coal so much, that the proportion of olefiant, or heavy carburetted hydrogen gas from such coal, to that from dry coal, is as 1 to 1·5. The specific gravity of coal gas varies from .443 to .700.

OIL GAS.

Oil gas requires less purifying than coal gas, for it contains no sulphur, and less carbon and hydrogen. One gallon of whale oil produces 90 cubic feet of gas. The illuminating power of oil gas is to that of the best coal, as 2 to 1. The specific gravity of oil gas varies from .446 to 1.100.

When coal cannot be had at moderate rates, fats may often be used advantageously. Some of the Western river-boats are supplied with gas from the refuse fat of the kitchen. In Rheims, gas is produced from the soap-suds used to free woolens from grease. The soap water is treated with sulphuric or muriatic acid, when the fat collects on the surface of the liquid. This is re-melted and purified by a little sulphuric acid, to effect a clarification, then with crude soda, to make soap, and the residue is distilled in retorts, like rosin, for the production of gas.

ROSIN GAS.

One pound of rosin yields from ten to twenty cubic feet of gas, the illuminating power of which, compared with that of coal gas, is as 3 to 2, and with that of oil as 3 to 4. But we omit other statements for the present.

WOOD GAS.

It is but recently, that successful experiments have been made in the manufacture of illuminating gas from wood. A patent was first applied for in this country, in October, 1853, by a German chemist, the assignee of the discoverer, Emil Briesach. Under this patent, different gas works have been erected in this country, and we believe, with very satisfactory results. Where wood is cheap, this gaseous product will also be cheap. The residuum consists of charcoal and tar, both valuable in the market. Creosote and pyroligneous acid may also be obtained, wherever the state of the market secures for these a sufficient value. Different kinds of wood may be used for this purpose, pine, spruce, beach, oak, etc., if it be perfectly dry; and if the wood is as cheap as in many districts of this country, the cost must be very much less, indeed, but a small fraction of the cost of coal gas at its ordinary rates. The Philadelphia City Gas Company, through Dr. Crawson, their engineer, some two years since, made the following statement of the product of gas from wood.

"One cord of ordinary pine wood, of 128 cubic feet, produces gas-light equal to 800 lbs. of spermaceti candles; one cord of oak or maple, of good quality, will yield gas light equal to 900 lbs. of spermaceti candles." This estimate is upon wood used without a careful drying. When this is thoroughly attended to, a cord of pine wood has produced light equal to 1300 lbs. of spermaceti candles.

WHO CAN ENJOY THIS LUXURY.

It is not the inhabitants of cities or even of villages, that now enjoy a monopoly of this sort. Indeed, it is very questionable, in our opinion, whether those who live in cities cannot advantageously rely on their own resources, without the aid of gas companies, for this manufacture. There are so many complaints of the quality of gas, of interruptions in the use of it, the connections being cut off to mend defects in the street pipes, or to make new connections on new streets, or with new structures; so much freezing and thawing, so many disputes, and such ill feeling from doubts as to the honesty of the monthly bills that are rendered, that when one can have his gas fixtures where he can defend them effectually from the cold, and from all other obstructions, and completely under his own control, it is certainly, in itself, desirable to do so. Several of the larger hotels of this city manufacture their own gas; and not a few individuals light their own stores or dwellings with gas produced in their own basements.

IMPORTANT INFORMATION FOR THOSE WHO USE GAS.

How to read the Metre.—Every family which buys gas of a company, should know how to read the metre, which determines the amount of gas consumed. On opening a small door are exposed three faces, like those of a watch, but figured only to ten, with an index on each. The right hand dial expresses hundreds, that is, if the index points to 3, it means 300. The figures of the middle dial express thousands, and if it points to 3, or between 3 and 4, means 3000. The figures of the left hand dial express tens of thousands. These must be read *by the last figure which each index has passed.* If the indexes of all the hands are between 3 and 4, it must read 30,000, 3000, 300, or 33,300. If the left hand index is at or past 5, the middle one at or past 6, and the right hand index at or past seven, it should read 56,700. When the monthly entry is made, as a basis of charge, this sum is to be subtracted from the record for the preceding month which must of course be preserved, and this shows the amount consumed meanwhile, and to be charged.

If a metre freeze, envelop it thoroughly in thick cloths dipped in very hot water, and repeat the process till the ice is melted. This will generally suffice, without meddling with the interior of the metre. But if not, then remove the upper thumb screw, and pour in boiling water freely, drawing it off when cooled, through the *lowest* opening. Repeat this process till the ice disappears. Then, replacing both these screws, unscrew the middle thumb screw, and let all the water run out that will run rapidly; but when it begins to escape gently, falling at once from the orifice without projectile force, replace the screw, and the metre is fit for use.

If the large iron pipe is exposed between the wall of the basement, as it often is near a basement door, and the street, it may be that moisture has been condensed and water accumulated there and frozen. Hence, if, when the gas is "let on," and the lowest thumb screw is removed or loosened, the gas does not rush out while the metre is free from ice, then pour boiling water along the exposed pipe, until by heating through the pipe the ice is melted.

Bad Gas.—Very strong odor indicates impure gas. The presence of light carburetted hydrogen can only be detected by a chemist, who may judge by its weight in vacuuo, or by other tests familiar to those accustomed to chemical operations.

We propose to make further practical suggestions, on this subject, and describe the various means of manufacturing, using, measuring, and testing gas, in private dwellings, in our next number. P.

LIQUID AND SOLID SUBSTANCES USED FOR ILLUMINATION.

Sperm Oil, Whale Oil, etc., Camphene, Burning Fluid, Spermaceti, Wax, Stearine, Stearic Acid, Tallow; Snuffing Candles; Different kinds of Lamps.

Oils are used for the purpose of illumination more extensively than any other substance. They are of various kinds, and require very different treatment.

Rosin Oil.—So far as illuminating power is concerned, rosin oil doubtless stands at the head of this list. But the offensive odor which escapes from it, from which it cannot be entirely freed by any process hitherto known, is a strong and fatal objection to its general use for domestic purposes. It is exceedingly rich in carbon, and of course produces a large amount of smoke when its combustion is imperfect. Hence, it requires a lamp of peculiar construction. A powerful draft in perfect contact with the flame by means of a circular wick, and a proper chimney, are indispensable. But when such lamps are properly adjusted the flame of this material is quite as brilliant as that of the best gas-light, and is produced at a very moderate cost—less than one half that from sperm oil. Several lamps have been patented with especial reference to the use of this oil.

SPERM OIL, WHALE OIL, ETC.

Sperm oil is the product of a particular species of the whale—*Phaseter macro-cephalus.* The blubber, or the fatty substance which envelops the entire animal, and forms the mass of his bulk, is cut into convenient pieces and exposed to pressure. Sperm oil is the liquid product. The base of all fats is either stearine, oleine or margarine. The first is solid, the second is liquid. Margarine occupies a position between the two, being almost a semi-fluid. Oleine is the base of oils, and stearine of tallow, or the solid fats. It is the varied mixture of these three substances, or the proportional quantity of each, which produces the different consistency or degrees of fluidity, observed in different fats. By repeated pressure, in a cold atmosphere, the oleine is separated from the stearine and forms an oil which remains fluid in a cold atmosphere. But oil from which the stearine has not been thus separated hardens when exposed to a low temperature.

Whale oil, train oil, etc., are obtained from other species of whales, and from various kinds of fish. These oils, it is well known, are not held in much esteem, but a process has been discovered within a year or two by which they may be purified and rendered suitable for illumination, etc. The process is as follows: Common whale oil is placed in a still with an ounce of sal ammoniac and a pint of turpentine to each gallon of oil. Heat is then applied, the mixture being stirred constantly by a rod passing into it. The oil that is distilled is of superior quality, though peculiar in its character. A residuum of black pitch is left in the still. Another process has also been discovered for producing similar results, to wit: by passing the impure oils through serpentine tubes of considerable length in intimate contact with steam. The oil must be divided as much as possible by passing it through a diaphragm of copper pierced with numerous holes, thereby exposing a large amount of its surface to direct contact with the steam. A patent was obtained in 1854 by a Mr. Drayton, for purifying any oil, whether animal, mineral, or vegetable, which consists in mingling with the oil about one fourth its bulk of alcohol, shaking them from two to five minutes, and then suffering the mixture to settle. The purified oil, settling below the alcohol, may be drawn off for use. A common oil filler may be used, for such a process, on a small scale, by stopping up the snout, provided care is taken afterwards in decanting the oil, and if the pouring is not continued long enough to mix the oil with the alcohol and other impurities. Such a process might test the value of the process, if it should accomplish no other good. But we have some faith in it.

Lard oil, and even lard in its crude form, may be used in lamps so constructed that the flame of the lamp shall communicate its heat to the burning material, liquifying it and heating it, thereby fitting it for more ready combustion.

CAMPHENE, BURNING FLUID, ETC.

Camphene is the purified spirits or oil of turpentine. Burning fluid is a mixture of camphene or spirits of turpentine and alcohol. These preparations produce a brilliant light, though at a cost quite equal to that of the common oils. But they have the advantage of cleanliness. The hazard of an explosion or of combustion is the only objection to their common use. The liquids are not themselves explosive, but the gases given out from them, mingled with atmospheric air, are explosive, and the liquids are highly combustible. Pour a few drops, or a teaspoonful of the liquid into a large can and shake it thoroughly so as to fill the can with its vapor, and then let a lighted flame approach the nozzle of the can, and there will be no doubt whether camphene gas or that of burning fluid "will explode." We have often seen a cork loosely fitted into the top of the can, driven with violence by this means, against a high ceiling. The principle of Davy's safety lamp has been applied to portable and table lamps for burning fluids by Mr. Newell, of Boston, which are for sale in this city and elsewhere. We described this lamp in a former volume, and have tested its merits by use from a still earlier period. The invention is a perfect security while the lamp is unbroken. Other forms have been devised for the same purpose, with which we have had no experience. One of these is by Prof. Horsford, of Cambridge, Mass. He has also secured a patent for an improvement upon its original construction. But more on this point hereafter.

SPERMACETI CANDLES.

These are manufactured from a substance which abounds in the head of the sperm whale. When this fat is clarified and pressed for the removal of various foreign matters, it forms the spermaceti of commerce. Spermaceti melts at 112°.

WAX.

Wax is obtained from the comb of the bee, and forms the cleanest but at the same time the most expensive light in common use. It is a vegetable product, abounding in the pollen of flowers, and occurs also in other parts of vegetable growth. But bees will deposit wax when they are fed exclusively on sugar, and we must thence conclude, perhaps, that it is also an original production of that industrious insect. Wax is also formed by other species besides the honey bee. Wax melts at about 150°, or perhaps at a little lower temperature.

Wax candles are not run in molds, because of the tenacity with which they adhere to the molds, and also because the wax contracts in cooling. The process of their manufacture is as follows: The wicks are suspended from rods, as if for dipping, each wick being kept in its place and properly twisted by the hand, the melted wax is gradually poured over it from its upper extremity. This process is repeated till a sufficient thickness is obtained, when the candle is rolled upon a smooth table of walnut wood. The large candles used in Roman Catholic churches are made by placing a wick upon a slab of wax, bending this together and then rolling it.

STEARINE

Is a substance resembling spermaceti both in appearance and composition. It exists in all the fats, but is most abundant in mutton. It melts at a temperature of 130°.

The manufacture of candles from stearine has become a very extensive business in this country and elsewhere, being obtained in great quantities from fat pork. The stearine may be separated from extraneous matters by boiling the fat with lime or some alkali, a salt being formed, and then decomposed by a stronger acid, or if the tallow is pressed between hot plates and then dissolved in hot ether, and cooled, the stearine will be deposited.

The present improved process for manufacturing candles of stearine is as follows: The fatty matter is exposed at a high temperature to the action of sulphuric acid, which changes it into a mixture of fat acids of a very dark color, with a high melting point. This is then distilled in an atmosphere of steam. The distilled material is used for making the cheaper description of composite candles, or is subjected to hydraulic pressure, first at the temperature of the air, and then at a high heat, the result being the material used for making what are known as the *Belmont sperm*, corresponding with stearic candles. The material used by the patent candle company, Belmont, (England,) is palm oil. It consumes over 4000 tons of Palm and Cocoa nut oil per annum. It employs 900 hands, besides steam and hydraulic power.

These candles are hard, and almost as desirable as wax. They are, however, inferior to those made of

STEARIC ACID.

To obtain this substance, mutton suet is saponified by boiling it with potash; the purified soap is then decomposed by an acid, and a mixture of stearic and oleic acids rises to the surface. The oleic acid, which is limited in quantity, is separated by pressure between warm plates. By solution in hot alcohol, and subsequent crystalization, it is further purified; the process being repeated till the melting point is constant at about 167°.

TALLOW.

The rapidity of the combustion of rough tallow is so great, and its illuminating power is so small, that candles made of such matters are, in fact, more expensive than are those of higher cost. The following process describes the proper treatment to be pursued with this material: The tallow is cut in small pieces and melted. Membranous portions, called cracklins, rise to the surface and are skimmed off, being afterwards freed from the fat which adheres to them by pressure. The liquid tallow is then strained through a coarse sieve, and boiling water is mixed with it. The water carries certain impurities with it to the bottom, and after settling, the melted tallow is lifted out and is ready for use.

LARD.

The following process for making lard candles is recommended by the *American Farmer:*

"Take one quarter pound of alum, one quarter pound of saltpetre; pound it fine; put it in a pan and add sufficient water to dissolve it, but no more; when dissolved, pour in three pounds of melted lard; let the mixture stew over a slow fire; keep stirring until the water has all evaporated, which will be the case as soon as the alum and saltpetre shall have collected in small lumps at the bottom of the pan, when it may be poured into the molds, the dross remaining in the pan, and molded the same as tallow. Candles thus manufactured will be harder, and give a better light than those made of tallow, but will have a straw color."

WHAT IS FLAME?

Flame is not a luminous mass of gas merely, for such flame might have but little illuminating power. Such is the flame of hydrogen. But if solid matters, very minutely divided, such as charcoal dust, become white hot in the flame, they greatly increase its luminosity. In the artificial lights, of which we are treating, minutely divided carbon supplies this matter and secures a brilliant flame. The fibres of the wick act only as capillary tubes, conveying the fat into the flame. The central portions being excluded from the oxygen of the atmosphere, are but partially consumed in certain circumstances, and then they escape in the form of smoke. The degree of contact between the gaseous products of the fat or oil and the outer atmosphere determines the degree of combustion, and, of course, the degree of heat, and this again affects the brilliancy of the flame.

SNUFFING CANDLES

Is a process required by the inability of the combustible material to consume the wick. The wick is surrounded by the gaseous products of the candle, and is thereby partially excluded from the action of oxygen, and its combustion, of necessity, s very imperfect. When the wick becomes long, it interrupts or divides the blaze of the candle, and thus diminishes the light. It also exerts a cooling influence upon the flame, and thus operates unfavorably. Stearine, spermaceti and wax, being less fusible than tallow, which last melts at 92°, may be burnt with a smaller wick, and if the wick be reduced to the least practicable size, that is, to the least size capable, when lighted, of melting the surrounding fat sufficiently, it will bend over, exposing its extremity to the outer edge of the flame, where it will be consumed and the necessity of snuffing will not exist. The wick of tallow candles is too substantial to be thus entirely consumed, and hence must be cut off by snuffers. But the bending of the wick of sperm candles is caused partly by a tight braiding or twisting of its fibres. Were this done to the wick of a tallow candle, its excessive heat when thus bent down, would melt the candle and produce "gutters."

Were our purpose scientific, rather than practical, we should make especial reference to other products now but little known, but regarded as valuable for illumination. Such are some of the vegetable oils of Africa, and of the East, especially Cocoa nut and Palm oil, which are already important articles of commerce; the vegetable tallow of the *Vateria indica* and other plants, the growths of the Chinese and the Archipelago Islands. There are many vegetable waxes also, both foreign and native, that are of considerable importance, and may be held hereafter in still greater estimation. Among these is the Myrica cerifera, the Bayberry or Wax myrtle of our own country, from which comes the Bayberry wax of commerce. The wax is separated from the berry by treatment with boiling water.

We purpose to pursue this subject by describing the various lamps and other apparatus necessary for the use, by private families, of either of the modes of lighting their houses, whether by gas, or by the liquid substances already described. We believe a great revolution is at hand in respect to these matters.

P.

ARTIFICIAL STONE.

Progress is the order of the day, but we must be allowed to insist that there are some things that cannot be done. We confess that we are very much inclined to believe that the discovery of a process for dissolving building stones and reconstructing them in any form, size or style of finish for architectural or other purposes, that may be desirable, as is now claimed to be in successful operation in England, is one of these impossibilites. That almost every kind of stone has a solvent, we do not doubt. But we are as confident that many of them cannot be crystalized anew, after given models, and that where even this is possible, it may not be practicable, the cost being such as not to make it an object of pursuit for such purposes. We do not, however, profess infallibility. It may be a valuable discovery in the construction of busts, or for some ornamental purposes.

Mr. F. Ransome, of Ipswich, England, claims to be already successful in this, and we give a condensed account of his process, sufficiently full to show the philosophy of the results which he obtains with the materials on which he operates.

The first process is to obtain from some crude material a pure caustic soda. When all the impurities that can be separated by the means there used are separated, the soda, now almost free from foreign matter, is drawn off into a close tank where a different process is pursued, for securing the same result. The caustic soda is then pumped into a vertical boiler or digester, in which the solution of the silicious materials is effected. This digester is furnished with a steam jacket, which is supplied with steam from a boiler below it. It is also provided with a wire basket, through its whole extent, which serves to hold a collection of nodules of common flint. When this basket is filled with flints, and the digester with the caustic lye, the whole is closed up and made to sustain a pressure of at least 60 lbs. to the inch. A cock is then opened, and the full pressure of the steam passes into the jacket and causes the lye to rise to the same temperature, and the condensed steam returns to the boiler, through a pipe which enters it below the water line. This pressure is continued about thirty-six hours. Then, if it appears by chemical tests, which are applied, that the alkali has taken up as much of the silex as it is capable of doing, at that temperature, the steam-pipe communicating with the jacket is shut, and the cock of another steam-pipe is opened. The pressure of this steam forces the fluid silicate into a third vessel, where it is allowed to stand for a short time, to deposit any sediment which it may contain, after which it is conveyed to the evaporating pan, which also has a steam jacket. It is here boiled till it has the consistence of molasses, and the process is considered as complete.

Different varieties of material are used, and in different proportions, for producing different kinds of artificial stone. Sometimes a portion of clay is used with the silicious ingredients, which enables them better to endure the intense heat of the kiln, and to prevent a glaze on the surface.

P.

RAILROAD MANAGEMENT — BALTIMORE AND OHIO RAILROAD.

The nineteenth annual report of the Baltimore and Ohio railroad has been laid on our table, and is worthy of especial consideration. Mr. Felton, the accomplished President has done much for it, and in this document numerous suggestions are presented, too valuable to be overlooked by managers, directors, and stockholders, in the different railways of this country. We select the following, as containing matter worthy of consideration in the management of such interests, independent of its connection in this report:

"With such locomotives as were originally used, and with a speed of 18 or 20 miles per hour, the iron rail of 56 lbs. to the yard would have lasted fifty years or more. The business of railroads proving to be so much greater than was estimated, required more frequent trains, or a heavier class of engines. The heavier engines were adopted without once imagining the increased cost of running. As railroads became more numerous, competition sprang up, and the weight of engines was still further increased and the speed of trains doubled. In this state of things, the track and machinery depreciated, till finally, the shattered engines and cars, and worn-out track, forced upon railroad men a knowledge of the cost of heavy engines and increased speed.

Mr. Felton judges that there are very few roads whose business will justify the running of such trains, even at a high price. He treats the matter in a purely practical way, his deductions being drawn from facts, and not theories. A maximum load of passengers, over a tolerably straight and level road, will pay, he says, at three cents a mile, with a speed of thirty miles per hour, including stops. But heavy grades, short curves, and empty cars one way, use up the profits that would otherwise accrue. Heavy grades can be overcome, but they greatly increase the expenses, and require diminished loads. Hence they are very expensive, and consume the profits otherwise earned on the road. The Reading railroad can transport coal at two cents a mile per ton, with a favorable grade for their heavy loads, and ascending grade for comparatively empty returning cars; but this does not prove that, with the reversing of these circumstances as "with heavy grades against the trade," any other road could transact such business even at three cents a ton.

The first class passenger locomotives of the Baltimore and Ohio railroad will haul at the required speed, five hundred passengers, and the same class of freight engines will haul, at twelve miles speed per hour, three hundred tons of freight. Were all these trains "maximum trains," a dollar per passenger would pay well, but the hauling of empty cars increases very much the cost of transportation.

Mr. F. recommends offering encouragement to way business, as an important feature. We are confident that the relative importance of this kind of business is not overrated. We have watched this department of railroad business with great interest, though not so much on account of its material and direct influence on the interests of the road, as for another and still greater influence upon the industry of the people on the line of the road. A very large share of the profitable business of many New-England roads consists of this kind of freight and of passengers. Our readers may remember some statistics of this sort published, we think, in 1852 and 1853.

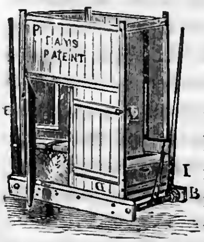
We are very happy to learn that the actual profits of this road have increased very largely over those of former years. The report can not fail to be very satisfactory to stockholders. The company is represented as being in a very prosperous condition, nearly free from floating debt, with valuable real estate in possession. In the examination of this report we see accumulating evidence of the remarkable abilities of their efficient President, to which we have testified on former occasions. P.

Recent Inventions.

SELECTED AND PREPARED BY M. P. P.

DRESSLER'S NEW SHEET METAL ROOF.—The reader will see in our advertising sheet, that Mr. Dressler, of Fairhaven, Pa., has a patent for a new roof which promises to be a great improvement on former styles of roofing. The saving in time required in placing it, the ability of the joints to contract and expand, without injury, and the mode of fastening, are valuable features in it, and render it highly worthy the attention of builders. The seams are so constructed, the edge of one sheet being inserted, perhaps a fourth of an inch, into the folds of the contiguous sheet, that it has play enough to meet the demand made upon it by variations of temperature, without being so loose or so exposed as to afford passage for moisture. We doubt not it will secure the approbation of those skilled in such matters. See his advertisement.

A CHEAP MOUSE-TRAP is described in several of our exchanges, which is, at least, worth a trial. It consists of a glass tumbler, tilted up a little on one side by a small piece of whalebone or other convenient material, the ends of which are fastened together by a piece of cheese. Rest one edge of the tumbler on this bent elastic, with the cheese within or under the tumbler, and the device is complete. If the tumbler rests on a small movable board, the whole may be carried away together to the place of slaughter.



FAY'S PORTABLE HAND POWER PRESS.—This machine, the simplicity of which cannot be surpassed, has long been desired by the Agriculturalist. It is admirably adapted for pressing hay, cotton, hemp, flax, hops, wool, pummace, linseed oil, cheese, etc. It is strong and effectual, simple in its construction and use, and with common care, one machine will last a life-time. The frame work is all secured together with joint bolts, only twelve of which are required to be removed in taking apart for shipment.

When the timber is thoroughly seasoned, the hay press will weigh about 1100 pounds, and is capable (with two men only) of pressing and baling between five and six tons of herds grass hay, per day, the bundles averaging about 350, of straw 380 pounds, and compressed to 30 cubic feet, proportions of one bale being 29 by 31 inches, and five feet long. It is about 2100 pounds lighter than some of the horse power hay pressess. It occupies but 7 by 3 feet, and one person can easily remove it to any desired place on a floor. Its construction is such that there is no violent flying of doors or breaking of hinges in removing the door bars, nor any strain upon the hinges when the substance is being pressed; the doors swing open gently, but not until a slight assistance is afforded by hand.

The hay press, shown in the margin, is adapted expressly for those who send their hay and straw to market by vessel or railroad, where snug stowage is an object. The bales are pressed (without additional labor) much more compactly, and being of medium size and weight are more easily and carefully handled. This size occupies 6 by 3 feet. It forms bales 26 by 29 inches, and 4 feet long, compressed to 20 cubic feet, averaging about 265, of straw 285 pounds. The numbers upon the index plates attached to each end of the press, denote as the press beam approaches them, the number of cubic feet in the bale. Price, $95.

Machine for thawing Fire Plugs.—Mr. Ogden, C. E. of the Philadelphia water department, has contrived an effective plan for thawing out fire plugs when frozen. It consists of a small portable boiler with a pipe attached, which is made to bear directly upon the inner pipe of the frozen plug. It does the work within five minutes.

Safety Friction Matches.—A recent English invention consists of matches made of sulphur and nitre only, without any phosphorus, while the phosphorus is applied to the sandpaper, with which the matches are ignited. To us, this seems only to transfer the danger of ignition from the match to the sandpaper. But if this is kept in a safe place, or if it be carefully fastened on the wall, near the place where the matches are to be used, it may be a valuable improvement. It is a good fashion, in regard both to convenience and safety, always to hang up pieces of sandpaper, ornamentally bound and otherwise made tasteful in appearance, as we do a watch case, by the side of our beds or bureaus, by the aid of which a match may be ignited without trouble. One will last, if properly secured, for a long while.

Pocket Printing-Press.—The inventive faculty of a young man of Hartland, Vt., Mr. Livermore, has been engaged, successfully, it would seem, in contriving a Pocket Printing-Press. The case which contains it is five inches long, two and a half inches broad, and one and a half inches thick. This contains the type, ink, paper and machinery. The press is operated by six keys, like those of a piano-forte. The types are composed of the sections of a parallelogram crossed by two diagonals. This parallelogram is cut so as to form all the letters of the alphabet, and in a shape to be easily read, in the impression. The slip of paper, some yards in length, is on a cylinder, and as fast as printed is received on another cylinder. The ink is contained in a piece of cloth saturated with it, to which the types are applied as often as necessary. The rapidity of printing is about equal to that of writing with a pen, as most persons write. Great ingenuity is shown in this little toy, and there may be within it the germ of something of great practical value.

JUNIOR EDITOR'S TABLE.

Should we take our "cue" from the spirit that so completely envelops us, extending through a wide extent of country, we might be led to take as a motto, almost involuntarily, the distich cited last month by one of our contemporaries, and found in a monkish tale:

> "The letters were written with blood therein,
> And the leaves were made of a dead man's skin."

But we can assure our readers, the world over, that we are reasonably safe from violence in this great city, wicked as it is. We have walked through its streets by daylight and by gaslight (how unpoetical this gas business, its odor is sulphurous, decidedly,) both alone and in company with friends, for several years, and we have never received the slightest intentional indignity. It is not true that a majority of the people here, or any considerable number of them have cloven feet, or caudal appendages, *a posteriori*, with spear-headed terminations.

Even our own citizens scarcely appreciate the fact, that on a space of territory, scarcely more than six miles by one and a half, hemmed in by the North and East rivers, more people are collected than can be counted in the States of Alabama, Louisiana, Maine, Maryland, or Mississippi, and more than the entire population of Michigan and Missouri, or New-Hampshire and New-Jersey, and nearly as many as the whole population of Massachusetts, or even North Carolina or Georgia.

In all communities, the concentration of population increases the danger of injury to person and property. Look at the great gatherings in the country, where persons of all descriptions of character are brought into close contact. There such crimes are always anticipated. "Beware of pickpockets," so universally to be met with at such gatherings, contains more substantial logic than an entire volume of political essays. Nor can such crimes be attributed to that great father of so many evils—rum.

Let the garroters just sentenced be transformed into the sons of plain country farmers, soon to inherit an estate, without any essential change in their moral nature, and they might pass through life quiet, unobtrusive citizens. In fact, many of these culprits are importations into the city from the country, wrecks, made such by foolish but fond mothers, who were persuaded that it was injudicious to restrain, by any force even, the wayward tendencies of a beloved child. Perhaps he was "sickly." Not a few of our most distinguished criminals, whose recent frauds have astonished even the commercial world, are country born and bred. Parents open a game of hazard, the results of which they cannot begin to calculate, when they send *such* a youth into a great city. But let us turn to more congenial topics.

The season is approaching when our young ladies of taste, and who are willing to do, as well as to enjoy, should begin their arrangements for their summer flowers. We beg leave to caution them against a common mistake, and one into which we fell in our younger days, of cultivating too great a variety of flowers. We have had three hundred species in a single garden. This is consummate folly. For small yards especially, a very few choice plants, of well assorted colors and of some permanence, so arranged as to have from some of them a constant bloom, are far better than a bed filled with small lots of plants, many of them perhaps little better than weeds, and all crowded together, producing confusion and discord. We would arrange small circular and oval plats, with mounds in the center, and a portion of these beds we would entirely cover with a single species, as Petunias and the like, of varied hues, with a mass of sweet peas, or scarlet cypress vine and the like in the center, a different kind in each bed. Then we would have a variety of Verbenas, sweet scented and others, the Heliotrope and such like, excluding all that perish as soon as they bloom, leaving them for the cultivators of extensive gardens. The Dianthus family, Sweet Williams, etc., are well known among our finest and more permanent flowers, and are highly ornamental in such an arrangement. For still choicer specimens, get the Camelias, and have patience with them till they bloom, keeping them in the ground through the summer, but always out of a hot sun, and moderately moist; you will thus have a spot fit to entertain yourself and friends at evening twilight nearly the whole summer.

Verbenas can be purchased in great variety, and at reasonable cost. Our friend Mr. Dexter Snow, of Chicopee, Mass., has an indefinite variety of them, some three hundred or more, varying in price from twenty-five cents to three dollars each. He has them assorted in packages of twelve plants, each having a prevailing color. One, for example, is chiefly scarlet, another purple, etc., though each package contains some variety, so as not to produce a monotonous effect. Two or three dollars thus spent, will buy many beauties, not inferior to the more pretentious and far more costly with which our female friends love to adorn themselves.

For valuable discoveries and inventions we must chiefly refer the reader to other pages, but there is one suggested by the paragraph we have just penned that we insert it here. We are going to have artificial diamonds. The beautiful quartz crystals, now called "California diamonds," which by the way, are found abundant in more than half the States of this Union, may even be laid aside as unnecessarily expensive. "Diamonds" are manufactured from Boron. French savans, almost always taking the lead of the world in the splendid science of chemistry, have actually succeeded in this direction. The artificial can scarcely be distinguished from the real. In fact, the new rival the old in hardness. The only defect in them seems to be a slight tint. Whether this can be prevented remains to be discovered.

Musical.—M. Strakosch is delighting the New-Yorkers and their visitors with one of the most popular opera seasons we have had for a long time. He has a very efficient company, and he shows himself a very able manager. We hope his success will be commensurate with his deserts.

But our printer warns us, and we must do as the "old clock did which stood in the farmer's kitchen," which "suddenly stopped." *Vide* our old school reader.

P.

Crowded Out.—In our Feb. No. we promised an article on the distinction between hair and wool, as deduced from the investigations of Peter A. Brown, Esq., of Philadelphia, exceedingly important as we believe to those engaged in sheep culture, as well as to manufacturers of woolen clothes; but partly for want of space, and more from not having had time to investigate the subject as fully as we wish, we have to defer it to a future number. Several other important matters, both of our own and from correspondents, are necessarily postponed.

N.

Domestic and Miscellaneous.

Gentleman Farming and Something More.—In our recent trip Southward, we were favored with a most agreeable and profitable interview with G. W. Lürman, Esq., of Baltimore, merchant and farmer, whose clippers plough the ocean, while his teams plough the land.

The following brief account of Mr. L.'s farming, is partly from a statement in the *Horticulturist*, but more from our recollections of his conversation. We commend to the consideration of our readers that part which relates to his rotation of crops.

Mr. L.'s farm contains 600 acres. Of these, 200 acres are used as gardens, orchards, pleasure grounds, and as fields for the cultivation of such articles, on a smaller scale, as he does not choose should occupy the large fields employed for his regular rotation. The 400 acres remaining are divided into five lots, of about 80 each, averaging just 80.

Commencing with pasture land, Mr. L. turns it over in the fall; plants with corn, the first year; sows oats or barley, or both, the second year; when these crops are off, puts in wheat, and sows red clover the following spring, for the third crop; mows, the fourth year; pastures, the fifth; and then goes the same round again.

This gives about 80 acres each year to corn; the same to oats, or barley, or a part to each; the same to wheat, the same to mowing, and the same to pasturing. All the manure of the farm is preserved with great care, composted and ploughed in; and then, portable fertilizers, as oyster shell lime, superphosphate, bone dust and Peruvian guano, are bought to make up the deficiency. Mr. L. denies that on these 400 acres he expends a single shilling for fancy, or does anything but what the man, who farms solely for a living, should do. He says, if we understand him rightly, that he does not manure for the greatest possible *crop;* but aims to bring his land up to that mark which will give the greatest *profit;* and that, he thinks, as we do, is a pretty high mark; or in other words, that high farming, but not the very highest possible, is far more profitable than ordinary farming, notwithstanding that it implies great outlays in labor and fertilizers.

We should have stated that by the cultivation and rate of fruits and vegetables, Mr. L. makes the 200 acres, which some would call pleasure grounds, nearly or quite as profitable as any part of his farm. He supposes that he has demonstrated the often disputed proposition, that farming pays a liberal per cent. on the money invested in it. To our mind he shows, beyond a question, the utter folly of farmers loaning money at 6 per cent., or investing it in stocks, when they need it as a working capital on the farm; and yet thousands are doing this very thing.

We would go into a more detailed account of Mr. L.'s farming, but for the fact that he has given us *some* encouragement—we wish we could say *much*—that he will hereafter give for our journal the facts and figures, showing outgoes, income, and profits. We know he can give us a capital article if he will, and hoping that he will, we wish not to spoil it by anticipating too much. N.

Every one to his Notion.—Some prefer the American to the European system of hotel keeping. The central idea of the former is, to furnish the guest with all he chooses to use, or destroy, at so much per day. We are free to say, we do not like it. As we would prefer that our tailor should clothe us by the piece, rather than clothe us and all the rest of the world at a stipulated price per year; so we would prefer that our host should feed us as we demand, with food which *we think* convenient for us, *such* as we choose to order, and *when* we choose to order it. American we are in all our feelings—none more so—but we do like the European system of hotel keeping, now so fast gaining ground in this country. We can think of nothing better when away from home, than that our host should furnish parlor, reading room, writing room, smoking room, if any will indulge so foolish a practice, and sleeping room, all nicely warmed and ventilated, and then furnish us meals to order, or let us get them where the calls of business or friendship may render it more convenient. The per diem charge for lodgings, use of rooms, attendance, etc., etc., should be sufficient to meet all expenses, and reward the host liberally for his thousand kindnesses and courtesies, and then the guests should be at liberty to breakfast, dine and sup when and where they please, without paying for either, if they choose to take it with a friend or at another hotel, or if business detains them beyond the set hour. These are the peculiarities of European hotel keeping, and we like them. The Dey-Street House in this city is kept on these principles. Its gentlemanly proprietor, Mr. Langly, and his associates, afford every comfort to be found away from one's own home. In short, everything is about as it should be. We have tried it, and speak from experience, and we commend it especially to business men stopping in New-York. See advertisement.

PROGRESSIVE AGRICULTURE.

Our neighbors of the *N. Y. Observer*, say the following good things of progressive agriculture:

"Under its influence spring up tasty and convenient dwellings, adorned with shrubs and flowers, and beautiful within with the smiles of happy wives, tidy children in the lap of thoughtful age—broad hearths, and acts as well as words of welcome. Progressive Agriculture paints barns, and puts gutters on them—builds stables for cattle, and raises roots to feed them. It grafts the wild apple tree by the meadow with pippins or greenings—it sets out new orchards, and takes care of the old ones. It drains lowlands, cuts down bushes, buys a mower, house-tools and wagons, keeps good fences, or practices soiling. It makes hens lay, chickens live, and prevents swine from rooting up meadows. Progressive Agriculture keeps on hand plenty of dry fuel, and brings in the oven wood for the women. It ploughs deeply, sows plentifully, harrows evenly, and prays for the blessing of Heaven. Finally, it subscribes for a good religious, agricultural, and political journal, and pays in advance for them—advocates free schools, and always takes something besides 'the family' to the county fair."

Book Notices, Etc.

The Chinese Sugar Cane and Sugar Making. By Charles F. Stansbury, Late Commissioner at the Industrial Exhibition, London.

This is a valuable and timely treatise on the above subjects, just from the press of C. M. Saxton & Co. It contains 106 pages. The price is 25 cents, for which we understand Messrs. Saxton & Co. will forward a copy post paid to any part of the United States. Their place of business is 140 Fulton street, New-York.

Songs and Ballads. By Sidney Dyer. New-York: Sheldon, Blakeman & Co. 1857. 12mo, 298 pages.

This is a remarkably well executed little volume of short poetic effusions, the character of which is quite in keeping with the exterior. Mr. Dyer has a big heart, and good power of language. His portrait which is opposite the title page shows a man of power as well as of feeling. But the topics here treated are chiefly suggested by home scenes and friends, and do not afford much opportunity for special exhibitions of intellectual strength.

MYSTERIES OF BEE KEEPING EXPLAINED: being a complete analysis of the whole subject By M QUIMBY, Practical Bee Keeper. C. M. Saxton & Co., 140 Fulton street, New-York. 376 pages, 12mo.

This is a new edition, thoroughly revised, of a work too well known and too highly esteemed, to need commendation from us. L. L. Langstroth, who knows as much of bees as any man living, pronounces it, "One of the most common sense works on practical bee keeping which has ever been written in our language." The praise is not higher than the source whence it comes.

TALES AND TAKINGS, SKETCHES AND INCIDENTS. From the itinerant and editorial budget of Rev. J. V. Watson, D.D., Editor of the *N. W. Christian Advocate*. New-York: Carleton & Phillips, 1857. 466 pages, 12mo.

The "Tales," it is implied in the preface, are fiction, the "Takings" negligè descriptions of sundry members of the late general conference, the "Sketches" are on various but important topics, and the "Incidents" facts. "The contents of the volume are composite, the spirit of it homogeneous." It claims no literary merit, and in this it may be over modest. At any rate it contains some amusing scenes.

AUTOBIOGRAPHY OF PETER CARTWRIGHT, THE BACKWOODS PREACHER. Edited by W. P. Strickland. Eighth thousand. New-York: Carleton & Phillips, 1857. 525 pages, 12mo.

This is a well executed volume, as is the preceding, which is filled with the details of the many odd and funny, and often irreverent sayings and doings of this eccentric preacher. It is amusing, but we do not think it a good book. It will have a strong tendency to diminish the little reverence which remains in the public mind for the clerical office, and for the most solemn of religious truths. It is clover for infidels.

WM. HALL & SON have issued some fine pieces of music. Among these are Lavine Polka and Emma Polka, by R. A. Wollenhaupt, The New-Yorker Echo Polka, as played at Laura Keene's Theatre, by Thos. Baker; Beauties of the Valley, in six numbers, carefully prepared for beginners; The Cottage Home Schottish, by Ph. St. Oiimar, and The Flower of Spain, Varsoviana, by Francisco Alonzo, and a very pretty ballad, "Some one to Love," composed by J. R. Thomas. All these are excellent pieces.

List of Patents

ISSUED FROM THE U. S. PATENT OFFICE FROM DEC. 24 (THE TERMINATION OF THE PREVIOUS LIST) TO JANUARY 27.

John Broughton, Chicago, improvement in door springs.

James Culbertson, Covington, Ky., improvement in grinding mill.

William Cady, Eaton, O., improved cross-cut sawing machine.

Tristam Campbell and Henry B. Poorman, St. Louis, improvements in bullet molds.

J. Perley Derby, Boston, improvement in bosom studs.

John G. Ernst, Harrisburg, fire hook.

James Fernald, Boston, improved method of attaching filters to supply pipes.

Russell W. Gates, Homer, Mich., improved machine for upsetting tire.

Charles Green, Bethel, O., improved mortising machine.

Andrew B. Gray and Alex. H. Brown, Washington, D. C., improvement in velocimeters for vessels.

Anson Hardy, Dorchester, Mass., improved rotary shears.

C. Jillson, Worcester, manufacture of animal traps.

Henry Loewenbery, New-York, improvement in traveling trunks.

J. J. Laubach, Easton, improvement in forming joint for sheet metal.

Evan Morris, Philadelphia, improvement in hats.

Josiah S. Pomroy, Chicago, improved method of adjusting circular saws to any required dish.

L. K. Selden, Haddam, Ct., improvement in folding umbrellas.

James Smith, Cleveland, improved weather strips for doors, windows, etc.

James H. Thompson, Newark, N. J., improved raking attachment for reapers.

Andrew Teal, Aurora, Ill, improvement in metallic cross ties and chairs for railroads as a new manufacture.

James Tuerlingx, New-York, improvement in maintaining power for time pieces.

Seth Ward, Princeton, Ind., improvement in riding saddles.

Henry S. Wentworth, Napoleon, Mich., improved self-regulating wind director for windmills.

George P. Woodruff, Watertown, Ct., improvement in buckles.

Jas. D. Greene and Edward Ivers, Philadelphia, assignors to Jas. D. Greene, aforesaid, improvement in air heating furnaces.

Daniel S. Beardsley, New-Haven, Ct., assignor to John D. Umberfield and Daniel S. Beardsley, same place, improvement in ships' cooking stoves.

Benjamin Clarke, Oriskany Falls, assignor to E. L. Ferguson and C. B. Clarke, same place, improvement in extension tables.

Corneil Bradley, Manchester, Va., improvement in valves for steam engines.

A. B. Crossman, Huntington, N. Y., improvement in rudders.

John W. Crannell, Olivert, Mich., improvement in carriages.

Francois Durand, Paris, France, improvement in looms.

Edwin Daniels, Lafayette, Wis., improvement in tanning hides.

Thomas D. Dalton, New-York, improvement in anchors.

Henry Eddy, North Bridgewater, Mass., improved mode of constructing stalls for horses.

Robert H. Fletcher, Brooklyn, imorovement in operating slide valves of steam engines.

James Jones, Rochester, improvement in instruments for measuring boards.

Benjamin W. Jewett, Gilford, N. H., improvement in artificial legs.

Orwell H. Needham, New-York, improvement in milking shields.

Samuel Wetherill, Bethlehem, Pa., improvement in processes for reducing zinc ores.

Nathaniel Whitmore, Somerville, Mass., assignor to G. W. Keene, Lynn, Mass., and N. Whitmore, Somerville, aforesaid, improvement in cop tubes.

Samuel H. Little, St. Louis, improvement in hemp brakes.

G. W. B. Gidney, New-York, improvement in pumps.

James P. Cramer, Schuylerville, N. Y., assignor to Hiram Cramer, improvement in cultivator teeth.

Ethan Allen, Worcester, improved fire-arms.

Wm. Badger, Memphis, improvement in cotton seed planters.

Seneca H. Bennett, Bellville, Pa., improved field fence.

Erastus B. Bigelow, Boston, improvement in looms for weaving pile fabrics double.

Samuel Boyd, New-York, improvement in the manufacture of hose.

Robert Brayton, Buffalo, improvement in dies.

James S. Burnham, Yorkville, improvement in pumps.

Wm. Cairns and Jasper Cairns, Jersey City, implement for holding blacking boxes.

Enoch Colvin, Poultney, improvement in knitting machines.

Joseph T. Davenport, Augusta, Ga., arrangement for fixed rails as a substitute for railroad switches.

Horace E. Dimick, St. Louis, improved mode of rifling ordnance.

Joseph Dunkley, Carrollton, Mo., improved automatic regulator for wind wheels.

M. B. Dyott, Philadelphia, Pa., improvement in burning fluid lamps.

Augustus Eliaers, Boston, improvement in stain cases.

Thaddeus Fairbanks, St. Johnsbury, Vt., improvement in platform scales.

Milton Finkle, New-York, improvement in sewing machines.

Sanford E. Finch and Theodore Sharp, Greenbush, improvement in flour bolt, as applied to grinding mill.

Lewis A. Hamblen, Chicago, improvement in locomotive lamps.

Jacob Hockman, Mexico, Ind., improvement in brick machines.

Royal E. House, Binghamton, improved device by which persons approaching may open gates.

A. F. Johnson, Boston, improvement in sewing machines.

Wm. Jones, Speedsville, N. Y., improvement in hay forks.

Rodolphus Kinsley, Springfield, Mass., improvement in presses.

H. Maransville, Clinton, O., improvement in balance for detecting counterfeit coin.

Wm. W. Marsh, Jacksonville, Ill., improvement in oil presses.

Stephen C. Mendenhall, Richmond, Ind., improvement in hand looms.

Robert J. Morrison, Richmond, Va., improvement in the cutting apparatus for harvesting machines.

James F. Orr, Orville, Ala., improvement in cotton gins.

Wm Ostrander, New-York, improved machine for rolling tapering tubes.

James Parker, Boston, improvement in nipple shields.

Wm. Provines, Columbia, Mo., improvement in excavators.

David F. Randall. Chicopee, improvement in the construction of burning fluid lamps.

J. A. Reynolds, Elmira, improved tubular augur.

Isaac S. Roland, West Earl, Pa., improved method of hanging farm gates.

Joseph Shaw, Richland, Ga., improvement in cotton cultivators.

John Shærer, Reading, Pa., improved hub borer.

Reuben W. Sharp, Montgomery, Ala., improved machine for planing shingles, or tapering pieces.

Alfred E. Smith, Bronxville, improved mode of constructing mail axles and hubs.

Daniel W. Snell and Stephen S. Bartlett, Woonsocket, improvement in looms.

Oded Spencer, Jacksonburg, O., improved bore or support for posts of field fences.

Emerson C. Stranne, Taunton, improved machine for sawing hoops.

Augustus Stoner, Mount Joy, Pa, improved mode of tightening felloes in wheels.

Joseph Thompson, Durhamville, N. Y., improvement in seed planters.

John S Toan, Venice, N. Y., improvement in corn planters.

Alfred Tourks, Boston, improvement in locks of fire-arms.

Thomas J. Tolman, South Scituate, improved method of adjusting the size of the mouth, in planes.

David Watson, Newark, N. J., improvement in reaping and mowing machines.

Caleb C. Walworth, Boston, Mass., improved screw-feeding gear.

Wm. Weild, Manchester, Great Britain, improvement in power loom. Patented in England March 7, 1855

Carlyle Whipple, Lewiston, Me., improved method of hanging and operating reciprocating saws.

D. H. Whittemore, Chicopee Falls, improvement in machines for paring and slicing apples.

M. J. Whitmore, Potsdam, assignor to Frank G. Johnson, Brooklyn, N. Y., and M. J. Whitmore, aforesaid, improvement in calendar clocks

John B. Wickersham, New-York, improved method of fastening the rails of iron fences in the posts.

O D. Wilcox, Easton, Pa., improvement in artificial legs.

A. Winter Pickins, S. C., improved method of hanging, guiding and ajusting " mulay saws."

Wm Wilber, New-Orleans, improvement in oil-pressing machinery. Patented in England June 12, 1836.

Loftis Wood, New-York, improvement in stove thimbles, or deck iron.

G. F. S. Wright, Black Oak, S. C., improved method of mounting and guiding circular saws.

John G. Vaughan, Middleborough, Mass., assignor (by immediate transfer) to Isaac M. Singer, New-York, improved method of lathing and plastering.

Ira Gill, Walpole, Mass., assignor to Ira Gill, aforesaid, and Elbridge Brown, Malden, Mass., improvement in machines for forming hat bodies.

Daniel Berlew, Delaware, O, improved method of planing sashes.

William B. Bishop, Brooklyn, N. Y., improved guides for sewing machines.

John S. Blake, Claremont, N. H., improved mode of making paper.

John H Bloodgood, New-York, N. Y., improvement in forming bats for belting.

E. G. Cushing, Dryden, N. Y., improvement in centre vent water wheel.

Alfred A. Blandy, Baltimore, Md., improvement in artificial teeth.

George Gregg, Lowes Mill, Va., improvement in sawing machines.

Elias Howe, Jr., Brooklyn, N. Y., improved sewing machine. Patented in England July 26, 1848.

E. G. Allen, Boston, Mass., assignor to Henry O. Allen, Boston, aforesaid, improvement in steam pressure gauges.

John Goulding, Worcester, Mass., improved mode of weaving double pile carpets and rugs.

John Bishop Hall, New-York, N. Y., improved method of treating photographic pictures.

James E. A. Gibbs, Mill Point, Va., improvement in sewing machines.

George Heberling, Quincy, Ill., improvement in grain separators.

E. T. Henry, Scranton, Pa., improvement in die for making spikes.

M. G. Hubbard, Penn Yan, N. Y., improvement in harvesters.

M. G. Hubbard, Penn Yan, N. Y., improved cutters for harvesters.

Jared O. M. Ingersoll, Ithaca, N, Y., improvement in machine for paring apples.

William Kelly, Eddyville, Ky., improvement in blast furnace.

Pells Manny, Waddams Grove, Ill., improvement in harvesters.

D. C. McCallum, Oswego, N. Y, improved method of constructing bridges.

James G Morgan, Brooklyn, N. Y., improvement in hydrants.

B. F. Nave, Roanoke, Ind., improvement in brick machines.

Lodner D. Phillips, Chicago, Ill., improvement in hose coupling.

Emil R. Pichler, Boston, Mass., improvement in reflectors for vaults.

William Robinson, Warsaw, N Y., assignor to Amenzo W. Beardsley and William Robinson of same place, improved mode of laying tops for carriage machines.

James D. Sarven, Maury county, Tenn., improved machine for bending timber.

Jos. and Jas. Montgomery, Baltimore, Md., improved winnowing machine.

Samuel R. Smith, Florence, Md., improved method of feeding lumber laterally in sawing machines.

John G. Treadwell, Albany, N. Y., improvement in cooking stoves.

John Wright, Plantsville, Ct., assignor to the S. Stow Manufacturing Company of same place, improved machine for bending sheet metal.

R. H. Smith, Cincinnati, Ohio, improved roofing current.

Additional Improvement.—Robert J. Morrison, Richmond, Ind., harvesting machine.

John Allcroft and Thomas Mighten, New-York, improvement in steam and pressure gauges.

Wm. Bennett, New-York, improvement in radiators for fire place grates and Franklin stoves.

Geo. W. Bishop, Brooklyn, N. Y., improvement in stone grooving machines.

R P. Bradley, Cuahoga Falls, O., improvement in the machines for shearing sheep.

Saml. Bradbury, Griggsville, Ill., improvement in machines for trimming hedges,

James S. Brown, Pawtucket, Mass., improvement in speeders.

John Broughton, Chicago, Ill., improved sash fastener.

Tenison Chester, Middleburg, O., improvement in inserting buckets in water wheels.

Saml. Cobb, Cincinnati, O., improved corpse p reservers.

Geo. Cook and David Cook, New-Haven, Ct., improvement in calash carriage tops

Geo. Crangle, Philadelphia, Pa., improved rotary brick machines.

Michael DeCamp, South Bend, Ind., improved grain separators.

Lewis F. Currierl, Portland, Me., improved method in hulling rice.

Geo. N. Cummings, Hartford, Ct., improvement in soldering spectacles.

Lyman Derby, New-York, improved tailors' measures.

James B. Eads, St. Louis, Mo., improved method in blasting rocks under water.

Jeremiah D. Eggleston, Canaan, Ct., improvement in feed boxes of bee hives.

Henry A. Fowler, East Guilford, N. Y., improvement in fastenings for hames.

Richard J Gating, Indianapolis, improvement in machines for fallowing land.

Heinrich Genhart, Leige, Belgium, improvement in repeating fire-arms.

James W. W. Gordon, Catonsville, Md., vaccinating instrument.

James W. W. Gordon, Catonsville, Md, spring lancet.

Robert Grant, Brooklyn, process for making illuminating gas.

Samuel Hall, New-York, improvement in cutting sheet metal.

George E. Hays, Buffalo, mounting of artificial teeth.

James Harrison, Jr., New-York, improved machine for making coiled springs.

Moses G. Hubbard, Penn Yan, improvement in harvesters.

Edward G. Hyde, Irvington, acoustic auricle.

Frank G. Johnson, Brooklyn, improved method of constructing fence posts.

John P. Jourds, New-York, improvement in raising sunken vessels.

Edward Keith, Bridgewater, Mass., improvement in cotton gins.

Anthony Kuhn, Baltimore, improvement in keyed harps.

Charles T. Leirnur, Mobile, improvement in compound rail for railroads.

Matthias Ludburn, Essex, N. Y., life boat.

John M. May, Janesville, Wis., improved self-regulating wind mill.

Joseph B. Okey, Indianapolis, improved lath machine.

M. L. Parry, Galveston, improvement in cotton presses.

David Pollock, Lancaster, Penn., improved ore cleaner.

John F. Reeve, Richmond, Ind., writing pen.

Sam'l S. Ritter, Philadelphia, improvement in hernial trusses.

Daniel W. Shares, Hamdon, Ct., improvement in harrows.

Alfred E. Smith, Bronxville, improvement in axle boxes.

Wm. T. Tillinghast, Dayton, O., composing stick for printers.

Isaac Van Hagen, New-York, improvement in oil cases.

Abner Van How, New-York, improvement in core boxes.

James Noble Ward, United States Army, improved mode of altering flint lock fire-arms to percussion.

Geo Wellman, Lowell, improvement in machinery for stripping the top flats of carding engines.

Elbridge Wheeler, Faltonville, Mass., improvement in machine for forging metal.

F. H. Whitaker, Cincinnati, improvement in nut machines.

Elbridge Wheeler, Marlboro', Mass., improve' clamping machine.

Wm. Wilber, New-Orleans, improvement in mills for tempering oleagenous seeds. Patented in England June 12, 1856.

Wm. Wilber, New-York, improvement in machines for hulling and separating cotton seeds.

Thomas S. Woodworth, Salem, N. J., improvement in supporting masts for the decks of vessels.

Erastus D. Wooding, Dixon, Ill., improvement in seeding machines.

A. F. Chatman, New-York, assignor to himself and Jacob Pecure, same place, improved door spring.

Sylvester Sawyer, Fitchburgh, Mass., assignor to the American Hoop Machine Company, improved machine for planing hoops.

Jos. C. Silvy, New-Orleans, assignor to Thos. J. Dobyns, same place, improvement in fountain pens.

Peter L. Weimer, Lebanon, Pa., and Samuel P. Francisco, Reading, Pa., assignors to Samuel P. Francisco, improvement in operating the valve of steam hammers.

Welcoure Whitaker, Troy, assignor to Henry L. Palmer and Julius H. Skilton, same place, vermin destroyer.

Clarissa A. Hubbard, executrix of Guy H. Hubbard, dec'd, (late of Shelburn Falls, Mass.,) improvement in machines for paring and slicing apples.

RE-ISSUES.

Sam'l R. Wilmot, New-York, portable steam sawing machine. Patented August 14, 1855.

Geo. W. Geisendorff, Indianapolis, and Jacob C. Geisendorff, Cincinnati, O., improvement in axle cox rollers. Patented Feb. 6, 1855.

Whitten E. Kidd, New-York, improvement in molds for pressing bonnet fronts Patented Nov. 28, 1845.

Wm. H. Walton, New-York, improvement in cleaning the top flats of carding engines. Patented Dec. 9, 1856.

William E. Nichols, East Haddam, Ct., improved method of making cord. Patented Dec. 11, 1849.

AGENTS FOR THIS JOURNAL.

Recognized as such at this office, are as follows:

S. D. Allen, Paul A. Davis, in the Northern and Middle States; James Deering and Henry M. Lewis, in the Southern States. Require a certificate of agency from all others who present bills, the date of which is as recent as July, 1856.

The Plough, the Loom, and the Anvil.

Vol. IX. APRIL, 1857. No. 10.

Agricultural.

HINTS FOR THE SEASON.

In no country in the world probably is the climate such as to require that so large a portion of the year's work should be done in the short space of four or five months as in ours. From All Fool's day to the end of July, four months, the seed is to be put in, and the crops, with few exceptions, are to be harvested. Each thing is to be done, not at the farmer's convenience, but at a given time, determined by the progress of the season; and considerable loss is sustained by varying much from the right time. This consideration, connected with the scarcity of labor and the difficulty of hiring extra help in emergencies, renders the farmer's position somewhat perplexing, and yet it enables him to settle some points with great clearness.

One is, that whatever can as well be done by the first of April, as the cutting and putting under cover a year's stock of wood, the winter pruning of fruit trees, the providing or repairing of implements, and generally whatever can be accomplished in-doors, should by no means be left till after that time. We read of a great general who degraded a soldier, who was found burnishing his shield in the eve of battle, saying, that before was the time to *burnish* his weapon, but then was the time to *use* it. We would not suggest that the farmer, who has not yet "done up" the thousand and one things that might as well have been done in February or March, should be degraded from the farm, but that he should do better next time—be ready for the campaign before another April comes. For this year we see not how he will escape the necessity of procuring tools, when he will need to be using them, and of splitting oven wood when he ought to be mowing down the grass. But if he is a wise man, this year's experience will make him wiser.

Another thing taught by the rapidity of our season is, that whatever can as well be delayed till August or September, should be deliberately dismissed till then, as, for the coming four months, the farmer has enough and more than enough to grapple with, of such a nature that it could not be much anticipated and may not be much delayed. We have always avoided anything like a definite prescription for the work of each month, laying down what is to be done at its beginning, middle, and end, because we have not supposed it possible that any one could understand all this so well as the man himself, who controls or performs the labor on each farm. A thousand circumstances, all bearing upon the case, are known to him as they can be to no one else. Nevertheless some general principles may be suggested.

The repairing of fences will be among the first works of spring, perhaps the very first. If rails were to be drawn for the purpose, we suppose that to have been done before the snow went off. If so, the fences can soon be put in order. The drawing of manure to the fields, is another of the early works of spring. As much of it is heavy at this season, containing 70 or 80 per cent. of water, no considerate farmer will lug it in this state great distances. We do not give in to the idea that it is cheaper to purchase portable manures, than to apply those of the barn-yard. True economy requires that every particle of the home fertilizers should be carefully preserved and applied; but they may be used on lands adjacent to the barn; and if distant fields are to be cultivated, portable manures should be preferred. Suppose you have a field one mile from the barn. The question is not whether barn manure is worth carrying a mile—it certainly is—but whether it will not give you about as good a return on land near home? If it will, then it should be applied there, and some lighter fertilizer should be sought for the distant fields.

Besides repairing the fences and carting the manure, there are trees to be set, unless this was done last fall, or has been done in March. There is scarcely a farm in which the eye of taste will not detect a spot here and there where a flourishing tree would add to the beauty of the landscape and eventually to the profits of the owner. Of course we do not mean places where a valuable crop would be shaded, or where the wide-spreading roots of a tree would steal away the nutriment from growing plants. The cost of lining the way-side with forest trees is but trifling. They should be at some distance from the fence in order not to chill the adjacent soil by their shade, or impoverish it by their roots; and they should be at a good distance from each other, that they may not grow too tall. There is little of beauty in straight rows of tall trees, as we sometimes see in the Lombardy poplar. We marvel that our Railroad Companies are not awake to the growing of their ties on the sides of the road. On many soils a road six rods wide would grow all, or at least a large proportion of the ties to supply the road forever, and that on the very place where they will be required so as to save the entire cost of transportation, a cost in most cases beyond the value of the ties where grown. In planting trees, large holes should be dug, not so very deep, say 10 or 12 inches, but broad—3 feet in diameter is not too much. Let the top soil be returned to the bottom of the hole. Set the trees no deeper in the ground than they before stood. Pour no water over the roots unless the ground be dry; and then but sparingly, and at some distance from the stem, so that it will reach the roots, not in floods, but after trickling slowly through the soil. In short, let it reach the roots in limited quantity, and greatly subdivided, precisely as happens in a rain storm, or in case of melting snow. Diminish the top of the tree about in proportion as the roots are diminished. Nature proportions the top to the roots. Her proportions are not to be violently broken. Fine earth only should come in contact with the roots; vacant spaces about the roots should be avoided; but do not stamp the ground hard, and by all means mulch with forest leaves, laying them thickly over a pretty large circle, and throwing over them, to prevent their blowing away, a little straw, old grass, bits of turf, stones, or almost anything at hand.

More trees are lost in our climate by want of mulching than by all other causes. Mulching produces a uniform moisture and warmth, or rather coolness of soil, just what trees, mutilated at best by transplantation, want. If you apply water, apply it after the mulching is put on, that it may come to the roots, more slowly and more finely subdivided, after the manner of rain-water. Some trees live if set in a pool of water and mud, but it only shows their tenacity of life. Many a man has saved a tree, as he supposed, by drenching its roots, when the truth was it lived in spite of him.

The planting of potatoes is another work for this month, not limited indeed to the month of April, for in warm situations, and especially for early varieties, it may be advisable to plant earlier, and we have known good crops to come from planting as late as the 25th of June, but our observation has led us to the conclusion, that although the blight is sometimes the severest upon the early planted, yet in a succession of years those planted in pretty good season oftenest escape. We incline to the opinion that in a long succession of years, planting the last of April or the first of May will give the largest crops, but that planting still earlier, say from the 16th to the 20th of April, will oftener give exemption from the potato disease. The very general idea that if the corn gets planted at the best time for that crop, it matters not when the potatoes are put in, we think is wrong. It has been common to hurry in the corn, and let the potatoes alone, till that is done, even if the ground is not ploughed till June. There are three objections to this view;—one, that in the long run, you do not obtain as heavy crops by late as by early planting; a second, that you oftener suffer by the rot; and a third, that if the corn is planted *when* it should be, *as soon as the ground is warm but never before*, and *as* it should be, *slightly covered with some active manure to start it quickly*, there will be very little time for planting potatoes or any thing else, after planting the corn till it requires dressing. Our idea is that corn must not be planted in cold soil, to lie dormant three or four weeks, and then to come up yellow, and wait for circumstances in which it can grow, but that it should germinate and grow at once; and therefore we would have the potatoes planted, and that work out of the way before the ground becomes sufficiently warm to plant corn. If potatoes are a month in coming up, no matter; all that is requisite is, that there should be no frost after they appear above ground. But it is not so with corn;—it is a tropical plant—it demands heat; it can not accommodate itself to cold and wet—will not grow till the essential conditions of its nature are supplied; and if those are not supplied within a short time after its being planted, it becomes unhealthy, and receives a stint from which it seldom wholly recovers. We admit, that if planted in cold ground, the first of May, it will mature a little earlier than if planted in warm ground the 20th, but it will not mature as good a crop. We invite observation to this point, believing that all who will observe accurately will agree with us, that preëminently, there is with corn "a time to plant," that loss is sustained by varying much from *the time*, and since it is, beyond all controversy, our most important crop, equal in value to any three others, it should be attended to in the best possible time and manner, other farm work being made to accommodate itself to the demands of this crop. More on the growing of corn in our next. N.

AN EXPERIMENT OR TWO.

We recently fell in with a very sensible, and, we believe, a very successful farmer, who detailed to us the following experiment, with guano, superphosphate of lime, poudrette and wood ashes. These were applied to parts of a large field of broom-corn. To one acre was applied in the hill $4.50 worth of Peruvian guano; to another in the same way, $7 worth of superphosphate; to another, $4 worth of poudrette; and to another, $3 worth of unleached ashes, purchased at 25 cents a bushel.

These fertilizers were bought of a second or third-hand underdealer, just the way in which farmers ought not to buy them, as we begin to be satisfied that many of the failures in guano and superphosphate are owing to their passage through too many hands. It would be better for the farmers in a district to send one of their own number up to head-quarters. But let that go. This good farmer intended to make his experiment *exact*, by weighing both the brush and the seed; but owing to the brainless skull of a laborer, his purpose was thwarted; and, as too often happens with farm experiments, he can only guess at the comparative results. He is, however, pretty good at guessing, or, in other words, is a man of sound judgment, and we therefore detail his opinion as of much value, notwithstanding the lack of exactness for want of weights and measures.

He thinks the guano paid for itself at least twice over, though broom-corn has been unusually low since the harvest; and we understand him that if he were to plant a similar field this year, and could know beforehand that the season would be similar, and the price the same as last year, he would give twice as much as he did last year for guano, rather than plant without manure. He gave last year at the rate of $60 a ton—the short ton, 2000 lbs., we believe. Let us not be understood to say that he would give twice $60 a ton in preference to buying other manure, but that he would give that rather than plant without any manure.

The superphosphate, he believes, just about paid for itself. The crop was a medium between that where the guano was put and that not manured. If he were to plant a similar piece with the same seed this year, he would hardly *turn a copper* for the choice whether to manure with superphosphate or not at all. It should be added, that he knows not whose manufacture the superphosphate was. More probably it was either Mapes', or DeBurg's, or Coe's; but as we are not acquainted with the dealer, we have no means of judging whether it came to him as it left the manufacturer. We do not mean to insinuate that all the dealers in fertilizers, between the manufacturer and the consumer, are rogues; but we do undertake to say that the temptation is too strong for some specimens of human nature; and we advise farmers to look out, in the first place not to get cheated, and in the second not to blame the manufacturer, unless they buy of *him*, or his accredited agent.

The poudrette did wonders—brought the crop forward early, and, what was hardly expected, held out till the maturity of the corn, without an after application, which we believe the manufacturer always recommends, claiming, if we have understood rightly, that the poudrette is a quickly acting, but freely admitting that it is not a lasting manure. It was the poudrette of the Liebig Company, at East Hartford, Henry Olmsted, Esq., Secretary; and in this case it must have something more than met the claims we recollect to have been made for it by that gentleman.

The ashes, 12 bushels to the acre, at a cost of $3.00, gave such an increase of crop over the non-manured as would clearly establish for them a higher value than 25 cents a bushel, on that land and for that crop.

In addition to the above, this gentleman states that he has plain land, far out of the village where he resides, too far to carry heavy manures. Thirty years ago such land would have been estimated at $30 the acre. It has risen since. Four years ago he offered his at $50, and could not get it. Since then he has taken off profitable crops every year by the application of 400 lbs. of guano; and he is now offered $100 an acre for that land, and will not take it. This goes to confirm the opinion we have long held of the great value of guano for those outside, plain lands, too poor to produce much without a fertilizer, and too far off to be reached with heavy manures.

We are half disposed to boast of the consistency with which we have always urged that point; and yet some of our readers—those who have read us for several years in succession—may think that we have occasion to *own up* on another point pertaining to guano. When publishing the *Farmer* at Amherst, Mass., in 1855, we felt it incumbent on us to warn the inland farmer, with no great staple to turn off each fall, engaged in farming on an obdurate soil, and in a small way, against rushing into the purchase of any fertilizer at $60 a ton, till he knew pretty well what it was worth, and whether his dealer was selling him a pure article. We thought at least that he should use up his home sources of fertility first; and we so advised, saying that labor employed in husbanding the home fertilizers, high as it was, was cheaper than manure brought around Cape Horn, and then lugged several hundred miles inland, with too many chances for adulteration by the way. If this was wrong, our confession is made and done with. We did not think as highly of guano then as now. We had not seen so many proofs of its value. It is now proved that the farmer who grows some valuable staple, as wheat, broom corn, Indian corn, or vegetables for the city, can afford to pay a pretty high figure for the best Peruvian guano. It is true, also, that now the buyer who will use the precaution of going to head quarters, can nearly secure himself against fraud. If we therefore speak a little more favorable of guano now than then, we have pretty good reason for saying that the times have changed and not we. But we still think that its greatest value is for just such lands as those before alluded to, lands that are feasible but meagre, and beyond the reach of heavy manures; and we have not lost one whit of our preference for the home fertilizers, so far as with a little extra labor they can be preserved and husbanded. Don't purchase nitrogen from the Chincha Islands and at the same time let the nitrogen steam away from your pig-pen in the form of ammonia for the want of a load or two of muck or loam to *fix* it. N.

A WORD ABOUT POTATOES.

A correspondent sends us the following on the back of a subscription list:—"I find a change of seed from the Hills to the Valley of the Connecticut River, will well pay the expense; and for manure, I put a large spoonful of ashes into the hill. After the potatoes are up, about the same quantity of plaster of Paris, and I do not fear the rot if I plant on warm land. If I use manure plough in the year before for corn, etc."

The hills of that region are more natural to the potato than the alluvial soil of the Connecticut valley. It matures more perfectly on the former, contains more starch, and is more mealy. *A priori*, therefore, we might infer that seed raised on the hills would prove advantageous. If experience teaches the same thing, the inference is strengthened, and may be set down as probably correct; and if this is true of the Connecticut Valley, we know not why it should not be of other regions, where the soils near the rivers are alluvial, and those on the hills are granite, mica-slate, or made up of the detritus of other rocks abounding in feldspar. At any rate, potatoes raised on such hills are better for food, and probably are for seed.

Our correspondent is certainly right in using ashes in the hill for potatoes; but if the ashes were thrown upon the ground so as to scatter over a square foot or more, it is better than to put them into a smaller compass. Ashes are good for potatoes, on the same principle that a granite soil is favorable. The potato is a potash plant. It contains a large amount of that alkali both in the tubers and the vines. The ashes furnish the potash in one case, and the feldspar of the granite in the other. In most land, perhaps on all that is not wet, the above application of potash will give a good return. With the ashes and plaster, applied as above described, we think the rot is not to be feared; and if the land, while warm, is not too dry, a crop of from 80 to 200 bushels to the acre, according to the strength of the soil and the cultivation, may be reasonably expected. If the writer means by the last clause that the land should be in a fair, or pretty good condition, without the application of green manure directly to this crop, we think he is right. The application of nitrogenous manures from the barnyard is apt to be followed by the potato disease.

We have often recommended for potatoes a compost of four bushels of unleached ashes to two bushels of shell lime, one bushel of plaster, and one of salt, or about in those proportions, to be applied at the rate of twelve to twenty bushels to the acre, in the hill, at planting; and from experiments of this kind that have been made to our knowledge, we have great confidence that such a compost will not only secure a fair crop, but on suitable land will prove nearly if not quite a sure preventive of the potato rot. It has been proved by analysis that potatoes grown by the aid of this compost contain less water and more solid matter, and that the solid matter is more nutricious than when grown on the same land with barn manures, or with no manure. We would not be understood to recommend so light a dressing as a means of obtaining a great crop; but on land of medium quality and in fair condition, it will give, in ordinary seasons, a good yield of the very best quality of potatoes which the land is capable of producing.

Since writing the above, an agricultural friend has stated to us that last year he grew three hundred bushels of potatoes on one acre. We do not state this as anything remarkable in itself; nor could we accept it in itself as an evidence of good husbandry; for we believe that three hundred bushels may be grown on an acre at too dear a rate. Our friend grew his as follows. The land was a sandy loam; had broom-corn on it the previous year; was manured for the broom-corn with stable manure; at the time for planting the potatoes, was in good, but not remarkably high condition. The ploughing was done by a man and span of horses in half a day. It was then furrowed with a single horse. Potatoes of medium size, or a little less, were selected for seed. One of these was put into a hill, with the exception that a few that had been selected, being above medium size, were cut into equal pieces, and made to answer for two hills. He manured with 160 lbs. of guano, in the hill, the seed potatoes and the guano being dropped in the bottom of the furrow. The earth was turned back with a plough, covering the seed some five or six inches deep. The field was then rolled down smooth. One man, one boy, and one horse, with a plough and roller, did the whole work of dropping the seed, distributing the guano, covering and rolling, in three fourths of a day. The cost of the guano was $4 50, or at most, $5, in the field. The potatoes were hoed twice, both times in good season, before the weeds had made much growth, making the labor light and expeditious, and the result was three hundred bushels of sound potatoes. We have entire confidence in the statement, because we have known the gentleman long, and know that he is not, like some farmers, and a great many who are not farmers, given to telling great stories. Our readers will judge whether there is anything in our friend's way of growing potatoes worthy of imitation. The rolling, after putting in the seed, if ever advisable, we should think would be adapted to light rather than heavy soil. We believe that with the compost described in the preceding paragraph, less potatoes would be grown to the acre, but of a better quality, and less liable to be diseased. N.

A QUESTION AND ANSWER.

"CAN you give us any light upon coal ashes or charcoal dust? We can get any quantity of both these articles in our vicinity, and I am making some experiments with them, and would like the experience of others. A. H."

We can not speak from experience; but we have no doubt that charcoal dust is valuable—worth at least as much for agricultural purposes as the price of charcoal where our correspondent resides, and we should think more, if used in the best manner, and not in very large quantities. It should be mingled with the matters of the stall, the barn-yard, the sink, necessary, muck-heap, etc., etc., where it will act powerfully as a *retainer*, both before and after the application of these matters to the soil, at once promoting health and fertility. Its nature is to absorb large amounts of carbonic acid, ammonia and other gases, dangerous to animal life, but nutritious to vegetables. It seems to us quite possible that the application of large quantities of it to a meagre soil *might*, in some cases, do more hurt than good. But if used as we have indicated above, we have no doubt of its being valuable.

We have not thought highly of *coal ashes* as a fertilizer. They seem not to contain fertilizing properties enough to make them worth transporting more than short distances. The following, which we take from "Browne's American Muck Book," will throw some light on the subject. N.

"*Ashes of Anthracite Coal.*—The composition of the ash of anthracite will vary, of course, like that of coal itself. The following analyses by Professor John P. Norton of Yale College, were made from several pecks of ashes, obtained from a grate in which the coal had been burned the usual way, due precaution being observed not to intermingle the ash with any vegetable remains from the fuel employed in building the fires. The constituents of 100 parts of the ashes of white and red-ash coal yielded of

	White ash.	Red ash.
Matter insoluble in acids,	88.68	85.65
Soluble silicia,	0.09	1.24
Alumina,	3.36	4.24
Iron,	4.03	5.83
Lime,	2.11	0.16
Magnesia,	0.19	2.01
Soda,	0.22	0.16
Potash,	0.16	0.11
Phosphoric acid,	0.20	0.27
Sulphuric acid,	0.86	0.43
Chlorine,	0.00	0.01
	99.99	99.11

"These close and interesting analyses," says Professor Norton, "afford us much light upon the constitution of coal ash, and enable the chemist who has studied these subjects, to say at once and with confidence, that this ash is of some value as a manure, and should by all means be so applied in cases where it can be obtained cheaply.

"Of the white-ash, 3 74-100ths lbs. in 100, were soluble in water, and in the red-ash, 3 35-100ths lbs. Besides this, there was a further and larger portion soluble in acids, amounting in the white-ash to 7 58-100ths lbs. in 100, and in the red-ash to 8 lbs.

"In looking at the nature of these results, we may draw the general conclusion, that in the ash of anthracite coal, calling these fair specimens, we have in every 100 lbs. from 4 to 8 lbs. of valuable inorganic material, of a nature suitable for adding to any soil requiring manures."

Boussingault, on the same subject, remarks:

"Coal (fossil) is the product of vegetables, which, however, have undergone such a change as to have lost almost every trace of organization. Coal of different kinds contains from 1.4 to about 2.3 per cent. of ashes, and about 2 per cent. of azote. The ash of a variety of coal of very excellent quality gave of

Argillaceous matter (silicia) not soluble in acids,	62
Alumina, - - - - - - - - -	5
Lime, - - - - - - - - -	6
Magnesia, - - - - - - - - -	8
Oxide of Manganese, - - - - - -	3
Oxide and sulphuret of iron, - - - -	16
	100

"Coal ash also contains very minute quantities of alkaline salts, which usually escape analysis when they are not especially inquired after. One specimen analyzed in my laboratory, gave nearly 00.1 of alkali. Coal-a-h is particularly useful on clayey soils; it acts by lessening the tenacity of the soil; and further, doubtless by the introduction of certain useful principles, such as lime and alkaline salts."

BROOM-SEED—HISTORY OF, ETC.

Mr. Editor:—Some thirty years ago, my father used to raise a few pounds of broom-corn occasionally, and hire some one to make it into brooms for use in the family; but the seed was left in the barn, and it was said by the older members of the family that the hens liked it, and that it was very good to make them lay.

About twenty-four years ago, somebody in our neighborhood undertook to make brooms for sale. We furnished him land on which to raise his brush. We had one half the crop (brush and seed) for use of land and manure; and of course we had a large quantity of seed. It was good seed. But what to do with it, we did not know.

We fed it to the oxen, without grinding, in ploughing time, but the oxen could not plough. I became very much prejudiced against broom-seed; said it was good for nothing, etc., etc. But after I commenced farming for myself, I concluded to raise a little broom-corn. The seed was good, and I tried it for provender, mixed with corn—one bag of broom-seed with two bags of corn. I liked it much for working horses, horned cattle, and hogs, and I have continued to raise a little ever since on account of the seed. A few years since, I said to my neighbor, who kept two cows, and no other stock: "If you will fill two bags with corn and one bag with oats, and bring me an empty bag, I will fill the empty one with broom-seed, on this condition: You shall mix the bag of oats with one bag of corn, and mix the bag of broom-seed with the other bag of corn, and get them ground each sort separate. Feed to your two cows, and carefully examine the milk, and give me your opinion upon the relative value of oats and broom-seed to mix with corn for provender, with which to feed cows." He did so, and his reply was, that the broom-seed was decidedly the best. His opinion and mine were alike.

Near me lives a woman who keeps hens, and sells a great many eggs. She comes to me every year to buy some broom-seed for her hens; nothing else will take its place to make her hens lay, or at least she thinks so. I have been unwilling to sell it, but have sold her a little every year. She told me the other day, she should try to raise a small piece of broom-corn next season, entirely on account of the seed for her hens. FROM A PRACTICAL FARMER.

Will some practical farmer, who has much experience with broom-corn, give us his views of the best mode of growing it; on what land, with what manure and how much; what is the value of the seed, what are the best uses for it, etc., etc.? N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

HOME-MADE MANURE.

MR. EDITOR:—There is no question in political economy more firmly established than the necessity of home production and home manufacture. If these are necessary for the wealth and independence of a nation, a collection of many families, why not equally necessary for individual families? Perfect independence of either nations or individuals, is an impossibility; but comparative independence should be the aim of all, and nothing in your journal has pleased me more than your advocacy of home-made manure in preference to the foreign article. There is no mistake in foreign guano, and there is no mistake in the home made-article. I have tried both, and with your permission will detail some of my experience, not vain-gloriously I hope, but for the benefit of my fellow farmers. Eighteen years since, I bought my present farm, containing less than sixty acres, much in the same way as Barnum bought the Museum—with brass—as I had no capital. With the exception of a muck swamp, the farm has no peculiar facilities. Indeed, one of my neighbors condoled with me for having so poor land to spend my energies upon. The farm at the time of purchase would carry a span of horses and some four cows. Believing manure to be the back-bone of agriculture, we commenced on the muck, using refuse loam from a neighboring hill to add to its virtues and correct the acidity. The effect of this compost was good, but not equal to our expectations, as our loam has too much magnesia in it for agricultural purposes. Our next compost heaps were made of ten parts muck and one wood ashes. The latter containing all the inorganic food plants require, and the former the organic, our crops soon testifying to its virtues. Finding the farm could be made exceedingly productive by means of this compost without the aid of barn-yard manure, we have of late years kept little stock, and have sold our hay. The surplus of this crop, after feeding a span of horses and two or three cows, has in some years amounted to sixty tons. In addition to the composts of muck and ashes, we have made others of dead animals from the neighboring village and the refuse of manufacturing establishments, the sink, privy, etc. Now there are few farmers, (I might say none,) who have not on their own premises or in the vicinity, all that their farms require to be enriched and to enrich their possessors. Let these means be husbanded. All do not own a muck swamp, but turf from the road side, or the rich deposits in the forests, will answer in its place as the basis of the compost heap. BERKSHIRE.

WHEAT GROWING.

LEVI BARTLET, in the *Granite Farmer and Visitor*, has among other remarks, the following, which so far as they relate to the preservation and increase of the home manures, are valuable:

Under the present system of management, most of our farmers have not a sufficiency of manure for their hoed crops; therefore, would have none for their wheat crop. We believe most farmers could readily double or triple the value of their winter-made manures; (especially those that have not manure cellars). To do this, the hovel and stable floors should be water-tight; during the summer and autumn, there should be stored up an amount of swamp muck, or scrapings from the woods, at least equal in amount to the quantity of solid manure the stock would void during the winter. The drier the muck, etc., when stored, the better; and a quantity of plaster sufficient to give a daily sprinkling on the hovels, stables, etc. At least half a bushel of muck should be daily strewn over the hovel floors, to each of the cattle tied up in the barn, and the same allowance to each horse. The muck should be covered with litter, such as refuse hay, oat straw, leaves, etc.; which, with the muck, would absorb all the urine, which well attested experiments prove is worth as much as the solid excrements. The hovels, stables, and sheep pens, should be daily cleared of their contents, and placed under cover, so as not to loose a large portion of their value by snow and rain water, as is too generally the case now. Where there are cellars under barns, the muck and plaster and litter should be used; in this way the whole is evenly *composted*, without the trouble of cartage, or forking over; the urine is all saved, and but little of the ammonia escapes. Let our farmers pursue the above, or a similar plan, and they would have manure for their hoed crops, and winter wheat. Some may say the course pointed out in this, smacks too much of hard work; well, there is some work in the thing, as we know by experience, but then it will pay better than to purchase guano, at sixty dollars per ton, or to buy western flour at thirteen dollars per barrel.

A farmer in this town, in 1853, raised 16 bushels of White Flint wheat on one third of an acre of light pine plain land. In 1851, the land yielded a fair crop of corn; sown with oats in 1852—light crop in consequence of drouth—a large growth of wormwood and barn-grass sprang up among the stubble; about the first of September, seven cart loads of compost manure were applied to the land, and deeply turned under with the stubble, weeds, etc. Thirteen quarts of seed wheat sown. In July 1853, the wheat was harvested, and when threshed, the yield was 16 bushels—or at the rate of 48 bushels per acre—which was sold readily at $3 00 per bushel for seed. We cannot conscientiously say to other farmers, "Go and do likewise," but if they will only do half as well, it will be better for them than to purchase flour at the present prices.

WARNER, N. H., Jan. 23, 1855.

SOMETHING ON GEOLOGY.

BY PROF. OLIVER MARCY, OF WILBRAHAM, MASS.

MANY scientific men believe that there was once a time when the earth in the vicinity of our meridian, as every where else, was like the surface of a cooling smelter's furnace. There was a crust around a central fiery mass, made porus by the evolution of gases through the semi-fluid cooling lava. It was blistered and corrugated and thrown into hills of considerable dimensions, for the moon in that early day as now, had power over the earth, and in her daily rounds dragged after her a tide which broke up the solid shell, and formed it into floating islands. The molten surge heaved island upon island, and dashed high up their rocky sides, and in dripping back, cooled in stalactical forms and in congealed cascades. Thus the fragments became thickened and cemented together, and the crust, roughened by hills and hollows, became more permanent. But water existing in a state of vapor, having been driven by heat from the central mass, coming in contact with the cold of the outer spaces, was condensed, and fell in showers upon the still almost incandescent crust. Then was hissing and steaming and cracking and crumbling of the brittle, barren cinders into loose debris, while the water itself went off in whirling clouds of steam, carrying with it the heat of the central mass to the cold spaces, and condensing, performed the same evolutions again.

When the crust became so cooled that the water was permitted to remain upon its surface, it washed the loose fragments from their resting-places and strewed them in the bottoms of the valleys, and over the extensive submarine plains between distant mountain coasts. These beds of sediment, pressed by the weight of the super-incumbent ocean, prevented the heat from radiating from the sub-jacent crust, and thus, by the inner fires, the crust was re-melted and the sediment re-crystalized and formed into solid rock.

When these, in their turn, were elevated by the forces now deep pent-up within the earth, higher hills, larger mountains, more lofty cliffs, and steeper precipices were formed. Then were formed Washington, and Jefferson, and Ascutney, and Monadnock, and Hoosack, and the range beyond Westfield, and the hills that run through Palmer and Monson, on, to meet the Sound. These are the primary stratified rocks, the gneiss and the mica slates.

When these hills were elevated, the valley of the Connecticut river was formed. This was an immense trough, especially that part between the ocean and the north line of Massachusetts. The bottom was at least 14,000 feet* below the present soil, and the hills on either side, lifted their crags two or three hundred feet above their present summits. And all over Vermont and New-Hampshire, instead of the round-topped hills that now exist, there were towering pinnacles, jagged cliffs, and shelving precipices.

These cliffs were worn and decomposed by the rain, battered by hail, split into fragments by the frosts and the lightnings, and the fragments were washed down into the valley bottom, by the streams. The great trough gradually filled up, while the hills were rounded, smoothed and lowered. Long Island had not yet appeared, and the tidal wave rolling in unbroken from the open sea, laved the base of our hills from New-Haven to Northfield, and strewed the sediment over its shallowing bottom.

How long this day continued we do not know, but this we know, that it continued long enough for things of life to appear, both in the

* See History of Western Massachusetts, Vol. 1, Pp. 386-7; written by Dr. Edward Hitchcock, Jr., Williston Sem. At Gill Falls it was 10,000 ft. deep.—President Hitchcock.

sea and on the land. Enormous birds were there, whose weight was a thousand pounds; whose feet were half a yard long, and whose stride was equal to two paces of a man. They congregated together like cranes upon the shore, waded the shallow waters, and left the prints of their feet in the mud, which, turning to stone, has so perfectly preserved them, that we can see the pappillæ upon the skin of their toes.

Dr. Hitchcock has described the tracks of at least fifty species, varying in length, from one-half an inch to twenty inches. The greater part of them were made by bipeds, most of them, probably, by birds. But at least a dozen were made by quadrupeds, most of which had hind feet much larger than the fore feet, like the kangaroo, king of these animals, and walking among them upon two feet, was a monster with structure like a frog, but huge as an elephant.

Ages passed on, and these animals lived undisturbed, basking themselves in the sun that shone upon no human being; cropping the herbage of the shore, or seizing the fish of the estuary; but though no one was there to rule them, no one to name, describe and classify them, they left a record of themselves in their tracks which has been better preserved than will be the books of Audubon or Cuvier.

There was another epoch—when the gravel and sand and mud which had filled the deep cavity, and between the layers of which, these animals had left their tracks, and some of them their bones, had become changed to rock; then, again the pent-up fires burst the shell about them—new rock and all, for seventy miles all along the valley, and through the crevices oozed the red semi-fluid lava, cooling as it arose, till it produced Norwattuck, and Holyoke, and Tom, and their train of lesser notables, extending on to West Rock, New-Haven. None but brute animals were there to witness the eruption, and possibly they did not survive the catastrophe, for the force that rent the solid earth for seventy miles, produced a destructive quaking far and near. All over the valley, the new rocks which were before in a horizontal position, were thrown into hills and hollows. In some places at least, the valley sunk, leaving the fragments of the younger rock which jutted against the older hills, high up on their sides, in the place where they were deposited. This deposited rock is called sandstone, and underlies all your farms in the valley, from the range on the east to the older range on the west.

There was another day. Not a day of fire, as heretofore, but a day of floods, of cold, of ice, of death. From the north pole to South Carolina, there extended one enormous mass of ice. It was five thousand feet thick, filling every valley, and riding above every mountain top. Mount Washington alone lifted his naked head above the frozen surface—a lonely isle in the great ice ocean. And there rested that mask of ice, like a chill death-moth, over all these fair lands. Life was extinct; no tree or shrub, no fish or fowl, could bloom, or swim, or fly —all were dead.

This sea of ice, sensitive to the varying heat of the sun, expanded and contracted, and with its motion and enormous weight, pulverized the subjacent stone and rocks, broke off cliffs and ground down the hills. And when the ice-king lost his hold and the southern portion melted away, icebergs broke loose from their mountain moorings, and floating away southward, bore with them rocks and stones, and dropped them along the valleys, and on the hill tops. And the moving waters swept on the fine sand, the gravel, and the rounded pebbles, and formed an immense bed of loose material all over this valley.

The sand and gravel at the bottom of the moving waters, was thrown into banks, and bars, and hollows, like the snow driven by the wind, and the retiring waters left lakes and ponds, pent up in their cavities. Some soon broke through their sandy barriers, some only after ages had passed away, and some still remain. This great bed of loose material, modified by the retiring waters and the flowing streams, has been called by those who classify your soil, diluvium.

Now commenced the more immediate preparation of the valley, for the residence of man, the formation of the alluvium. Under the influence of a genial sun, the peat moss started in the muddy lake—fish were created in the now transparent waters, lichens grew upon the rocks, and *these* dying, mingled their decomposing fragments with the sand, forming a soil for larger plants which, in their turn, came into existence. Then were created animals feeding upon these plants, then those which preyed upon each other, and all, plants and animals, when they had fulfilled the first object of their creation, dropping their organic remains upon the bosom of mother Earth, mingled their elements with the soil and prepared it for more luxuriant growths. The maple, the chestnut, and the oak came to cover the hills, and the pines stood thick over the plains. Then man appeared and built his hut and made the plant, the fish, the beast, all contribute to his happiness. But, it is not only said in Holy Writ, "In the sweat of thy face shalt thou eat bread," but the soils teach us that the labor of the head and the labor of the hand must be expended upon them before they will contribute very much to the production of human happiness. God has given us heads and hands, and placed before us rock, and sand, and clay, and mud, and marl, and peat, and says unto us, "work."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE BIG APPLE TREE.

When I was a child, there stood in our garden a tree, neither admired for its beauty nor loved for its luscious fruit. It was known simply as "the big apple tree," and was shunned by me, at certain seasons, because of the living, moving crop of worms, with which it swarmed. The tree stood there, simply because it was there, though its fruit was not considered worth gathering; sometimes when the apples were "thick" upon the ground, my father would go and shovel them over to the pigs, just to get them out of the way.

It rose from a row of currant bushes that separated the fruit from the vegetable garden; but how it came there, I do not know; probably it was a foundling, for we had a large apple orchard on the other side of the house. Occasionally a motion was made to cut it down; the heads of the family and the older children would discuss the matter, but whatever decision they came to, "the big apple tree" still remained in its place.

I said it was not admired for its beauty; but this is not exactly true, for during the month of May, it was the queen of the garden. Who ever looked upon such apple blossoms! Very beautiful were the rich red buds, which gradually opening, revealed softer tints, fading to a delicate blush, and then hung out in great snowy clusters. Odors from Araby the blest, could not excel the perfumed breath from those flowers. Even travelers along the road would stop to catch the flitting sweetness. But none ever asked or cared if the glowing buds were pregnant with coming fruit. Like many a flashing belle, when beauty faded, "the big apple tree" sunk into insignificance.

Early one spring my oldest brother visited an uncle, who was a nursery-man in a neighboring county, and returned with a quantity of choice grafts. Now, he asserted, he would try and make something of the old tree; he should do no harm, if he did no good. My father and mother thought it was well enough, if he had a mind to waste his time, but they should never live to see any good of it.

Accordingly, with saw and knife, he mounted among the leafless boughs, and carefully pruned the whole tree. The ends of about one third of the branches were then sawed off; incisions were made, the grafts were inserted, and coatings of wax were spread over the wounds. When the buds began to burst and young twigs to come forth, many of those on the branches bearing grafts were pinched off, that the scions might not be robbed of due nourishment.

A new interest now centered in the tree; the tangled bushes were removed from under it, and no worms' nests were allowed to be cradled in its boughs. It presented something of a hostile appearance, with its bristling spears rising from the truncated arms, though the spears gradually spread out into broad, leafy pennons.

The next year, and the next, the same process was repeated, until the old stock was entirely crowned with a new growth. The first set of grafts now began to throw out blushing buds to the inviting airs of spring, and carefully were the petals turned back, and curious eyes looked in to see if incipient fruit was there.

My father and mother lived to acknowledge that "the big apple tree" was the most profitable one on the farm. It dropped from its arms golden harvest pippins, while at the same time there nestled among the green leaves the scarlet seek-no further and the rich yellow russet. From the Harvest feast to the Christmas merrymakings, our table was graced with its luscious fruits.

There are neglected wastes on almost every farm, which, with a little care and a little labor, can be made rich with beauty or luxury, which lends peculiar charms to the farm-house. JUNE ISLE.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

WHEAT—RENOVATING PASTURES.

MESSRS. EDITORS :—I give you a brief article, induced by the reading of D. L. Harvey's, of Epping, N. H., on wheat culture. His suggestions and practice are good for *spring* sowing, which I have practiced with fair results for many years where I wished to stock down fields after a corn or potato crop, sowing one or two hundred of plaster per acre on the wheat when fully up, and rolling in clover-seed, which follows admirably. In all other cases I prefer winter wheat. Sometimes by flat culture I cover the wheat in the last hoeing of corn, or field beans. My plan is to renew my mowing fields, where the soil is suitable, by ploughing immediately after haying, and rolling, to make a smooth surface. After a few weeks, I give it a top dressing of finely prepared manure, very thoroughly buried by harrow and cultivator, early in September. The wheat thus sown on the inverted sod, has given me 20 to 25 bushels per acre—a heavier and better crop for flour, than spring wheat. I omit sowing the clover till spring, (if there is danger of its being thrown out by frost.) Early as possible I harrow it in, and roll, to replace any disturbed roots of wheat, and sow ashes and plaster. I have never failed to get a satisfactory crop of wheat and grass, which I mow with the stubble, (left high,) and being early, all is tender and sweet. Thus my grass is renewed without loss of a crop, and my wheat is an extra. I generally sow a piece of rye and wheat in the same way, and get more bushels and better, than from rye alone. Of wheat alone, I sow five pecks—mixed, one bushel of rye with a half bushel of wheat to the acre. I soak and lime the seed invariably.

Besides the general interest I have taken in reading and circulating your "magazine," with your *joint* labors to improve its character, a particular interest has been awakened in my bosom, for the double purpose of encouraging your worthy efforts in behalf of "farmers," and also to have some young men, freeholders, share the benefits of its speakings, with its present large circle of friends. I have been induced to lend some copies, though I wish to keep a file. B. W.

LANCASTER, MASS., Feb. 20, 1857.

That is right; lend them, and look to us for a re-supply of missing or defaced numbers. Will others of our subscribers do the same? We desire that the work may be seen, as we believe it will commend itself more and more, as our increasing subscriptions show it has already done; and we will cheerfully re-supply numbers that may be lost or injured by loaning.

Our subscriber's way of renovating his pastures, and getting at the same time a crop of wheat or rye, or a mixture of the two, we believe is excellent for the region where he lives, and we know not why it should not be for large extents of our country. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ENTOMOLOGY, ITS IMPORTANCE, ETC---A PLAN PROPOSED.

MESSRS. EDITORS:—Spring has again returned, and soon will be seen "the tender blade, and then the ear, and after that, the full corn in the ear."

The hope-inspiring seed-time, the maturing summer and the golden autumn, which supply the "creature comforts" of each returning year, are all full of peculiar interest. With the bountiful harvests come also joyous festivals, and magnificent Agricultural comparisons, all tending to gladden the hearts of agriculturists and inspire them with new resolutions to excel all others. The noble spirit of emulation and research after TRUTH, which is excited by these exhibitions, is undoubtedly of incalculable benefit to the world. But whether they generally exert their full strength in the production of the most desirable results, is to me very doubtful. There is a way, if only known, to resist every invading hindrance to earth's yielding to the appliances of agricultural skill her fullest increase, so that every farmer may conscientiously give annually a receipt "*in full of all demands*" for every seed he has planted, and every blow he has struck during the year. Every evil is subject to modification, if not to radical cure. Still the wheels of agricultural progress are retarded by clogs, which may and should be removed by the united efforts of town, county, and State, or national associations. The two most prominent evils, to my mind, are the prevailing ravages of insects, and the prevailing dishonesty of seedsmen, in whom farmers so confidingly trust, to their own hurt. To avert the first of these, every agriculturist should know, of himself, every insect with which his grounds are infested, in whichever of its varied forms and disguises he may find it. He will then know what to cherish as friendly to his interests, and what to destroy as noxious ones. And for the latter evil, let farmers get into the good old habit of raising their own seeds and elements of vegetation from their own choicest productions, and rely more implicitly on mutual exchanges with each other, especially for those standard varieties, which are good enough in themselves, and make their seeds, etc., subjects of exhibition and awards. They may also establish town depots, where every one who freely gives may as freely receive.

In relation to Entomology, there is no other science, not excepting Chemistry, which is more intimately associated with the advancement of agriculture. Nor is there any other class of men more eligibly situated for gaining an adequate, practical knowledge of it than farmers. They are surrounded on every side with the very best material for investigation. They scarcely turn up a stone, a stump or a furrow, or take a step in grass or grain fields, in gardens, orchards or woodlands, in spring and summer, or prepare fire-wood in winter, without meeting with some specimens of insect life, capable of yielding most valuable instruction. Their great difficulty is to know how to discriminate justly between the good and evil. The larvæ of today are very unlike the pupæ of to-morrow. If they spare one for its good looks, or any other cause, it may be the very species which does them most harm, and so *vice versa*. They are in the dark and seek for light. Let them have light and their interests will be comparatively safe. But *how*, isolated as they are from the halls of science, where, by the by, none too much is known of Entomology, are they to obtain it?

Till a better method of instruction is proposed, I would suggest, after the manner of showing up pick-pockets, etc., the showing up of the insect tribes in all their little less than "seven different stages." If a hand-book of plates, etc., can not be furnished for this purpose by Government or otherwise, and introduced into common schools, or at least into every farm-house, let Agricultural Societies take up the subject in good earnest, and offer such premiums as will induce farmers, with their boys and girls, to preserve in alcohol, or by dipping in spirits of turpentine or chloroform and pinning up to dry, at least one specimen of all the insects they find during the year, and present them at their regular exhibitions. And let there be an especial department for this science, as there is for fruits, flowers, etc., and an entomological committee prepared to name and label every specimen presented, and illustrate its whole character to the exhibitors and all listeners, which would probably comprehend almost every farmer at the fair. And I feel warranted in saying that if this department should be managed as ably as it may be, thousands who have heretofore taken no interest in agricultural exhibitions will flock in, if for no other purpose than to gain what knowledge they can of a science of which they have, as yet, so little practical knowledge, and which they still sorely feel to be of the most vital importance to their success in terraculture. Farmers lack not only for scientific knowledge, but in confidence in their own ample abilities to acquire it. The following simple experiment, all farmers with their sons and daughters may try, and read as they run. When curculio-bitten plums, peaches, apples, etc., fall of themselves to the ground, it is because the larva within (remember this, singular larva, plural larvæ, the first stage from the egg) which is now grown from the egg deposited ten or twelve days previous, to a small, white maggot or grub, about one fourth or sixth of an inch in length, is about ready to enter the ground, where, in about thirteen days, it naturally changes to the second or *pupa* stage, (singular pupa, plural pupæ,) and then in about eight or nine days more, to a perfect beetle or curculio, in which form, when completed, it comes immediately up from the earth. It is, by the way, worth observing, that if the tree leans over running water, or pavement into which the larvæ cannot enter, the fruit will not be bitten; such is the sagacity of the insect. My plums and cherries are usually stung or bitten first about the last of May, and my first crop of curculios appears about the first of July, requiring a little more than one month for a complete revolution. But to continue the experiment:—When the fruit begins to fall in June, pick it up before the larvæ have time to escape into the earth, which usually requires two or three days, and put it into a large glass tumbler, or open-mouthed clear glass jar, with two or three inches of moist, clean sand in the bottom, and when full of plums, etc., tie a piece of thin cloth or muslin over the top to keep the curculio, when formed, from escaping. The larvæ will soon begin to work their way from the fruit down to the bottom of the vessel, where they can be observed, if the glass is transparent, day after day, through their whole process of transformation. For some days after they descend, there will be but little apparent change, and then the *white* begins to assume a brownish cast, and the form changes to the *nympha*, *aurelia*, *cyrysalis* or *pupa* state, all four words meaning the same thing, namely the *second* stage from the egg, and last before the perfect insect form. By this, or similar experiments, a better general idea may be gained of insect manners and customs, with less labor and in less time, than by any other with which I am acquainted.

Long experience in school-keeping convinces me that entomology and other branches of natural history may be so introduced into our common schools as not only not to retard their usual studies, but to crown the labors of both teachers and scholars with renewed cheerfulness and success.

It is a most lamentable fact that thousands of naturally bright, healthy and intelligent children waste their common energies and come down to early graves, or worse, to deranged intellects, under the iron scourge of school discipline, and the conventional exactions and literary burdens imposed on them by mistaken teachers and parents. I speak advisedly, in saying that thousands perish annually by this "hot-bed" culture, who, if permitted to ramble daily through surrounding fields and forests, with cheerful, intelligent teachers and schoolmates, in search of natural productions—insects, flowers, grasses, minerals, etc.—would rise to high conditions of moral and physical life and usefulness. If, in all school-houses there were a department for natural history, a cabinet in which all scholars might safely deposit whatever of the beautiful or instructive they find in their researches, with the assurance of its being scientifically illustrated and labelled by teachers, visitors, or scientific school committees which might be appointed for that purpose, it would stimulate them to a much more rational and healthy zeal and emulation in the pursuit of all that is truly useful and desirable in the attainment of knowledge.

A new light, the light of nature, would spring up about their paths, and in her light they might learn to love her God. It is the *idle* time, the time which hangs *heavily* on the hands of our youth, which drags them down to perdition. He who in the love of nature finds new beauty in every step he takes abroad, finds no inclination, and no time for the contraction of evil habits, but is ever rising higher and higher above those gross defections, moral and physical, which infest schools subjected to a mere dry *book* study, arbitrary rules, and physical sloth; by a process as sure and natural as that by which noisome diseases, scurvy and death, creep in among ships' crews and companies when cut off from intercourse with the vegetable world, and subjected to uncongenial food. Yours truly, EASTMAN SANBORN.

ANDOVER, Mass., March 3, 1857.

We commend this excellent communication of our friend, Dr. Sanborn, to the attention of all our readers, for all are personally interested in the subject of which he treats. The plan he proposes for a general introduction of definite and practical knowledge in relation to it, is worthy of the co-operation of all our societies. We have had thoughts of our own not unlike these, for a long time, and we are disposed to attempt a *practical experiment*, by way of beginning a great system of instruction in this important department of science. The reader will find our proposition upon a subsequent page of this number P.

CURRANT TREES.

Having noticed that currant bushes may as well be made trees as shrubs, I conclude to tell you how I have seen it done. In the spring of 1832 my father commenced a garden, and among other things he set cuttings for currant bushes. I determined to experiment on one of these cuttings; and as soon as it grew, I pinched off all the leaves except the top tuft, which I let grow. The cutting was about 14 inches long, and during the summer the sprout from this grew ten inches.

The next spring I pinched off all the leaves to about half way up the first year's growth, so as to have the lowest limbs two feet from the ground. It branched well and became a handsome little dwarf tree. When it came to bear fruit, it was more productive than any other bush in the garden, and the fruit larger.

It was uninfested with spiders and other insects; hens could not pick off the fruit, and grass and weeds were more easily kept from the roots. I would propose that currant cuttings be set in rows about four or five feet apart each way (let them be long, straight ones,) and trained into trees.—*Michigan Farmer.*

That currants should be so grown as not to form bushes, we do not doubt, and our practice has always been to prepare the cuttings by taking out all the eyes except the upper four, so that it should have a bare shaft of one foot high before commencing to throw branches. The cutting will form roots without eyes being left at or near the bottom, and thus no shoots will be thrown up from below. This is what we have understood to be a currant tree; but if the wood buds continue to be pinched off from the new growth until the shaft and continuations are so tall as to protect the fruit from hens, (particularly Shanghais,) we should fear that the heavy top would be an element of destruction to the body, particularly during high winds.— *Working Farmer.*

Whether the tree form is best for the currant is more than we know from experience. We have seen them cultivated in that form with good results; and we have obtained admirable returns both in quantity and quality, by cultivating them in clusters, properly thinned out every spring. The currant is easily produced in either way; and we advise all who have a patch of land, if no more, never to be without them, in their season, which is protracted, and when other fruits are not plenty. N.

LAND GRATEFUL FOR FAVORS.

A. B., in a little town on the banks of the Connecticut, rented a piece of land of a neighbor for the summer of 1855. It was good land, but had been long cropped without manure. A. B. planted it, applying no manure, and obtained a crop not worth the labor. The next spring the neighbor allowed him the use of it for 1856 at a trifling rent, on the ground that his former rent had turned out a hard bargain. He now applied 160 lbs. to the acre of Peruvian guano, planted for the same crop, and obtained what would have paid a high rent, paid well for the labor, and left a wide margin for profit. Probably if he had doubled the dose, the margin would have been wider. We advise him to try it in 1857 if he can get the land. The soil is grateful. N.

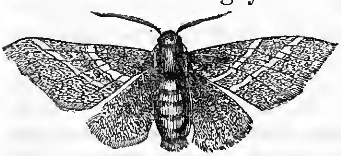
INSECTS

Injurious to Leaves of Trees and Shrubs.

CATERPILLARS.

The Common Catterpillar, or American Lackey Moth. Clisiocampa Americana, of Dr. Harris.

In May and June, the nests of these insects are visible in all apple orchards, and on cherry trees, wherever a watchful farmer has not been prompt to anticipate their coming, or to adopt measures to destroy them on their first appearance. The common name is derived from the diversified gay colors which these insects often exhibit; they have blue, red, and yellow stripes, which run longitudinally, and are straight and parallel. In this they differ from European insects of this genus. Their habits, in some respects, also differ. Hence, the propriety of separating them into a distinct species. Unlike the European, they can not subsist on evergreen trees. They are fond of the apple and cherry, and are sometimes found upon the plum tree, but seldom attack the peach. Some few of the forest trees are also subject to their ravages. Such are the shad bush, the willow, the native poplar, the white oak, etc.



LACKEY MOTH, FEMALE.

The eggs from which these caterpillars are produced, may be seen near the end of the twigs, often entirely surrounding them, and forming rings or belts, though sometimes they lie in masses, without forming a ring. Each nest contains three or four hundred ash gray or whitish eggs, of a cylindrical form, rounded at the ends, with a shell of a tough, leathery texture. They are glued in a perpendicular position upon the twig, except those near the outer layers, which are placed in an inclined position, while the outermost rows lie horizontally on the bark. A glutinous coating, of a dark color, protects them from the weather, and from injury from other quarters.

These eggs are deposited early in July, and remain through the following winter till April or May, when the young caterpillars are hatched. The rain softens the glutinous matter which covers them, and the young insect easily gnaws for itself a passage by which it escapes from its confinement. They remain in dense clusters near the spot where they originate, feeding upon the young twig, until they gain strength to sustain the labor of traveling to more distant parts of the tree for food. After eating, they work awhile at their web, and then retire to rest. They spin a fine silken thread, which is attached to the bark, by which they render their hold upon the tree the more sure. At the fork of the branches, they surround the limbs with these threads, making a web not unlike that of a spider, adding daily to the strength of the structure, until it is able to endure storms, and furnish them a secure retreat. At first, the worms are scarcely a tenth of an inch in length. Their bodies are bigger towards the head, gradually tapering, of a black color, with a few whitish hairs. When full grown they are about two inches long, with black heads, a whitish line on their backs, with fine black waved lines or stripes, and spots on their sides. On the top of the eleventh ring is a small blackish hairy wart. They have regular hours for eating, but in rainy weather they remain within their webs.

During the first half of June, they separate, and wander about the tree, seeking a shelter where they may construct their cocoons and go through their transformations. The cocoon is of a long oval form, and after a while has a yellowish tinge. In two or three weeks after it is constructed, the chrysalis bursts its skin and becomes a miller, of a red rusty brown, with a mixture of gray on the middle and base of the fore wings, which are also crossed by two oblique, straight, dirty-white lines. Its wings expand an inch and a quarter or an inch and a half. It appears in great numbers in July, often entering houses during the evening, attracted by the lights, and darting about fitfully and rapidly, thumping against the walls and tables, and flying through the flame of the lights, till it becomes thoroughly scorched, and is glad to retire to a quiet spot, and remain at rest.

Among the means adopted to stay the ravages of this caterpillar, the first in the order of time and in importance, is the collection and destruction of the eggs. This may be done with the thumb-nail and finger, during the winter and early spring. After the caterpillars are hatched, and while they are still young, they may be effectually destroyed by crushing them by the hand in their nests. If the branches are too high to be thus reached, a stiff brush upon a long handle will serve nearly as well. But this work should be attended to before nine o'clock in the morning, at which time they leave their nests for their morning meal, or at mid-day, when they return to it. A sponge or a mop, filled with strong soapsuds may be substituted for the brush. Strong whitewash, or whale oil may be used instead of the soapsuds. The mop or sponge should be plied most thoroughly, and the liquid should be applied liberally to the insects, and it will assuredly destroy them. This service should be performed as soon as the nests are visible, and should be repeated at least once a week, until the caterpillars entirely disappear.

Another mode, recommended by Prof. Mapes, is to saturate the nest with a mixture of alcohol and camphene, and set it on fire. Still another plan, which seems to have met with various success, consists in boring into the tree and inserting some substance like sulphur, which is offensive to insects. The hole should be from four to six inches in depth, and after the sulphur is placed in it, stopped with a plug, that it may not be washed out by the rain. Some experiments made by Dr. Fitch, which were not successful, do not seem to us to have been wisely conducted, as they were tried upon limbs cut off from the tree when the vital forces needful to carry it into the circulation, would naturally be far less effective than in the living tree.

Other species of the Clisiocampa are sometimes found on apple trees, but they are not so numerous. One species, C. sylvatica, or "The Tent caterpillar of the forest," as Dr. Harris calls it, is very destructive to the oak tree, in Virginia. It is also found on the walnut. Its general color is light blue, greenish on the sides. But our present purpose has reference chiefly to fruit trees and garden shrubs.

There is another caterpillar of beautiful appearance, not occurring in such numbers, but living solitary and without any protection, upon the leaves of the apple and plum, and upon our rose-bushes, and upon several kinds of forest trees. It is the *Orygia leucostigma*, or the *American Vaporer moth*, an inch or more in length, slender, of a cream yellow color, with a black stripe upon the back, and two broader ones on the sides. Pale yellow hairs radiate from certain wart-like elevations, and on the fore part of the back are four brush-formed tufts of a deeper yellow color. Projecting upward from the hinder part of the back is a bundle of long black hairs, each hair minutely bearded, and knobbed at the end. A similar pencil projects from each side of the neck. They attain their growth and spin their cocoons late in July. The eggs of this insect are easily found in the winter, adhering to the cocoon, which is attached to a dead leaf, and may be easily destroyed. The name *orygia* is of Greek origin, and was given on account of its resting with the fore legs extended.

The *Palmer worm;* Chætochilus pometellus of Stephens and Westwood, and the *Little snout mouth,* or Rhinosia pometella of some German authors and Dr. Harris. This worm, or naked caterpillar, is found not unfrequently upon the leaves of fruit and forest trees, in the latter half of June and very early in July. Sometimes they become so numerous as to be very destructive, converting green foliage into utter desolation. They come suddenly, and disappear as suddenly, abounding one day and no traces of them to be found the next. As they appear after the trees are covered with foliage, they are more destructive than the Clisiocampa. The worm or larva is thus described by Dr. Fitch:

"A pale yellowish-green worm, having a dusky or blackish stripe along each side of the back, with a narrower whitish stripe on its upper side, and a dusky line in the middle, with a shining yellow head of the hue of beeswax." When small, they are somewhat tapering, pale yellow, with a dark stripe along the middle of the back; above is a narrower whitish stripe, more or less distinct. They are pale, or whitish underneath; when approaching maturity they are generally of a pale green or yellowish green, but sometimes a sulphur yellow and flesh red are met with. When fully grown they are near half an inch in length, and nearly cylindrical. The body has thirteen segments, and is furnished with sixteen feet. The stripe on the back is the most constant, and also the most conspicuous mark of this worm. It resides in worm-eaten leaves, drawn together by silken threads, and when the limb is jarred they drop, hanging in the air suspended by a thread.

FIG. 1.

FIG. 2.

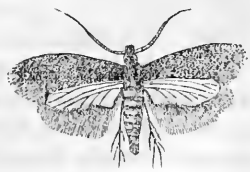


FIG. 3.

Fig. 1. is the Palmer worm, that is, the larva of the Palmer worm moth; Fig. 2. is the pupa, and Fig. 3. is the perfect moth of the Palmer worm.

The parent moth belongs, of course, to the order Lepidoptera, and the manner in which these caterpillars construct their nets, would indicate the group Tortricidæ. But for other analogies it is classified with the Tineidæ. These worms have generally appeared about the time the canker worms disappear. The difference between these two insects is so great, that they can not well be confounded. The Palmer worm is not a Geometer, or Loop worm, but creeps without arching its body like the canker worm. The Palmer worm has sixteen legs, and the canker worm but ten.

The worm remains within the same tuft of leaves which the larva occupied, and covers itself with a web of so thin a texture that they are visible through it. The pupa is, at first, of a tawny yellow, and gradually changes to a darker color. In ten or twelve days after it ceases feeding and shuts itself up, the perfect insect comes forth. The wings of the moth expand about .65 of an inch. It is of an ash gray color; the fore wings are sprinkled with small black dots, and near the base of their fringe, towards the apex, are six or seven equi-distant black dots. There are also two larger brown dots before the middle, and two behind the middle of the wing, placed obliquely with regard to each other.

Several varieties of this moth are found, differing in the color of the fore wings, appearing sometimes a dull white or a pale tawny yellow, or with a pale purplish reflection, and sometimes we find three dots only on the fore wings, the anterior one being effaced, the four dots on the middle of the fore wings all wanting, the dots on the apex of the fore wings faint or wanting.

Showering the tree freely by means of a garden engine is useful in dislodging this worm. The thorough application of whale oil soap has also proved efficient. Any process which by jarring the leaves causes the worms to drop, will prove more or less efficacious. The worms, when suspended by their threads, may be caught in a tin pan smeared with tar, or otherwise collected and destroyed.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

PLANTING FOREST TREES.

Messrs. Editors:—In my suggestions on the propriety and eventual profit of appropriating side hills and rocky pastures to the cultivation of forest trees, I supposed it was well understood that by these I meant such lands as were too steep and too rocky to admit of successful cultivation. Now, if I am not greatly mistaken, there are thousands of acres of such lands, (all lean, shallow soils may be included,) which do not now give produce enough, all told, to pay the interest of twenty dollars an acre. To what extent such lands in some localities can be reclaimed, or how well they will pay the investment after it is done, is not for me to say. One thing, however, is certain; timber of all kinds is getting scarce in our Eastern districts, and this scarcity is consuming the Western forests. While the supply is growing less every year, the demand is constantly increasing, and is likely to do so, perhaps, to all future time. Then, with all this consumption, where is the supply to come from, unless forest culture becomes one of the general cultures of the age?

The necessity of the thing seems apparent. To meet Yankee commendation, we know it must be shown to be profitable. We will suppose, then, that this acre of land, is held at $20, more, to be sure, than we would willingly pay for it, were covered with the Yellow Locust, a tree of pretty sure growth, one that provides for itself, and always leaves the land better than it finds it. Let every one estimate for himself, the expense of covering his land with it, protecting from cattle, etc., for these must vary in different sections. In twenty years let him cut off this timber, and see if his land and labor have not given him more than ten per cent. on cost of land and all other expenses.

What quantity of timber a thrifty locust will give in twenty years from planting, we have not now the means of judging. We have, however, just made an estimate from a tree planted twenty-seven years ago, then a mere shrub no larger than a whip-stock. Now, two feet above the ground, it gives a circumference of four feet and ten inches, which makes it at that point nearly twenty inches in diameter, with well-proportioned body and top. Any one conversant with trees can form an estimate of the amount of timber in it, near enough to decide whether it is worth raising. They can also estimate how many such trees can be grown upon an acre, and the probable market value of them now, and their prospective value twenty or twenty-five years hence, and decide whether their culture will be an object. This tree, counting all the time we bestowed in planting and caring for it, may have cost us fifty cents, for which we give receipt in full for the pleasure it has given us. For *fire-wood* it would probably bring us four dollars on the ground. But we are not making estimates for other localities; these are another affair.

We also measured a white elm planted at nearly the same time—it might vary a year. This gave four feet seven inches girth, and would give more than a cord of wood; we don't know how much. But for timber it would be worth more. A sugar or rock maple planted out, a mere sapling, about the same time, and near by, gave a girth, of three feet seven and a half inches, with a tall, handsome trunk and heavy top.

In bringing old lands into forests, a query may arise, as to the best way, whether to sow the seed or plant the trees. Where circumstances will permit, we should commend the former course, from the fact that any tree will succeed best if it grow undisturbed. It is an object to have them so thick as to shade the whole ground as soon as possible, for the shade will preserve moisture, so essential to their growth, and if they stand thick, it will prevent the leaves from blowing away when they fall, and thus retain them to manure and loosen the soil. Now it is certain that a crop of young trees can be made to cover an acre *cheaper* from the seed than by transplanting. If they become too thick for their own convenience, the more imperfect and feeble ones will die out to make room for the thrifty.

The idea that anything is gained by setting out trees to gain time, we consider in most cases pernicious. When a tree springs up and is allowed to remain, it enjoys an unrestrained growth. Nature adapts the roots and branches to meet its demands. Where trees are removed, they are very apt to suffer from mutilation of roots and change of soil, so that their growth is checked and disease often results; hence in these matters, a delay of growth often results in eight years more than equal to the size of the tree when transplanted.

In seeding land for a forest, we would introduce as great a variety of the valuable timbers as the soil and circumstances of convenience would permit; for as each species of tree is somewhat different in its constitutional habits, each would thrive on food that some other species had rejected. This is nature, and it is illustrated often in forests where it can be particularly observed. Yours truly, WILLIAM BACON.

RICHMOND, March 2, 1857.

We consider the above suggestions exceedingly valuable. Thousands of acres good for nothing else, should be made to grow timber. It will pay after a time. Meanwhile, the growing forests will meliorate the climate, conceal the deformities of a region, render it more desirable as a place of residence, and thus increase the value of farms, so that if the planter of a forest should not live to see it full grown, or should dispose of his farm while the trees are yet young, his labor would not be wholly unrewarded.

We like the idea of planting the seed instead of setting young trees, as certainly the least expensive, and we believe the speediest way. The seeds of trees should not be covered in a mellow soil, like those of annual plants. The ground being *hard* is no objection, provided it be kept mulched, so as to be always cool and moist. We must observe and follow nature. A shoot of corn will grow best in a rich, loose soil; but a chestnut will send up a stronger and larger shoot from a cow-path over a gravelly soil, hardly trodden. This we have often observed.

Much of the land which ought to be to be covered with trees, especially in the Eastern States, is hard, gravelly, too full of boulders to think of ploughing. If the seeds of various trees, as Mr. Bacon suggests, were put upon the turf, covered only with a mulching of leaves sufficiently thick to preserve them always moist, the leaves to be kept from blowing away by a slight covering of straw, salt hay, or even by bits of turf carelessly thrown over them, they would germinate and grow with more rapidity even than if buried in a loosened soil. Two thirds of the whole expense would consist in fencing, as it would be necessary to keep the cattle off.

Autumn would be the best time for doing the work. If done in spring, the seeds should be kept in a cold moist condition till planted. Few tree seeds will germinate vigorously after being fully dried. November or December would be the preferable months. If the design were to produce a locust grove for fencing posts, railroad ties, or ship timber, of course the seeds of this tree alone would be planted, or rather mulched down on the turf.

But if the object were to get the greatest possible growth of anything in the way of fuel or timber, we would put in all sorts of seeds natural to the country, enough of each to stock the ground. Those for which that soil was adapted, would triumph over the others. The ground after a few years would not be overstocked; and if more seeds came up than could grow permanently, the effect would be to shade the ground, to strew it annually with leaves, and to prevent the leaves from blowing away or into heaps.

The idea of planting on the turf, with only a covering of mulch, we believe is new; and we are aware that it will strike many of our readers as an odd fancy; but it is following nature; and we ask any who may be disposed to ridicule the recommendation, to look about them, and inquire if the finest trees in their farms did not spring up from seed, placed in just about the conditions we have described—dropped on the ground, covered with falling leaves and then let alone.

We thank Mr. Bacon for his suggestions, as we believe many of our readers will, especially if they will follow his advice and get their worst lands—those now a blot on the farm—covered with trees. Of course we would not recommend the treatment we have described, for land having much capability.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ILLINOIS—EDUCATION, AGRICULTURE, ETC.

BERLIN, ILL., Feb. 5, 1857.

EDITORS OF THE PLOUGH, LOOM AND ANVIL:—I doubt not that a word from Central Illinois in regard to her agricultural interest and prospects will be acceptable to *The Plough, Loom and Anvil.*

Our farmers, mechanics and tradesmen, are receiving an ample reward in the way of paying prices for their labor, skill, and enterprise. All kinds of labor and property, real, personal, and mixed, are bringing fine prices, with an upward tendency. At no time since the first settlement of our Prairie State has the increase of population been so great as now. The skill, industry and enterprise of our citizens in developing the resources of the State, will soon make Illinois the second if not the first agricultural State in the Union.

Railroads are multiplying with a rapidity hitherto unknown. Education is beginning to engage the attention of our people; the principle of sustaining common schools by taxation has been adopted, and I trust it may be extended until it shall carry a liberal common school education to every child in the State. A government like ours, which is based upon the intelligence of the people, should recognize a good education as the birthright of every American child.

The crops of the past year, as a whole, are below an average crop, but the excess of the crops of 1855 gives a good average crop for 1856 in Central Illinois. The beef of this portion of the State has been, and is now, selling for March and April delivery, at from $4 00 to $4 50 per hundred, gross, on the farm. Hogs for spring market sell at from $4 00 to $4 50 per hundred, gross. Wheat is worth $1 00 per bushel. Oats are worth 30c. per bushel. Hay is $20 00 per ton; Corn 20c. per bushel, of 56 lbs. Mules and horses are high, say from $100 to $150 per head. Working oxen bring from $80 to $150 per yoke. Wild or unimproved lands are worth from $12 to $20 per acre; improved from $25 to $50. Lands improved rent steadily at from $2 75 to $3 50 per acre.

Our State Agricultural Society is in a prosperous condition, with about four thousand dollars in the treasury. The Executive Committee meet on the 4th of March, to make arrangements for the next fair, and to fix on the time and place for the same. They have determined to offer ten thousand dollars in premiums. We have about seventy county societies in the State, as the fruits of the State organization. We have formed a stock importing company this winter, with a capital stock of twenty-five thousand dollars, and have selected our agents. They will leave New-York the first of May for England. Jas. N.

Brown, I. H. Jacoby, of Sangamon Co., H. C. Johns, of Macon Co., are the agents of the company. It is the intention of the company to import cattle, horses, sheep, and hogs. Yours truly, JAS. N. BROWN.

WINTER MANAGEMENT OF CATTLE.

WHILE traveling through Bainbridge, N. Y., a short time since, I was kindly entertained by Mr. John Banks, a young farmer of much spirit and enterprise, and as he has a "new" mode (to me) of feeding his cattle, which I think worthy of description, let me attempt it for your paper.

Mr. Banks does not stable his cattle, but allows them an open shed and yard, with stalls two and a half feet wide, to feed in. The hay or straw is thrown into the manger from above, which is all eaten without the least waste—they are prevented by an upright from getting into the manger.

My impression at first sight was, that the cattle occupying the stalls would be liable to be injured from others "hooking" them, but the elevation of the stalls of about ten inches, is a preventive for this. No animal can injure another with head up; a savage brute always goes with its head down when bent on mischief; therefore cattle are all safe when in them. To more fully convince me on this point, I saw the underling cattle run there for protection, and then feed without fear.

Mr. Banks has a trough of running water in his barnyard. The cattle go in and eat until thirsty, when they go out and drink, return into another stall and feed again, having an opportunity to eat and drink as it suits their palate, which in my opinion much benefits their condition. When stabled they are only watered once a day; they drink too much, and frequently stand shivering in the cold a long time afterward, much to their injury.—*Country Gentleman.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

EXTREMES OF COLD.

THE extreme cold having abated, and my ink thawed, I will inform you of some of the extremes of the weather here for some twenty years. I have for that length of time kept a diary of the weather, noted the range of the thermometer three times each day, and the barometer occasionally.

January 4th, 1835, the mercury stood at 36° below zero; this was the coldest it had been since I kept a record. In many places in the State the same morning it stood at 40° below. The mercury in my location did not range below 36° in '35 until 7th Jan., '55, when it stood at 38° below. The 5th and 7th of September, '56, it stood at 34° below, 10th of March, 36° below at sunrise. The 18th of Jan., '57, the mercury in the morning stood 28°, noon 10°, sunset 12° below zero; wind N.W. and cloudy; a very severe day—many were frost-bitten. 23d of Jan., at sunrise the mercury stood at 30°, noon 20°, sunset 24° below zero; wind strong N.W. and cloudy; probably as severe a day as was ever experienced in this vicinity. Some perished. The 24th, sunrise, the mercury stood 42·5°, exceeding any record of mine for twenty years; this morning many people blistered their hands by taking hold of cold iron. The 18th and 19th it snowed and blustered 48 hours, and the snow fell some eighteen inches, thus far our winter has been more severe than any one for twenty years; it appears it has been so throughout our UNION, which I have a strong desire may be preserved. ARIEL HUNTON.

HYDEPARK, 13th Feb., 1857.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

IMPROVE THE MAN, AND YOU IMPROVE THE BUSINESS.

MISSISSIPPI, Jan. 13th, 1857.

MESSRS. EDITORS:—Your January number was received to-day, and looks so fresh and comely in its neat Quaker costume, that I fancy a decided improved exterior, and then the very first article, the leader, friend N., stands up to the farmer so much like a true knight, that I needs must thank him.

The farmers of America enjoy blessings that they cannot be aware of. A master of his own soil! an *equal to any man!* opportunity to improve mind, beyond all other people!! Yet with all this they feel not that they are sovereigns indeed and in truth. The young lawyer, without his first fee, and his coat perhaps not paid for, speaks of the sovereigns, but he looks down upon them unless he has use for them. and the farmer seems to feel he is "small potatoes." Farmers are greatly to blame themselves; they ridicule "book-farming," and thus their children do not strive to be informed on agriculture, or ought else, if to be farmers. Instead of which, fathers should exalt education as much in the farmer as in the lawyer or doctor. But the greatest evil is a want of proper thinking on farm matters. Whenever farmers place their minds on their business, endeavor to understand what they are at, have a proper conception of what a farmer should know, we will see more reading, reflection, and a higher appreciation of their profession. The masses think any one can farm; anybody can be a farmer. As well can any one be a doctor, or a lawyer, or a preacher—for certainly there are some "*precious*" ignorant men among them.

The farmer has as much need of knowledge as any man that breathes. In this country more need than with you. A farmer not only has to know when and how to plant and cultivate and gather and prepare for market or for home consumption, but he has at times to be his own doctor, architect, builder. He is called on, sometimes, by a neighbor for advice in some difficulty. But admit that he has no interest save the field, and he has enough there to employ the mind of the greatest. Here is a levee, there a ditch, here a bridge, there a rotation; to try the one seed or the other; selecting better seed; proper crosses for his animals, etc. Who can tell what a farmer should know? Any of us can tell at once what he should not know—to do wrong or to feel the inferiority of his position.

By the time the farmers of America learn how best to plant, cultivate, gather; best stock for home use; best crops for sale and home; how to breed stock; best rotation, manures, etc., in this line, they have only entered upon the threshold, for they should know as to the means of preserving health, as to the wants of our race, our country; then there are many little matters, such as proper buildings for health, comfort and economy, both for man and beast, length of time from open bloom to mature fruit, injurious insects, etc.

There are many who never find the time to learn anything, but they can find time to sit down at 12 for an hour or two, they can visit once or twice per week, they can hunt, fish and talk politics. This time, if used in reading and reflection, would soon be seen in the farm.

Every farmer should strive to improve; it is as much his duty as it is of the doctor. Why should one man be praised for his striving, or condemned for indolence, more than another? Farmers by their large numbers can change all this, and it is a sacred duty devolving on them. Yours, P. P.

EXTRACTS FROM PROF. HADDOCK'S ADDRESS BEFORE THE NEW-HAMPSHIRE STATE AGRICULTURAL SOCIETY.

Literature of Agriculture.—With us what may be called the literature of agriculture is all changed. It is no longer a subject of poetry. The country gods are dead; Pan and Sylvanus, Bacchus and Ceres are no more. The constellations have lost their influence; the moon herself is on the wane of her terrestrial power. The Fauns and Dryads have vanished from the woods and fountains. There can be no other Georgics or Bucolics; no other Theocritus or Virgil. The romance of farming is gone; gone the shepherd's pipe, the rustic loves, the pastoral contests, all the cheerful illusions of the country in the old rural life of Europe. In place of romance we have reality; for fiction we have fact; poetry has given way to truth. And, though we have lost a good deal, we have gained more. The variety of natural knowledge, which modern science has brought within the farmer's reach, and the sources of intelligent happiness thus opened to a man of taste in the country, more than compensate for the lost romance of pastoral life.

Science of Agriculture.—Agriculture, *as a science*, is little older than the present generation. The branches of knowledge, to which we are indebted for the chief improvements we have made in this science, are themselves of recent origin. Chemistry, geology, minerology, botany and vegetable physiology are all essentially modern. Their relations to the cultivation of the earth, and the development of its resources for the sustenance and happiness of man, were but imperfectly understood before the present century. Within this period, agriculture may be said to have acquired something of the demonstration, the method, the dignity of science. This result, it is true, is owing not wholly to our greatly improved knowledge of nature; it is due, also, in some degree, to the stimulus derived by agriculture, from the rapid extension of international commerce, and the miraculous improvement of internal communication in the principal states of the world. The opening of new markets and the introduction of a grander scale of agriculture, in the great grain-growing countries, have led to the study of principles, and the invention of new instruments, and given rise to intelligent experiments, that have, in the most productive countries, revolutionized the whole system of culture.

The Farmer.—To him alone the true idea of home is fully realized. His own acres subdued by his own industry; the orchard planted by his own hand; the house in which his children were born, and where he has known so much to love, and felt so much to remember; the brook, the hill-top, the wood—all his, and all endeared to him by holy memories—these belong to him as nothing else can; these are his home; these, the world he loves too well and is never quite ready to leave; the inheritance, he would fain hope, of his children and his children's children. A cultivated farmer is the happiest of men, and, though Virgil intimates that he does not know it—"happy farmers if they only knew it"—I am disposed to think he is fast finding it out. What Cato so long ago and so justly said of his profession—"*maxime pius quaestus et stabilissimus*"—the most innocent and the most stable of pursuits—is too apparent not to be seen. As soon as the farmer has learned that we do not live to work, but work to live, and to the consciousness of possessing, in his own right, a portion of the earth's surface, has added some of the comforts of life, the luxuries of a cultivated home, the resources of intelligence and taste, it seems to me there is not, in the world, a condition more happy, and I may add, more respectable. "Agriculture," says Columella, "is not only a near neighbor of Philosophy, but a blood relation." Most certainly, true wisdom, if found any where, is found oftenest where men see most distinctly the footsteps of the Deity, and receive their blessing most directly from the Divine hand. The farmer has reason to be satisfied with his profession.

The Glorious West.—I lately crossed the ocean of verdure, rolling in magnificence, and rich with the hues of harvest, between the city of Chicago and

Madison in Wisconsin. It was a sight to remember. But I could not but ask myself, what can a man do with such land? It needs not to be subdued; it can not be enriched. Agriculture, there, seems like fishing in a new stream, where one has nothing to do but to haul in the line. Sir Isaac Walton or Sir Humphrey Davy, to enjoy a salmon, must have spent a forenoon in taking him. To be seen carrying home a bushel of fish, that have been drawn out of one deep hole, in fifteen minutes, what would that be to a man whose piscatory art is recorded upon every river in Europe?

Agricultural Instruction.—We need, in the first place, and above all things, an Institution, or a Department in some Institution, for instruction in this branch of learning. It is, now, a branch of learning, capable of being presented to young men in an attractive form. The science of agriculture is not mere theory, book-knowledge, to be contrasted with experience, fit only for gentlemen farmers; it is experience itself, the most reliable experience, the best considered and best digested experience. Its principles, so called, are true facts—facts well attested and clearly stated; opposed only to unreasoned, unintelligent tradition, in which length of days passes for wisdom. It is a complaint as old as the first treatises upon husbandry, that, though every other art is taught, the art which lies at the foundation of all the rest, the art of cultivating the earth, is left to be practiced without instruction. "I cannot sufficiently wonder," says a Roman writer, "that they who build, call carpenters and architects; they who trust ships to the sea, employ men skilled in navigation; they who make war, men taught in arms; and that farming alone, the nearest to, and, as it were, kindred of, Philosophy, wants both pupils and teachers. Neither professors nor disciples of agriculture have I ever known. And yet without agriculturists, mortals can neither subsist nor be nourished."

A Professor of Agriculture, whose residence should be some seat of learning, would be a radiating point of intelligence upon the subject. His duties should include a course of lectures in every county and principal town of the State. Bringing us more acquainted with our own resources, and with the improvements made in other States and other countries; a sensible man, devoted to the business, could hardly fail to exert a most salutary influence, and to give a new impulse to the whole agricultural mind of the State.

Connection of Agriculture with the Mechanic Arts.—Another object, of which we should never lose sight, and which interests the town and the country alike, is the encouragement of domestic manufactures. The inhabitant of the city is not more interested in the prosperity of its young and growing manufactures than is the farming community about it. Every village in the State is a market for agricultural products—a domestic market; and the most prosperous agriculture is in the vicinity of such markets. There is the domestic agricultural population. It is ascertained by the recent census of New-York, that the counties of that State, which have domestic markets in their manufacturing places, have a good deal increased in population during the last five years; and that those counties, which have no such markets, have diminished. The same thing is said to be true in New-Hampshire. We cannot go, upon equal terms, with other parts of the country, into the great markets. We must have a market nearer home, a market for products that do not bear much transportation, a market adapted to our products; and our products must be adapted to our market. Manufactures in every town, a mill upon every stream, is our true policy. Thus our immense water-power, our large tracts of wood-land, our mineral treasures may be made to conspire with our agriculture in a common production to which it is not easy to set limits; upon which I do not think it extravagant to say that two millions of people may be subsisted in comfort and independence. The Kingdom of Portugal has about three times the number of square miles, with quite as large a proportion of waste land, as New-Hampshire. And yet, almost without manufactures, she sustains three and a half millions of men.

The Garden.—Men used to large operations in the field are apt to neglect, and often to despise, the petty processes of the garden; and the very families, that should enjoy them most, are often the least provided with the nutritious and delicate fruits and plants suited to our climate.

One for a little time accustomed to what I may call the domestic scenery of the old world, is struck with the baldness and homeliness, and poverty of delicacies, about the majority of our New-England farm-houses. We seem to have yet to learn that, in addition to the boundless variety of beauty and enjoyment afforded by a garden, a family may be nearly supported by its products for half the year, and it seems to me, in better health and greater happiness than upon the grosser and costlier meats of which we consume so much more than other people in the world. To the simpler diet and the larger proportion of vegetables consumed in the old world, we must, I think, chiefly ascribe the appearance of of superior health and strength, especially in the female sex, on the other side of the sea. A pound of sugar costs less than a pound of beef; and plenty of sugar, plenty of flour, and plenty of fruit, are no mean fare.

With a near market, the garden is the most profitable part of a farm. So much value is not produced anywhere else, in proportion to the cost of production. Within a reasonable distance of market, a professional gardener will pay his own wages and a good return for the land, besides supplying his family with all the vegetable luxuries of the climate. Roots and fruits and flowers all pay.

The garden, too, is *woman's* proper, and only proper, sphere of out-door labor; here she finds a natural theatre for her taste, and a remedy for half her ills. The garden is her academy and her gymnasium, her school of beauty. Here are the graces, one with her rose in her hand, and another with her branch of myrtle. In their society she breathes the fragrant morning air, and rests at noon in the shade of the vine which her own fingers have trained. It is wonderful, the miracle which her hands work here, the beauty and loveliness that bloom under her eye. The garden is our paradise regained.

Intelligent horticulture is a practical teacher of the farmer. It shows him how much a very little land may be made to do. No mistake seems harder to correct than that of cultivating more than we can cultivate well. The Romans had an apologue of a vinedresser, who had two daughters. When the first was married, he gave her a third of the vineyard; but raised as much as before. When the second was married, he divided the remaining two thirds with her; and still raised the same quantity of produce as from the whole. Writers have repeated the lesson from the days of Rome to our own. But the error is not corrected; the insane passion for land still stands in the way of perfect culture. Till it is corrected, we shall never know the full capacity of our soil, the true felicity of our condition.

Liberal Education.—The only other suggestion with which I will detain you is, that a liberal education is no disqualification for agricultural life. Such an education has been too much regarded as well nigh thrown away upon men who do not go into one of the liberal professions; as if there was any sphere of life for which a full grown man is not the best fitted. A full grown man is a well taught, a thoroughly educated man, a man whose mental and physical powers, freely developed by proper culture, have reached their natural stature, and ripened to their full maturity. This may possibly be done without the aid of schools. Degrees and diplomas are not necessary to it. But they are a species of machinery for effecting, in less time and more perfectly, what may sometimes be done, and with resolution, can always be done without them.

In the first period of our New-England history, a classical education was deemed essential only to the clergy. The catalogue of the graduates of the venerable University of Cambridge, shows a large majority of the early classes, in some cases four fifths, to have been clergymen. Somewhat later, the profession of the law required a Degree as a qualification for practice. The medical profession have but recently begun to lay much stress on such attainments. To some one of these departments of life, educated young men are nearly all directed. But in no pursuit, in my judgment, is educated talent more requisite than in that of agriculture; no where is an educated man more in his proper place, no where has he an ampler field or worthier objects, or a fairer prospect of success and happiness.

May we not hope that more of our educated young men, that not a few of them, may be induced to employ their disciplined judgment and mature taste, in improving the agriculture of their native States? We all look forward to the quiet life of the country as the refuge and solace of our age. There is something beautiful in the thought of at last quitting the dust of the town and the strifes of life, and coming back to die in the place where we were born, in view of the fields familiar to our childhood. But there is something more beautiful in the thought of ending a useful and happy life, on the spot of earth made fertile and lovely by our own care, and full of the memorials of our own success.

CAPITAL.—WHAT?

The following extract from De Bow's Review, may suggest valuable thoughts to the mind of the thoughtful reader. P.

"Capital," says Prof. Rickards, "is the produce of past labor saved from immediate consumption, and employed for the purpose of producing something else."* This is assuredly a very definite definition, especially in its latter clause; but it agrees in the main, though not entirely, with the definitions of other Political Economists, and serves to establish a distinction, perhaps too wide for accuracy, between capital and land, or labor. Say gives no formal definition that we can discover; he enumerates the species and explains the process of the formation and multiplication of productive capital.† The younger Mill informs us that the "accumulated stock of the produce of labor is termed capital."‡ This is more definite and generic than the language of Mr. Rickards, and it omits his restriction of the appellation to values employed in reproduction. Dr. Cooper, whose Manual of Political Economy is one of the most lucid and convenient expositions of the science, declares capital to be "that portion of a man's revenue which remains as a surplus or saving after all his expenditures are made."‖ This is obviously incorrect, both in expression and in meaning. The surplus indicated may be the residue of rents, profits, wages, or treasure trove; it may become capital, but it is not so of its own nature. The expenditures, too, may in part be already capital invested in reproduction; but they are excluded from consideration by the terms employed. Moreover, the meaning of an abstract term cannot be defined by a particular example, and the contrast is certainly complete between capital and revenue. The elder Mill explains, but does not define. He affords, however, a sufficient intimation of his views by remarking, that "the instruments which aid labor, and the materials on which it is employed, are all that can be correctly included in the idea of capital."§ Adam Smith was not partial to definitions, nor was he felicitous in constructing them. He furnishes none of capital, but his language implies that he understood it to mean the accumulated result of past savings, and, as he held that "labor is the ultimate price which is paid for everything," ¶ capital, in his system, would signify the accumulated results saved from past labor. McCulloch's Treatise on Political Economy is not now within our reach, but in his annotations on the Wealth of Nations, he remarks that "it is enough to make an article be regarded as capital, that it can either directly contribute to the support of man, or assist him in appropriating or producing commodities."** This is an indication rather than a definition; it is very vague, and is obviously too

* Population and Capital, Lecture I., p. 7.
† Political Economy, B. i, ch. iii., pp. 71–2; ch. xi, pp. 109–111; Am. Ed.
‡ Principles of Political Economy, B. i, ch. iv, sec. i.
‖ Lectures on the Elements of Political Economy, chap. ii, p. 31.
§ Elements of Political Economy, chap. i, sec. ii, pp. 16–18.
¶ Wealth of Nations, B. i, chap. xi, p. 87.
** Wealth of Nations, B. i, chap. i, p. 120, note.

large, not only for scientific precision, but even for popular accuracy. The hand, the eye, the wind, the ocean, everything in the physical constitution of the universe, and in the moral, intellectual, and physical constitution of man is embraced in the ample and uncertain language of McCulloch. According to him, everything is capital, which may be instrumental in producing anything that may become capital.

It is unnecessary to extend further our search amongst the Political Economists for a definition of capital. We shall find neither the precision, nor the agreement, which might have been expected in regard to such an important and fundamental principle of the science. At the same time, we are not disposed to insist upon the disagreement. From the definitions exhibited, it will be evident, that it would be easy to find strong grounds for censure, if our object was to detect and enlarge upon the weak points of the science, instead of being to discover the common ground of agreement, which reconciles all the professors of the school, and may furnish a distinct notion of the essential character of capital. Such a principle of harmony we believe to exist, and have accordingly said that Mr. Rickard's definition was in accordance with the general doctrine. The main defect everywhere, is the absence of lucidity of conception and expression. In some definitions, there is surplusage, in others deficiency, in all indistinctness. The indecision of the original exposition of the nature of capital is, in great measure, obviated in the process of the development of the science, by the introduction of the species of capital, such as productive and unproductive, circulating and vested, instruments, provisions, and raw materials. There is, moreover, some excuse for the want of technical precision, arising from the fact that Political Economy is not an abstract, but an applied science. It deals with the practical transactions of life in their concrete form, and is continually and inevitably immersed in matter, according to the expression of Lord Bacon.

There is one idea necessarily involved in the conception of capital, which is not prominently exposed in any of the definitions quoted, this is the idea of exchangeable value. But value is unfortunately a term more fluctuating in its employment, more various in its meanings than even capital itself. Exchangeable value is also as changeable in reality, as it is in our language. Not only is there no such thing as a common measure of value, but the reciprocal relations of values are at all times oscilating and uncertain. It would, therefore, be extremely hazardous, to introduce a term so slippery into the body of a definition, but it is impossible to exclude it altogether from our conception of capital, without restricting ourselves, as many Political Economists have done, to the mere specification of the particular things which may be regarded as capital. Many of the perplexities of Political Economy may, perhaps, be attributable to the unsteady nature of the latent idea of exchangeable value.

Were it not for the embarrassments intimated, there might be no objection to defining capital as the exchangeable values accumulated from the productions of past labor. Undoubtedly Capital and Labor are conjoined in all efficient production in any society advanced beyond the extreme rudeness of savage life. But it is always possible to trace back the genealogical descent of production to the time when the acquisitions of man were limited to those won by the unaided labor of his own two hands. Even then, however, the rudimentary gem of the functions of capital, might be detected or imagined in the natural support supplied by the mother to her infant, and in the maintenance of the yet impotent child.

THE SUGAR CROP FOR 1857.

A FRIEND writing from New-Orleans, March 2d, gives a very favorable account of the prospects of the coming crop of sugar. He says:

" Never before was it so cheering. The weather during the entire month of February was extraordinary, even for this State. It was the weather which *you* have in June. Consequently, the young cane is a month earlier than usual, and if no severe frost, or other unforeseen calamity should blast the prospects of the planters, the crop will be unprecedented. The young cane is not only earlier, but the quality is all that could be desired. My opinion is, bating the contingencies just referred to, that the crop will be as much *beyond* the average the present year, as it was *below* last year.

Manufactures, Mechanics, etc.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

MANUFACTURE OF WHIPS IN MASSACHUSETTS.

Messrs. Editors:—Massachusetts has long been distinguished as one of the leading States in the extent and variety of her manufactures. Her numerous railroads, like one vast net work, traverse nearly every portion of her territory, and her mills and manufactures enliven the banks of her streams and rivers. The hum of industry is heard throughout her borders, and even her inland towns and villages are cheerful with the song of labor. These are facts that impress the mind of every observant traveler who passes through the various thoroughfares of this flourishing commonwealth; and more particularly, if he should have occasion to stop on a pleasant afternoon at some of her inland towns, more fully to become acquainted with her resources.

Having occasion, a few weeks since, to pass over the railroad from Springfield to Hudson, we availed ourself of the opportunity to spend an afternoon and evening in the quiet and pleasant village of Westfield. This place is about ten miles from Springfield, situated nearly in the center of the town of the same name, on the banks of the Westfield river, which, with its tributary branches, affords several good water privileges. The village is very delightfully located on a level plain, partially environed with gentle hills, particularly on the north. The village is very conveniently laid out, with broad streets adorned with noble shade trees, and contains a handsome public square near its center. Its principal public buildings are, a good town-house, an academy, two or three fine churches, two banking houses, and several other public edifices. The aggregate banking capital employed is about $200,000, and the principal business establishments of Westfield consist of two printing offices, each issuing a weekly newspaper; one cotton factory, two paper mills, three grist mills, six saw mills, one plane factory, one hat factory, two powder mills, and several whip manufactories. The literary institutions of the place indicate a highly intellectual and cultivated society. These consist of an excellent normal school, a flourishing academy, and eighteen public schools. The population of the village is about 1200, and that of the entire town about 4,500.

It will be perceived that there is no lack of energy and enterprise on the part of the inhabitants. The capital invested in the various kinds of manufactures is large, and continually increasing. One of the principal establishments in the village is the *American Whip Company*, a joint stock company, established about two years since, with a capital stock of $175,000. The business of this association is to manufacture whips of all descriptions, by means of improved steam machinery. The building is a fine structure, plainly but substantially built, and constructed with special reference, in all its departments, both to convenience and utility. The entire structure is warmed by the waste steam from the engine, and so perfect is the machinery, with so little friction in any of its parts, that the whole is operated by a single twelve-horse-power engine. With scarcely any perceptible jarring, and perfectly noiseless in its steady motion, this engine, miniature in size and beautiful in finish, moves the whole as with a charmed power, unseen only in the result. It is, in reality, a fine specimen of mechanical skill and perfect workmanship.

We were very politely shown through the various departments by one of the Directors, who, by the by, is an operator in the establishment, and every part of the process of whip-making intelligently described, from the first sawing out of the rough material of the stock, to the braiding and adjusting of the silken top, or as the juvenile equestrian would term it "*snapper*" appended to the lash. A large portion of the labor is performed by machinery. The wood portion of the filling of the stock is sawed and fitted, and after being glued and adjusted, is turned to its symmetrical form and proper size,—the whole covered with its delicate and ingeniously braided network of linen, whalebone, and in some instances silver wire, and lastly, the finishing silken tip of the lash, most exquisitely braided by the most ingenious machinery. The latter is done in an apartment from which all persons, except the workmen, are very properly excluded, unless introduced by some friend, or by one of the Directors of the company. The very ingeniously constructed machinery by which this complicated operation is performed is really surprising, and seems almost to manifest a degree of human intelligence. The readiness with which its steel fingers and needles take up the silken or linen threads, unwind them from their spools, and adjust them in all their intricate sinuosities on the braided cord; and when the operation is completed, at the simple touch of the attendant, instantaneously drop into perfect repose, is really astonishing, and evinces wonderful ingenuity in the inventor.

A large proportion of the labor in whip-making is performed by machinery, but certain parts of it are still the results of hand industry, particularly that of braiding the leather thongs. This, to a considerable extent, is done by females, who become exceedingly skillful and expeditious in the operation. Many of this class are engaged at the manufactory, while others, both men and girls, are employed in various parts of the town and vicinity, in preparing certain portions of the work for being finished at the manufactory.

The kinds of whips manufactured, embrace almost every variety in use. The peculiarities of each depend on the locality where used, and the uses to which they are to be applied. For the Western trade, the long, heavy, *prairie whip* is required. The whips for the South are the beautiful flexible *riding whip*, and the heavily *loaded whip* of the plantation. For New-England the *different* varieties of *carriage whips* are mostly required. While the elegant and delicate *saddle whip* is sold to some considerable extent in various parts of the country.

The amount of stock which is annually manufactured by this company is about $500,000. It employs altogether, about 450 to 500 men and 50 females.

The quantity of whips made by the company is enormous. We were informed that of one kind alone, it turns out *one hundred dozens per day*, and altogether, it is estimated that two-thirds of all the whips manufactured in this country, bear the mark of the "American Whip Company."

A very large quantity of leather is used at this establishment. This consists mostly of horse hides and buckskin, of which *thirty* to *fifty thousand* are annually required. *Thirty thousand pounds of bone* are also used, and *one hundred and fifty thousand pounds of rattan.* A large quantity of whalebone is also applied in the manufacture of the finer varieties of whips, and many thousand dollars are expended every year for this material alone. A large amount is also paid for ivory, trimming, etc., etc., not included in the above.

The officers of this company are Hiram Harrison, Esq., President; Reuben Noble, Treasurer; Patrick Brise, Clerk; and Reuben Loomis, principal Director. As a proof of their efficiency and good management, the company last year made a dividend of twenty-five per cent. on their stock invested. Their energy and enterprise fully entitle them to the success that attends their effort.

There were formerly about twenty whip manufactories in Westfield, using generally but little machinery in the business, until the present company was organized. This absorbed some of the smaller establishments. There is still, however, a large amount of capital invested in the whip manufacture, independent of that employed by the American Whip Company, all of which, we believe, is remunerative to those engaged in it. S.

NEW AND PRAISEWORTY FEATURE IN A MANUFACTURING ESTABLISHMENT.

At the Atlantic Cotton Mills, in Lawrence, Mass., a (mammoth establishment of 52,000 spindles and 1100 operatives,) a course of Lectures and Concerts, *free* to the operatives connected therewith, has just closed, as we see by the papers of that city. These entertainments were provided by the personal liberality of William Gray, Esq., Treasurer of the mills, who gave the sum of $500, to defray the expense, and they have been most successfully carried on by Gen. H. K. Oliver, the resident agent, aided by a committee of his overseers. The course was as follows:

1. Grand Concert, by Gilmore's celebrated Salem Band, (the same that made so great a sensation at Washington, at the Inauguration.) 2. Lecture on the "Gases," by Mr. Chamberlain, of Boston. 3. Lecture on "Electro Magnetism," by Mr. Chamberlain, of Boston. 4. Exhibition of "Panorama of Voyage to Europe." 5. Concert by the "Mozart Troupe," of Boston. 6. Lecture on "Solar System," by Gen. H. K. Oliver. 7. Poem "Money King," by J. G. Saxe. 8. Concert, by sixteen resident vocalists, under Newton Fitz. 9. Lecture on the "Mormons," by Hon. J. Quincy, Jr. 10. Concert by a Choir of 50 operatives from the Mills, under Mr. A. H. Palmer. 11. Lecture on "Comets and Fixed Stars," by Gen. H. K. Oliver. 12. Concert, by the "50 operatives," under Gen. H. K. Oliver. 13. Closing Entertainment, consisting of a Lecture on "Good and Ill Manners," by Gen. H. K. Oliver; a Poem, "Our Mill," by Mr. J. J. Doland, (an overseer in the Mill,) interspersed with music

from an instrumental band, and a choir of eight vocalists, both consisting of operatives, the latter under Mr. J. M. Richards, an overseer.

We have never heard before of anything like this in any of the mills of the country, excepting at the Pacific Mills, of the same city, which, we believe, first set the example. Here, however, the expense is defrayed by a small weekly assessment gathered from the operatives. This mill has a fine hall, which will accomodate 800 persons, and the entertainments of both companies have been held there; the "Atlantics" giving the "Pacifics" a complimentary concert, by operatives, in return for the use of the hall.

The relation which capital holds to labor, or more strictly, the relation between capitalists and laborers is such as to give peculiar facilities for exciting a powerful influence upon them, whether for good or evil. We have personally seen this influence exerted in both directions, in different places, and have also been sad, sometimes, in perceiving to what degree some of us daily exercise power over the permanent condition of others, moral, intellectual, and physical. It is a frightful responsibility, viewed in some of its aspects, and yet, when those responsibilities are properly met, it is delightful to think how much good we can sometimes do, how many hearts we can make happy, and how many tears, which otherwise might flow in deep, scalding streams, we may wipe away, while we set into motion, not a rolling *stone*, heartless and thoughtless, and soulless, but a current of life, happy and prosperous, accumulating as it advances, planting smiles and substantial joy round many a hearth-stone. Such has ever been the course of the gentlemen connected with the Atlantic Mills. Thousands will bless Gen. Oliver in their hearts every time they see him, and they will teach their children to remember with gratitude one who did so much for their real and substantial good. It was he, whom we once described in these pages, as saying to us, "friend P., if you will invent some new and innocent amusement, suitable for our operatives, I will give you five hundred dollars." We are happy to know that the officers of the corporation—Mr. Gray and others—fully sympathize in these movements.

Perhaps some will call us enthusiastic, when we write on this subject. It is not so. Others are blind, and dumb, and selfish—aye, sensual. Enthusiasm consists in attaching undue and exaggerated importance, relatively or abstractly, to some favorite idea. It would be difficult to exaggerate on the point to which we have here invited the attention of our readers.

To give some little idea of the closing lecture and poem, above referred to, we extract the following from the account given in a Lawrence paper.

"After a prelude by the band, and a glee from the choir, entitled 'Sweet the Hour when freed from Labor,' Gen. Oliver delivered an address on 'Good and Ill Manners,' replete with sound instruction, and at times exciting the risibility of the audience, by apt illustrations, in his usual happy and felicitous manner. He is of opinion that Americans are a little deficient in the 'good,' owing in a great degree, to their enlarged notions of *independence*. He plainly depicted the difference between the two, to the evident satisfaction of his hearers, as a matter of course; for his well known urbanity and kindness of manner to every one of whatever name or clime, eminently qualifies him to discourse on such a theme successfully.

"After which, Mr. Doland distinguished himself, and enchained the audience for a full hour, by reciting a poem, which for versatility of thought, wit, humor, delineation, etc., would compare favorably with the effusions of those of greater pretensions, read before our popular lyceums. His pictures of well known characters in and around the mill, 'brought down the house' in tremendous storms of applause, as is equally true with other portions of the poem. We must content ourself now with a single quotation :

* * * * * * * * *

Look back ten years upon the past,
And where was Lawrence then?
Where were her streets and alleys cast,
And where her crowds of men?
No village stood upon its plain
To hide its barren fields—
But here the farmer drove his wain,
And fishers caught their eels.

Art had not choked the flowing stream,
Nor levelled down its banks—
The wildest brain had no such dream,
Nor thought of cotton hanks;
No lofty buildings marked the way,—
'Twas here no schools were had,
Excepting, as I've heard folks say,
Enormous schools of *shad.*
But soon came engineering knack,
With bands of Celts and picks,
And on our quiet Merrimack
They played some wondrous tricks.
They drove her from her ancient bed—
They built a solid wall,
And only helped to raise her head,
That she might have a *fall.*

They checked her course, increased her [speed—
A paradox quite new—
And thought the more that she was *dam'd*
The better she would do.

They led her out upon the bank,
And with unchristian zeal,
They strained her on a monstrous rack,
And racked her on a wheel;
And as her water-power grew strong,
These mills adorned her skirts,
And stood the river's bank along
To make the nation's *shirts.*

At the close, resolutions were adopted, complimentary to Gen. Oliver, Wm. Gray, Esq., Treasurer, the orators, poets, and others, and all went home delighted and improved. P.

COAL OILS.

The Breckenridge Coal Company have offered to supply oil for our lighthouses, of equal excellence with the best sperm oil, and at a lower cost. We have no doubt that this can be done with a good paying profit. Chemical operations of this sort are yet in their infancy in this country, but a beginning is made, full of promise for the future.

The works of this company are at Cloverport, Ky. Twelve retorts are run night and day, consuming eight or ten tons of coal every twenty-four hours, and producing 750 gallons of crude oil. This crude oil produces about 600 gallons of refined oils. But these products are various. One hundred and twenty-five gallons are

BENZOLE,

Which is the material used for carbonizing humid air, by the American Gas Co. in the manufacture of illuminating gas, and is here worth about one dollar or $1 25 per gallon; but it can be afforded, ere long, we doubt not, at fifty cents; 75 gallons are naptha, 225 gallons are lubricating oil, and 175 gallons, oil for illuminating purposes.

ASPHALTUM

Is also a product of this process, which is worth $30 a ton, and is used for smearing the walls of vaults. Another product is,

PARAFFINE,

Which is valuable for making candles. This substance was recently discovered in tar, by Reichenbach. It is squeezed out, and purified by repeated crystalizations in ether, which dissolves it when at a boiling heat, and deposits it, on cooling, in beautiful silvery scales. When these are melted and cooled, the mass has the appearance of pure white wax. It melts at 110° degrees. It burns, with a wick, with a beautiful clear white flame, quite equal to that of the finest wax. It consists of carbon and hydrogen. Thus all the products, except a small residuum, are articles of commerce. Nor is this all. For this process illustrates with great distinctness,

"THE HARMONY OF INTERESTS"

Among all classes of industry. The coal owner and coal digger furnish materials for the manufacture of oils, and they for the maker of candles, and for the portable gas companies; and they all help the farmer, furnishing light for his path, physical, and scientific and moral, eating his crops, etc., etc. So it goes. The world is round, and this is the type of what it contains. All its useful pursuits play in a circle with a common center—human progress to human happiness, present and permanent. One can not look where such results are not seen. Every subscriber to this monthly directly helps several trades. He excites to literary and scientific attainments on the part of the editors—sustains them in the pursuit of their business; he encourages the publishers to prosecute their work, while he feeds their families; he helps the printer who owns the establishment, to support it, and pay his workmen; helps support the families of the compositor who sets the type, the pressman who works the press, the paper maker, the type founder, the stereotyper, etc., and indirectly, the maker of printing presses, and a host of artizans, whose work is essential in preparing the means and facilities for carrying on the printing business. Who would not pay two or three dollars a year for the sake of such extensive good? Not a payment is made to us that does not within a few days help to feed and clothe, and make happy, *scores* of industrious laborers. What a glorious golden chain—what a wonderful net work is virtuous, educated society! P.

ARTIFICIAL LIGHTS.

ARTIFICIAL lights are not only among the necessities of civilized society, but the economy of their production and convenience in using them are points of practical importance belonging to every day's experience, in every household.

There are matters belonging to the general discussion of this subject of grave importance, on which we can not now enter. Among these are the proper position of a light in relation to the eye, and other kindred topics, which may command our attention hereafter. Our present inquiry is how to produce the light, what are the most economical of the different illuminating materials, and how shall they be used to the best advantage. Some lamps use one kind of material and some another. Sometimes the same material is burned with a single solid wick, at other, with a cylindrical wick, producing a hollow flame. Different devices are contrived for securing the same object in the use of the same fluid. Some forms of lamps are portable, others are stationary.

It is important to notice in the outset that it is not the combustion of the wick which produces the flame. The belief exists to some extent that it is the burning of the wick which produces the light, but probably most people understand that it is the combustion of the material of which the candle is made, or with which the lamp is filled, which produces the flame. It is equally true that whatever may be the substance employed, it must be changed into the condition of a gas before it can be consumed. The brilliancy of the flame is dependent, first, upon the quality of this gas, and, secondly, upon the conditions under which it is consumed. The gas must contain the elements that are required to produce a white heat, and the combustion must be perfect, and at the right moment. This latter point will be more clearly understood as we proceed.

One kind of flame is produced by the use of a solid wick, either singly or in pairs. As already suggested, the wicks act by their capillary attraction to raise the fluid so that it may come in contact with the flame.

A second kind of flame is that produced from a cylindrical wick—and this cylindrical hollow flame also occurs under distinct conditions.

1. *The astral or argand burner* produces a cylindrical flame, coming in contact, both on its exterior and interior surfaces, with a current of atmospheric air. Close the communication of the inside cylinder with the outer air, by stopping up the small apertures opening into the interior of the flame, or let any obstruction close that interior cylinder, and the flame is at once blackened by soot, and your table and its contents will soon be covered with smut and lamp-black, in other words, with unburnt charcoal. Such a flame as this may be called an *atmosphero-oil* flame.

2. *The solar lamp* is a slight variation from the astral. This variation consists in placing a ring of metal, of conical form, around the base of the wick, changing the direction of the current of air as it impinges upon the flame. The philosophy of this we will explain directly. Suffice it to say, now, that this single change doubles the quantity of light with the same expenditure of material. The solar light costs but half as much as the astral, the same material being used in both lamps. But a cheaper material may be used with a solar than was practicable with an astral lamp, because the astral is liable to be clogged by impurities collecting in the small conducting tube.

The solar lamp may be adapted to the combustion of lard. But for this, it is necessary to give a freer passage for the melted lard to the wick than oil requires, and the wick-tube must be insulated so as to prevent the diffusion of heat, and to confine it where it is most needed to liquify thoroughly the material to be consumed.

3. The *Bude Light* is a common argand lamp, with an interior current of pure oxygen, in the place of common air. It has hence been called an oxi-oil lamp. Its power is equal to two and a half best argand lamps.

4. The *Fresnel Light* is this same arrangement, the effect of which is increased by two or three or more concentric wicks, producing a dense mass of pure flame, and of course a very brilliant light.

5. The *Drummond Light* is produced by the combustion of pure oxygen and hydrogen gas, in the focus of a parabolic reflector. It was so called because it was used by Lieut. Drummond in his survey of Ireland. This is the brightest of all lights except that produced by galvanism.

6. The *Carcel Lamp* contains sundry clock-work contrivances for forcing the oil up into the wick, thereby producing a freer combustion and a bright flame.

But is not an economical light, compared with several of the other forms of lamps.

This short description of the different means applied to the production of flame, will enable us to judge more wisely in relation to nominal improvements in the method of lighting our dwellings. But we must pursue the same general train of discussion a little farther, before we pass an opinion upon any application of principles to the construction of lamps. Experiments very carefully conducted by eminent chemists prove that with the lamp and jets used in these investigations, a given amount of light is produced with the least consumption of material, if a single jet of flame is about five inches in length, or if an argand burner is used, if the flame is from three to four inches in length. The following table exhibits the results of these experiments with flames half an inch, one inch, two, three, four and five inches in length, with an argand burner.

Length of flame,	½	1	2	3	4	5
Quantity of light,	18.4	92.5	259.9	308.9	332.4	425.7
Material expended,	83.7	148.	203.3	241.4	265.7	318.1
Ratio of light to expenditure,	100.	282	560	582	582	604

The increase of the flame from one half inch to three or four inches, increased the quantity of light six times for the same expenditure of material. The reason of this is apparent from the following explanation, elucidating a point made in a former paragraph.

In our last number we stated that the brilliancy of a flame was dependent upon the presence of solid matter, in the form of minutely divided particles, as of carbon, or charcoal, which were raised to a white heat in the flame.

Now the material consumed, whether in the shape of oils or fats, etc., as with the gas delivered us through our gas pipes, is carburetted hydrogen. When we use tallow, oils, and the like, we manufacture the gas as it is consumed. When those materials come in contact with the lower extremity of the flame, they are pure gas, and contain no solid particles of carbon. But this exposure to heat decomposes this compound gas, setting free minute particles of pure carbon, and then, above the point where this decomposition takes place, the carbon being raised to a white heat, we have a brilliant flame. This explains why it is that the lower portion of the flame is blue, while the higher portions are so much more brilliant, and also explains why economy requires a given length of flame. In a short flame, this blue, undecomposed portion of it forms a considerable part of the entire flame, and hence the whole has but little illuminating power. It also explains why so trifling a difference as that which we have described between the solar and astral lamps, should so materially affect the character and intensity of the light.

When solar lamps were first introduced in this country, certain fixtures were sold, to be attached to the tube of astral lamps to convert them into solar lamps. We used them on an astral, and were astonished at the change produced. The light was far more brilliant, but the consumption of oil was also considerably increased.

The most economical arrangement of argand burners, in this same course of experiments, was shown to be as follows: The burners, that is, the cylindrical flame, should be six tenths of an inch in diameter, and should be formed by holes one fiftieth of an inch in diameter, varying in number, not to exceed twenty, nor to be less than ten. For coal gas of an ordinary quality, the best arrangement was found to be not less than one eighth, nor more than one sixth of an inch apart. For purer gas, the distance may be slighty increased. When chimneys are used, they should be so constructed as to make the size of the flame the same at the top as at the bottom. If too tapering, the top will be smaller, and if the shape is otherwise out of proportion, the flame may be too large at the top.

Different arrangements, of course, are required for using different illuminating materials. Some require provisions for promoting ready combustion, others need cautionary arrangements, to secure against too rapid combustion. Lard and the burning fluids may represent these two classes. We purpose now, very briefly to point out the peculiar construction required for lamps of one kind or the other. We had designed to give a full list of those secured by patent, expired and unexpired, but a short investigation satisfied us that this would not only occupy more space than can be afforded for such a discussion, but would also be useless. We prefer, therefore, to deal with general principles, and to classify so far as we can. With this view, we commence with

LAMPS FOR LARD.

The difficulty to be overcome in the use of this material is comparatively the great amount of heat required to convert it into a liquid, by which it can be made available either in stationary or portable lamps. Various plans have been adopted for producing this result. One method resorted to is to enclose wires, terminated at the top in a button, within the flame, by which the heat is conducted to the lard below. But this has a tendency to cool the flame and render the combustion more or less imperfect. A dim and smoking light are the necessary consequence. Another method is, to elevate these wires above and out side the flame. But then they cast a shadow, and are liable to be covered with lamp black, and to annoy. They also mar the beauty of the lamp. Hence, ingenious men resorted to interior arrangements to meet this necessity. And then came before the public the piston lamp, the spring lamp, and the self-supplying lamp. All these proposed, by a change of arrangement within the interior of the lamp, to meet the necessity produced by the constantly diminishing quantity of material, and its increasing distance from the point of combustion. But the piston must be moved by the hand, and this is awkward, or at least inconvenient, and the spring requires personal attention to secure the regular elevation of the fat, as its surface recedes from the flame. Nor does the self-supplying always supply in proper quantities. One or two recent patents place the bowl of the lamp on a pivot, and the burner on one side, like a small tea-pot, the nose being the burner, so that the lamp may be tipped as the material is consumed. It is fixed in any given position by a screw. Another patent provides a small warm-air chamber, enclosing the wick and the lard cup. In1854, a patent was obtained for inclosing the wick within a perforated conical tube, within the burner.

The difficulty, however, remains. Lard may be used, but in some form or other this difficulty will develop itself. At least there is no plan yet devised by which lard can be used to the same advantage, and with the same convenience, as other more combustible materials. We doubt whether *the same* *amount of light* may not be obtained, at the same price, by using a more costly material. It may be true that the cost of the light will be, in fact, less, by the use of lard, but the light will be less; and were more costly oils provided, one might not be satisfied with a light no better than lard furnishes, when a mere turn of a ring would materially improve it. Hence, those who do not wish to pay for a good light, and can not resist the temptation to *luxuriate* in this respect, may wisely (?) continue the use of lard.

There are, however, means of diminishing the inconveniences of filling, etc., worthy of attention from those who burn this material.

CAMPHENE LAMPS

Can not be used without well-contrived arrangements, not only for securing perfect combustion, but also for guarding against explosion. For though the liquid itself is not explosive, its gases, mixed with atmospheric air, are highly so, and in the hands of the careless or inexperienced, have done immense injury to persons and to property. The use of this fluid requires, first, a cylindrical wick, by which the largest possible amount of the surface of the flame is exposed to a current of air on both sides. It also requires a "button," the heat of which, directly communicating with the flame, tends to promote more perfect combustion; and third, the fluid must be used soon after it is prepared. After it has stood fifteen or eighteen days, it ferments, becomes gummy, and unfit for use. The cost of camphene is from 55 to 75 cents a gallon. But camphene is probably the cheapest kind of light, with the lamps in ordinary use, and this, with many, is a complete offset to the risk incurred. The lighting of a store for example, which, at ordinary rates for gas, would cost fifteen to twenty cents, with camphene would not cost more than six or eight cents. We are informed by a friend who has used both, that in his experience a cost of five cents per evening furnished as good a light from camphene, as seventeen cents worth of gas. There will remain, however, the exposure of the room and all its contents to a suit of black, whenever, by want of experience, or carelessness, or "accident," the camphene lamp is not in perfect order.

BURNING FLUIDS

Like common oils, may be used with a solid wick, though they require that wick to be arranged in a peculiar manner. They afford a good light, free from smell and from grease. Hence, they are convenient. But they should not be used without some kind of security against explosion. We have referred to Newell's safety lamp, and also to Prof. Horsford's, in former numbers; both are good. We have used the former for years, having previously tested it in various ways, trying its efficacy in every mode our ingenuity could contrive, but we could never get an explosion, although doing the same things with implements not thus provided, we have often obtained reports as loud as those of a pistol.

SAFETY LAMPS FOR BURNING FLUIDS.

Besides the inventions of Mr. Newell and Prof. Horsford, mentioned in our previous number, a contrivance by Mr. Landman brings down a button, when the lamp is upset, which extinguishes the flame. Another class of patents claims to secure against explosion by arrangements which prevent the fluid from rising above a certain height, thereby becoming so heated as to endanger an explosion. Another fills the bowl of the lamp with granulated pummice-stone, which absorbes the fluid, but yields it as it is required for combustion.

This is supposed to prevent harm in case the lamp is broken. Another uses an elastic bag inside the bowl of the lamp, designed to provide for the accumulation of gas by the expansion of the bag, and also, if the lamp is broken, to keep the fluid safe within the elastic chamber.

ANDREWS' SELF-GENERATING GAS LAMP

Is another very ingenious arrangement, affording a safety and also self-generating gas lamp, without the use of an external wick. It is, in fact, a portable gas light, and burns with a flame resembling that of gas. Its construction is as follows: Within the bowl of the lamp is a cylinder of tin, sufficiently large to contain a metallic rod, on which is wound, lengthwise, a sufficient quantity of wicking to serve as a conductor of the fluid. This is inserted within the tube, and is held there by friction. The fluid being drawn up in this manner to the top of the wick, is exposed in a small chamber, being the upper part of the cylinder, which becomes filled with the gas of the burning fluid, an outlet for which is provided in small orifices, like those in gas burners, either one, two, three, or more, as may be preferred. These orifices are surrounded by a hoop or metallic rings, which are designed to heat the gas to a burning point, so that coming in contact with them, the gas will be inflamed. It is a safety lamp, because there is no opportunity for the formation of gas, beyond the contents of the small chamber we have described, and this is so far below the flame, and is so distinct from it, that it does not heat. Being rich in carbon, and the metallic rings or hoop securing a perfect combustion, the jet is clear and brilliant. The quantity of fluid consumed is just about equal to that required by an ordinary fluid wick, for a flame of the same size. But the light is essentially better, amounting, in our judgment, at least to one fifth, in favor of the gas lamp. We have tested it carefully and repeatedly by the depth of the shadow, and find the difference as we have stated. The flame is also steady, and therefore pleasant to the eyes. The only inconvenience we can discover is in lighting. It requires perhaps a quarter of a minute to heat the hoop by a match or a "lamp-lighter," so as to kindle the flame. With a cylindrical burner, (argand) it affords a very splendid light, and the jets may be arranged, of course, in any form that may be desired. Any ordinary lamp may be provided with these burners at a cost of one dollar each. We have seen no recent invention, in this department of science, which so commends itself to our judgment, and so pleases our taste, as this.

We shall be obliged to defer the illustration of the manufacture of gas for domestic uses till our next issue. P.

OXYDATE LAMP.—Mr. Nibbs, of Lancashire, has invented a lamp which is thus named, which is provided with a condensing apparatus, by which a large quantity of atmospheric air is collected, and is supplied to the flame so as to produce a perfect combustion, with a white and steady flame, free, of course, from all smoke and smell. It burns almost any kind of oil. It is also perfectly simple and durable. Five ounces of oil will burn six hours, giving a light equal to that of six candles. It is constructed in various patterns, from a cheap workman's lamp to the most elaborate patterns. A strong brass lamp that will burn ten hours can be had for a shilling (English.)

INDIANAPOLIS, INDIANA.

The growth of "The West" is more surprising to our older States, than the wonderful stories in Arabian fiction. It is actual, tangible, substantial, and promises still more in the future. Among the *details* of this progress, the following is worthy of note, which we condense from an exchange.

Indianapolis, the capital of Indiana, is an inland town, located on no navigable stream. But, being in a good location on the line of travel between the East and West, it has endeavored to turn its chances to the best account, and become a city of no little importance. It occupies a central position between the Ohio and the lakes, and between the Mississippi and Pittsburgh. It is on what was formerly called the National road between the East and the West. It is one hundred miles from any great city, and therefore, whatever is to be done to enhance its growth, must be different from that of the cities which have grown up from the increase of water commerce. The Board of Trade in Indianapolis has issued an address, setting forth the peculiar merits and advantages of the place as a depot of trade. From this document we learn that, in the year 1847, the population of the town was only four thousand. But in the fall of that year, the Madison and Indianapolis railroad was completed, and then commenced the era of improvement. At the present time, the inhabitants number full twenty thousand, and the town abounds in extensive manufacturing establishments. Of the completed railroads terminating there, the Board state the number at eight, making in all, fifteen hundred miles of track. A number of other roads are under contract, and will soon be completed. Seventeen different railways, including connections, comprising 2,800 miles of track, and having 12,000 miles of connections, directly center in Indianapolis, bringing all parts of Indiana, Illinois, Ohio, and Kentucky, within a few hours' travel of the city. Nearly one hundred different trains pass in and out of the city daily, and from three to five thousand persons visit the town in that time.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

MECHANICAL PROBLEM.

Messrs. Editors:—I send you the following problem, about which many disputes have arisen, and probably many more will arise, before all are agreed upon the subject. Cannot some of your readers throw light upon it?

Suppose two boats in a stream at the same distance from the shore, with a man in each. One of the men has hold of a rope which is fastened to a post on shore. The other man has hold of another rope, and the end on shore is held by a third man. Suppose all three men to pull with equal force, which boat would get to shore first, and *how much* sooner would it get there. In the one case, *two* men are pulling against *each other*, in the other case, *one* man is pulling against a *post*.

This problem is susceptible of many different applications, but the principle is the same in all, and embodied in the above statement. W.

In answering the above inquiry, our correspondents will please confine themselves strictly to mathematical demonstrations, occupying thereby less space, and being far more satisfactory to the reader than opinions or suppositions.

P.

BALTIMORE AND OHIO RAILROAD, AND PHILADELPHIA, WILMINGTON, AND BALTIMORE RAILROAD.

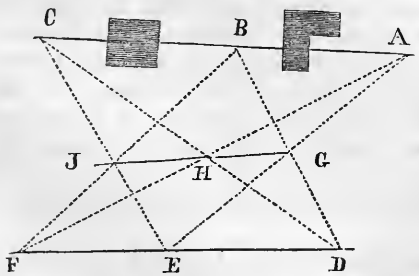
In making our little sketch of the report of Mr. Felton last month, we made a mistake in writing the name of the road, calling it the Baltimore and Ohio, while it was the Philadelphia, Wilmington, and Baltimore Railroad. To us, this confusion of names is not strange, for in our mind, the two roads are always connected as one in interest, being parts of the great route South, and both also managed by exceedingly skillful and judicious officers. Still it is important, in the financial view of either road, not to make any such union of ideas, where there is none in organization. The Baltimore and Ohio road is one of the longest in the United States, having an extent of 379 miles, and with its two important branches, either of them longer than many entire roads, extending 523 miles, and through the entire distance, it is well manned and admirably managed, with skillful and courteous sub-officers, worthy the confidence of their superiors, and of the public. The capital of this road (the Baltimore and Ohio) is $31,000,000, and the aggregate revenue for the current year will probably exceed $5,500,000. Mr. Chauncey Brooks is President, and W. S. Woodside Master of Transportation.

P.

USEFUL PROBLEM IN SURVEYING.

The following process is a very simple one, and the object secured by it is not provided for in our manuals and text books in common use. We find it in the *American Journal of Science.* It may be required sometimes to run a straight line through buildings or across other obstructions, when the several points in, or parts of the line, are not visible from each other, and are even inaccessible. Such conditions wlll give value to the following.

To find a third point C, in the line of A B, but invisible from them.



Set three stakes *D, E, F,* in a straight line. Then set a stake at *G,* in the line of *D B* and *E A,* a stake at *H* in the line of *F A,* and a stake *J,* in the line of *F B* and at the same time in the line of *G H.* Range out the lines *D H* and *E J* till they meet. This gives the point *C,* which is the point required. Any number of points may be obtained in this manner.

P.

Magnetism as a motive power was made a practical question as early as 1769, when one Rist D. Rustigen, of Holland, announced that he could make a ship without sails, go faster against wind and tide, than any sailing ship now goes with the wind and tide.

Ammonium.—Dr. Hoffman lately claimed before the British Royal Institution, that he had obtained the metal ammonium. It was in the form of a bright glistening mass, somewhat resembling butter. If this is so, all the constituents of the atmosphere are metallic.

IMPROVED PHOTOGRAPHY—HALLOTYPES—PICTURES BY IMPRESSION.

It is but a few years since Daguerre first astonished the world by the effects which he produced upon a silver plate, by means of the solar ray. Nor has any art made more rapid progress since that day, than the beautiful art of photography, or light painting.

Perhaps our readers generally are aware that these effects were first produced by M. Daguerre, upon the metallic plate, by covering its surface with a thin coating of the bromide and iodide of silver, forming a surface peculiarly sensitive to the presence of light. A decomposition of this coating is effected by the sun's rays, more or less extensive according to the degree of exposure. By a subsequent contact with the vapor of mercury, the decomposed surface was covered with a coating of that metal, and the extent of this attachment between these minerals was in proportion to the degree of decomposition previously effected. The unaltered parts of the surface were then cleansed by a wash of hyposulphite of soda, in which the iodo-bromide of silver is soluble, and the picture was thus permanently fixed upon the plate. The portion from which the iodo-bromide is removed presents the original surface of pure silver.

These pictures could be viewed advantageously in one position only, and this constituted one of the principal objections to them. But the original discovery was perfect in its results, so far as an exact copy of every line and shade in the object presented to the sunbeam was concerned, and in this, of course, it far exceeds the skill of any living painter. The recent improvements in the art add to this, at least, *almost* everything required to fix upon the surface prepared for it, whether metallic or otherwise, all the living and spiritual, the *immaterial* elements, whatever they are, which are required to make up a perfect picture of the human face: exhibiting the expression of thought or feeling which, hitherto, the living painter has alone been able to secure to the creations of his skill. The *Hallotype* now stands forth from the surface on which this art has been exercised, as a distinct, living thing, a duplicate of the original, a perfect copy in feature and in truthfulness of expression. We scarcely know what one point could be specified in the more successful experiments, in which further progress is *especially* desirable.

But other forms of the art present themselves. A prize of ten thousand francs was lately offered by the Duke de Luynes, for "the best method of multiplying photographic pictures by impressions." A Danish newspaper informs us that Herr Grunth, the designer attached to the brigade of Danish Artillery, will most probably carry off the prize." It seems the Kriegsassessor* Grunth has occupied himself for several years with the art of drawing on paper with autographic ink, and then transferring the designs to stone, from which thousands of impressions can be taken. He has brought this art to such

* The word Kriegsassessor, or Krigsassessor as it is spelt in the Danish language, is an honorary title. Its literal translation is *War assessor*, or *military judge.*

perfection that, without the aid of any lithographer, he can rival the best lithographs in the clearness and sharpness of their lines and contour. Herr Grunth has succeeded in applying his autographic method to photography, so that he can, by a simple and inexpensive process, reproduce and multiply, *ad libitum*, the original photographic picture. The photographic paper is prepared in a peculiar way, the secret of which the author preserves to himself. He has given the name of "Chalkography" to his new method.

We hope the public may not be disappointed in the value of the results arrived at by this Danish savant. P.

Recent Inventions.

SELECTED AND PREPARED BY M. P. P.

IMPROVEMENTS IN THE MANUFACTURE OF IRON. By JOSEPH GILBERT MARTIEN, of Newark, N. J.

This invention consists in applying certain materials to the liquid iron when subjected (according to a prior patent of the inventor) to the action of air or steam, for the purpose of purif.ing or assisting in the purifying of the iron. These materials are applied to the iron in the liquid state in which it comes from the furnace, in such manner that they shall become blended with or disseminated through the metal, so as to act upon every part of it as far as practically may be.

When the iron to be purified contains sulphur, chlorine is used for purifying the iron from the sulphur, and the chlorine being in a gaseous state, it is blown into the iron, either alone, or mixed with air, through separate tuyeres as the air employed in the purifying process. The quantity of chlorine to be used must depend upon the quantity of sulphur in the iron, such a quantity being used as will combine with and carry off all the sulphur.

When the iron to be purified contains sulphur, and also some oxide of iron, hydrogen or carburetted hydrogen (coal gas) is used, in order to reduce the oxide to a metallic state, and to combine with and carry off the sulphur. This gas is applied in the same way as chlorine; but if the gas be mixed with air, great care must be taken not to mix the air and gas in such proportions as to form an explosive compound.

When iron contains, either at the commencement, or at any other part of the process, oxide of iron as well as sulphur, it may be convenient first to use chlorine for the purpose of carrying off the sulphur, and afterwards to use hydrogen or carburetted hydrogen for the purpose of reducing the oxide to a metallic state. In order to assist in purifying the iron from silica, and make it work more kindly, about three per cent. of oxide of manganese is added to the iron, as it flows from the blast furnace, or immediately after. This oxide is blown into the fluid metal by means of air, in the same way as the air used for purifying the metal is blown into it; or the powdered oxide may be blown in through the same tuyere as or together with that air. Oxide of zinc may also be used in the same manner, in order to assist in decarbonizing the liquid metal.

There is a well-known natural mineral or metallic substance called spathose ore, containing carbonates of the oxides of iron and manganese, and some other elements. In order to decarbonize, or assist in decarbonizing the liquid iron to be purified, about five per cent. of the spathose ore is added to it in a powdered state, and it is blown through tuyeres into the liquid iron, in the same way as the oxide of manganese. To make the iron work more kindly, the patentee uses together with the oxide of manganese or spathose ore, or mixed with them or either of them, about two per cent. of powdered clay free from silica, adding it to the iron in the same way as the oxide of manganese and spathose ore.

When chlorine is not used in purifying the iron, chloride of sodium may also be used, mixed, or together with any of the materials above mentioned.

A patent has been secured for the process above described, in England, bearing date April 4, 1856.

Improvement in blasting Rocks.—The mode now commended is to place the powder in a tube or case, between two heads provided with suitable packing, and attached to a rod. The charge can not "blow out," but its whole power is directed against the sides of the tube. This is done with more facility than is the old method, no tamping or packing being necessary to confine the powder in the holes.

RECENT FOREIGN INVENTIONS.

Among the lists of recent inventions we have examined, we select the following as worthy of uote, and give an abstract of the descriptions accompanying them.

P.

New method of obtaining purified oil from Coal, Shale, and other bituminous substances, Alfred Vincent Newton, of Chancery-lane.—This invention relates to an improved method of distilling coal, shale, and bituminons substances, whereby a pure oil suitable for illumination and other purposes is obtainable at the first distillation.

It has long been known that many varieties of coal, shale, and bituminous substances were capable of affording oil and oily matters, when subjected to dry distillation at a low temperature; but in general the oil obtained at the first distillation comes over in a crude coarse condition, totally unfit for use. Several processes have been invented for purifying this crude oil, and some of them are attended with great success, but nearly all of them are expensive They involve the use of large quantities of sulphuric and other acids, salts, repeated distillations, heatings, boilings, agitations, decantations, and other labors. The bituminous substances before referred to, yield on distillation at a low temperature a gas, which, if passed through a worm or other suitable refrigerator, condenses into what is known as crude oil, requiring purification, as described.

The present invention consists in straining the gas which produces the oil, by passing it through a stratum or strata of sand, or other suitable medium, so that when condensed it forms a clear and valuable oil, ready for immediate use, This result is obtained by the following process, viz;—The coal, shale, or whatever bituminous substance is to be distilled, is broken up into very small pieces, and deposited upon the bottom of the retort. Upon the coal is thrown a quantity of common sand, about four times greater in weight than the weight of coal. The sand should be made to cover the coal evenly, so that the gas in escaping from the coal will pass through the sand. A condensing tube leads from the upper part of the retort to the refrigerating worm. The retort, thus prepared, is submitted to a low fire, the heat of which is very gradually and carefully increased until the coal and sand having reached a temperature of about 212° Fahr., the moisture contained in the coal and sand begins to rise into the condensing tube in the form of steam, and on passing into the worm is condensed into water and escapes: the water, thus brought over, is loaded with black carbonaceous impurities. The same temperature being continued, the condensed water gradually becomes clearer, and the oil begins to form; both oil and water escaping together from the worm, the oil rising to the surface in the receiving vessel. The oil, as it thus exudes, is beautifully clear and pure, and when burned in an argand lamd with a deflecting button over the wick, gives a most brilliant light, totally free from smoke. As the distillation proceeds, the quantity of water that comes over lessens. The temperature before named should be steadily maintained until no more pure oil is produced. With some varieties of bituminous substances, however, the oil ceases to come over before it has all been exhausted from the material, although exposed to the above heat for a time, as described: in such cases a higher temperature is then required. Such additional heat should be applied very gradually, and with the utmost care. The distillation may proceed, adding degree of heat by degree, so long as the distilled substance yields pure oil. When the heat has passed a certain point, which is determined by the nature of the substance under distillation, no more pure oil can be had, and crude oily and tarry matter comes over. Owing to the great variety of bituminous substances existing, it is impossible to lay down the exact degree of heat required for the distillation of each by the process, but as a general rule the following method should be observed:—Commence with a low temperature and carry it up very gradually until the pure oil begins to condense; continue the same temperature so long as the oil exudes. If the oil ceases, increase the heat very gradually, as before described, until no more pure oil can be obtained. The gas out of which the oil is formed should be set free, and have an opportunity of passing slowly through the filtering or straining substances, so as to deposit its impurities. When too much heat is applied, the filtering or straining operation will be imperfectly accomplished. Instead of using sand as the straining or filtering medium for the gas, clay and earths of most kinds may be employed, as also chalk, gypsum, lime, black oxide of manganese, some salts, plumbago, charcoal, etc., and these may be used separately or in combination. When it is needed to refine the oil beyond the purity of the first distillation, the oil may be re-distilled in the herein-before described manner until the desired quality is obtained. The same process is applicable to the purification of nearly all kinds of oils.

The coke remaining after distillation will be found valuable as a fuel, and the filtering sands or earths, becoming charged as they do to some extent with ammoniacal products, may be employed with advantage for agricultural purposes. Some of these products when mixed with sulphur will harden on exposure to the atmosphere, and may be used for roofing, forming artificial stone, etc.

Improved self-acting Stand or Tilt for Casks or Barrels. Alexander Dalgpty.—This invention relates to a peculiar arrangement of self-acting apparatus for tilting beer or other casks or barrels requiring to be tilted. The apparatus consists of an upper hodling or supporting frame, on which the cask or barrel rests on three bearing points (which principle of triangular bearing is maintained throughout); this frame works near the front end of the cask or barrel on a "V" or knife edge, so that perfect steadiness of motion is obtained, and no oil or other lubricating material is required for that or any other of the working parts. At the back end of the upper holding or supporting frame is fitted a tube, closed at the top and having a helical or other spring inside, which spring bears both on the upper end of the holding tube and on the end of a rod fixed by a pin-joiut at its lower extremity to the base of the stand: the tube slides freely upon the rod, and has attached to its lower end a self-acting friction detent, which prevents the tube and upper holding or supporting frame from being forced downwards; but allows the spring to raise the upper holding or supporting frame as the contents of the cask or barrel diminish.

In order to tilt the cask,—the full cask or barrel being placed on the upper holding or supporting frame of the stand or tilt, and the friction detent held up, —the cask will descend at the back to a horizontal or nearly horizontal position; and as the beer or other fluid is drawn off, the decreasing weight will allow the spring to raise up or tilt the back end of the upper holding or supporting frame; whilst, at the same time, all vibration is avoided, and the cask or barrel prevented from being forced downwards by the self-acting friction detent, before referred to.

Improved process and apparatus for preparing, refining, and filtering oils or fatty matters. John De Cock Kenefeck, of Cork.—This invention relates, first, to a novel or improved method of preparing oils and fatty matters by means of chemical agents, which will remove any disagreeable smell therefrom. And, secondly, to the use of suitable apparatus for refining and filtering the oil.

In carrying out this invention the oils are first operated upon by sulphuric acid, of which from one to three per cent. must be added, according to the quality and state of the oils and fatty matters. The acid must be properly and intimately mixed with the oils in a suitable vessel, as described hereafter; after which the acid must be washed out, as far as possible, by water, to which may be added an alkili, such as lime. The oils or fatty matters are then to be run into a cylinder, provided with a piston so arranged as to create mechanical pressure on the oils or fatty matters without the employment of any extraneous motive power, such as steam or water power. By this means they are forced into a filter made of cast-iron, and containing an alkili, such as calcined marble or magnesia, through which the oils and fatty matters first pass, and where the vestige of acid is absorbed by the alkali. The oils or fatty matters are forced in the same vessel through a layer or mass of mealy substances obtained from oily seeds, and which mealy substances act chemically upon the alkali so as to absorb it; thereby freeing the oils and fatty matters from all impurities. The basis of the above-described process for purifying and filtering is, that the alkalies are made to re-act upon and neutralize the acid, and the mealy substances will extract or remove the alkali, together with all the impurities and acids.

Improvement in the preparation or manufacture of Starch. Wm. Maugham, of Ifield Terrace, Stockwell.—This improvement has for its object an improvement in the preparation or manufacture of starch, and consists in preparing starch which shall have the property of rendering the fabrics to which it may be applied, incapable of transmitting flame or fire. For this purpose, the starch having been manufactured, is saturated or mixed with phosphate of ammonia, and a small quantity of muriate of ammonia. The starch is afterwards dried or prepared, to render it suitable for the market.

After the water is decanted off at the end of the process usually practised for making starch, and before the starch is dried, the phosphate of ammonia is incorporated therewith, in the proportion of 480 grains to 1 oz. of the moist starch. The starch is then to be dried in the usual manner, when it will be fit for the market, and is to be mixed with water and applied to the fabric in the usual way. Or, after the starch has been made by any of the usual methods and has become dry, phosphate of ammonia is added, in the proportion of 600 grains of the salt to 1oz. of starch, and the ingredients are then ground together. The starch is now ready for use, and may be mixed with the usual quantity of water, and applied to linen or other fabrics in the ordinary way. It is, however, to be observed, that the fabrics should not be thoroughly dried and then sprinkled with water, after the manner generally adopted by laundresses, before ironing, but the fabrics should be partially dried, and then rolled tight in a dry cloth, and allowed to remain some time before ironing; and to prevent the iron from sticking, a little clean tallow or white wax should be previously added to the starch when it is being mixed with the water. When starch is to be used for coarse fabrics for the purpose of rendering them fire-proof, muriate of ammonia may be employed with the phosphate of ammonia, and in that case the phosphate of ammonia is to be diminished in proportion to the quantity of muriate of ammonia added.

An improvement in coating iron with copper. By Edmund Richard Southby, of Bulford, Wilts.

In coating iron with copper, according to this invention, the surfaces of the sheets or other forms of iron are first cleaned, as heretofore, then boiled or or heated when immersed in an alkaline solution, or a solution having an alkaline reaction on test paper, and then coated by depositing copper thereon, preferring it to be from a hot cyanide solution of copper.

The cleaning of the article desired to be coated with copper is effected by pickling or scouring; and then, if an acid pickle has been used, the article is dipped into a weak alkaline solution, and after being dried it is scoured with dry sand.

When thus prepared it is suspended by iron wires in a vessel containing an alkaline solution, that preferred being formed by dissolving two pounds of carbonate of soda in one gallon of water. This solution is heated to the boiling point, and maintained at that temperature for about an hour; at the end of which time it is removed, and immediately placed in the coating bath. The bath is prepared by dissolving ten ounces of cyanide of potassium in one gallon of water, and adding thereto as much freshly precipitated oxide of copper as it will take up. This bath is worked at a temperature of 180° F., with a copper pole, and with the precautions which are usual when depositing copper.

In place of preparing the article for receiving the coating of copper by means of a separate alkaline solution, the solution which is used in the coating bath being alkaline may be used for this purpose, the article being kept heated for some time in this bath before the deposition is commenced; and this process has advantages in coating large masses of iron.

When articles of wrought iron, cast iron, or steel, are coated with copper by the process described, the copper will adhere firmly to such articles, and will not scale off when the article is heated to a red heat.

Another patent for effecting the same thing has also been secured by Mr. Tytherleigh, of Birmingham, which consists in a process for coating iron in sheets or bars.

This invention consists of the method or methods of coating iron in sheets or bars, or before it is manufactured into articles, and also coating iron after it has been made into articles, with copper, or brass, or other alloy of copper.

The surface of the iron is first freed from scale, rust, or other adhering matter, by steeping it in dilute sulphuric or hydrochloric acid; or the iron is heated so as to form a scale thereon, which, when detached, leaves the surface of the iron clean. The patentee then fuses in a vessel or pan, copper, or brass, or other alloy of copper, and adds thereto borax or other flux. He then puts the cleaned iron or articles into the pan or crucible, and by shaking the pan, causes the iron or articles to be uniformly heated and coated with the copper or alloy. If the pieces of iron or articles to be coated are too large to permit of the shaking of the pan or crucible, then the iron articles are moved about in the fused metal contained in the pan by means of a pair of tongues or other implement. When the coated articles are removed from the pan, they are put into a sieve, if they are small, and shaken until the coating on them has solidified; or they may be placed on a plate of iron or other smooth surface, and stirred until they have cooled sufficiently to prevent them adhering to one another. When the pieces of iron or articles are large, they are placed separate to cool on any convenient support.

The Markets.

N. Y. WHOLESALE PRICES OF COUNTRY PRODUCE

FOR THE WEEK ENDING MARCH 25.

Reported by J. B. CONOVER, Commission Produce Dealer, Nos. 195, 197, and 199 West Washington Market.

APPLES are still scarce and selling at high prices, and there are but few good ones coming down the river yet, and mixed lots of Greenings, Spitzenbergs, Roxbury Russets, etc., are being sold on the dock at \$4 50*a*4 75 per bbl., and good, well-selected Baldwins, \$5 50 per bbl.; Spitzenbergs, \$5*a*5 50 per bbl.; Greenings, \$5 per bbl.; Roxbury Russets, \$4*a*4 50 per bbl.; Brown Russets, and other common Apples, \$2 50 *a*3 per bbl.

DRIED FRUIT.—Southern Apples 8*a*9½c. per lb.; Northern, 10*a*11½c. per lb.; Peaches peeled, 14*a*15c. per lb.; skin on, 8½*a*9c. per lb.

CRANBERRIES, \$11 50*a*14 per bbl.

HICKORY NUTS.—State, \$1 75 per bush.; Western, \$1 per bush.

WHITE BEANS, \$1 75*a*2 25 per bush.

POTATOES are getting scarcer, and prices are rather stiffer for first qualities of good Potatoes, and the demand is mostly for large smooth Potatoes of all kinds; there is also considerable demand for all kinds of Northern Potatoes for seed. Good Jersey Mercers are selling at \$3*a*3 50 per bbl.; do. Carters \$4*a*4 50 per bbl.; do. Kidneys, \$3 50*a*3 75 per bbl.; do. Black Mercers, \$2 75*a*3 per bbl.; do. White Mercers, \$2 75 per bbl.; Western Mercers, \$3 50 per bbl.; do. Yellow Pinkeyes, \$2 50 per bbl.; do. Blue Pinks, \$3 50 per bbl.; Long Island Pinks, \$3 25*a*3 50 per bbl.; Northern Mercers, \$2 75 per bbl.; do. Junes \$2 50 per bbl.; do. Peachblows, \$2 75 per bbl; do. Dykman, \$3 per bbl.; do. Merinoes, \$1 75 per bbl.; do. California's, \$1 75 per bbl.; do.; Round Reds, \$2 per bbl.; do. Carters, \$3*a*3 50 per bbl. Sweet Potatoes from Delaware, \$5 50*a*6 per bbl.

VEGETABLES.—Ruta Baga Turnips, 87½c.*a*\$1 13 per bbl.; flat White do., 50c. per bbl. White Onions, \$3 50*a*4 per bbl.; Red Onions, \$3 per bbl.; Yellow, \$3 25*a*3 50 per bbl.; Bunch Onions, \$4 per hundred bunches. Garlic, \$7 per hundred bunches. Beets, \$2 25 per bbl. Carrots, washed, \$1 50 per bbl. Parsnips, \$1 75*a*2 per bbl. Pumpkins, \$15*a*20 per hundred. Cabbage, \$4*a*7 per hundred.

POULTRY is rather plentier than last week, with but little variation in prices. Jersey and Philadelphia Capons are selling at 18*a*20c. per lb.; do Turkeys, — per lb.; do. Chickens, — per lb.; do. Ducks, — per lb.; do. Geese, — per lb.; Northern and Western Turkeys 12*a*13c. per lb.; do. Chickens, 11*a*12c. per lb.; do. Geese, 7*a*8c. per lb.; do. Ducks, 14*a*16c. per lb.

EGGS.—State, 17½*a*18c per dozen; Western, 17*a*17½ per dozen. Eggs are rather scarce, and are quick of sale at the prices.

WILD PIGEONS, \$1 13*a*1 25 per dozen.

BUTTER.—Orange County pail, 28*a*31c. per lb.; good State, fresh, firkins, 25*a*28c. per lb.; good State, Dairy, firkins, 23*a*25c. per lb.; good State, fresh, Welsh tubs, 24 *a*25c. per lb.; good State, Dairy, Welsh tubs, 23*a*24c. per lb.; ordinary State, 18*a*20 c. per lb.; good Western, 16*a*18c. per lb.; common Western, 12½*a*14c. per lb.; Roll in barrels, 15*a*17c. per lb.

LARD, 14¼*a*15c. per lb. BEEF, by side, 6*a*9c. per lb.; PORK—Corn-fed, 10*a*10½c. per lb.; still-fed, 9½*a*9¾c. per lb. MUTTON, 8*a*10c. per lb. CALVES—Slaughtered, 9*a* 11c. per lb.; alive, 6½*a*7c. per lb. CHEESE, 13*a*14c. per lb. VEAL, 10*a*12c. per lb. LAMB, 8*a*9c. per lb.

N. Y. CATTLE MATTLE, March 25.

WHOLE number of BEEVES received this week 1,019, 263 less than last week. COWS AND CALVES.—Supply larger than last week, and prices lower. Hard times for holders. VEALS.—The ordinary supply: quality mostly inferior; the poor things must have had a short life, hardly long enough to become slippery. SHEEP AND LAMBS—1,300 less than last week.

It is the custom in New-York to estimate beeves by the weight of the quarters only. The same, we believe, is true of the Philadelphia market. At Brighton and Cambridge, near Boston, the estimation is made by the weight of the quarters added to that of the hide and tallow. This should be taken into account by those who compare the different market reports. Suppose, for illustration, that the quarters of a steer weigh 800lbs., and that his hide and tallow weigh 200. If a New-York butcher buys this animal for eighty dollars, he will tell you that he pays 10 cents the pound; if a Boston butcher pays the same for him, he will tell you that he gives 8 cents the pound. This makes the New-York reports read from one to three cents a pound higher than the Boston, when beef is really no higher in the former city than in the latter. Some of our readers may not have noticed this fact.

Beef Cattle, first quality, 10½a11c½c.; medium, 10a11; ordinary, 9½a10; extra good held from 13 to 14. General average 10½. Cows with Calves, $25a100 and upwards, but general rates $55a75; very mean, as low as $20. Veal Calves, first quality, 7a7½c. per lb., live weight; lower grades, 6a6½c.; "Kiltens" (this means amazingly young calves) "as you could light of chaps," so much a head, cheap enough to allow the peddler something for the wear and tear of conscience. Sheep, $2 50a 6 according to size, quality, and worth of pelt. Swine, 7a8¼c. per lb, live weight.

PHILADELPHIA CATTLE MARKET, March 25.

The sales of Cattle yesterday and to-day were quite active, and the supply of all kinds of stock equal to former weeks.

Beef Cattle.—The entire sales of Beef Cattle reached 1,200 head, a large number of which were rather poor and scarcely fit for slaughter. This kind of stock fell from 80 cents to $1 on the 100 lb. in price, compared with good and prime stock, which was disposed of at from $10 50 to 11a11 50, and extra ones as high as $12 per 100 lbs.

Sheep.—This kind of stock is in active demand, and 4,500 head offered were soon sold at from $3 50a6 50 per head, and from 8a10c. per lb. net weight.

Hogs.—There was a limited supply of Hogs for the season, only 1,800 head being offered, all of which were sold at from $9 50a10 75 per 100 lbs. net, being a small advance on former prices.

Cows and Calves.—We have but little change to note at this market; 325 head were sold at from $20a60 each for cash.

CAMBRIDGE CATTLE MARKET, March 25.

Reported for the *N. Y. Tribune*, by George Rupp.

At market, 563 Cattle, about 450 Beeves and 113 Stores, consisting of working Oxen, Cows, and one, two, and three years old.

Prices: Market Beef, extra, $8 25a8 75; first quality, $8a8 25; second quality $7 25a7 50; third quality, $6a6 25; ordinary quality, $4 50a5. Stores: Working Oxen, from $80, 100, 125, to 185; Cows and Calves, from $35, 40, 50, to 65—quite a number at market; yearlings, none; two years old, $35 to 40; three years old, $42 to 48.

Sheep and Lambs.—At market, 1,279; prices in lots, $4, 4.50, 5 to 6.75 each; extra and selections, $7.50, 8, 10.

Swine.—520 at market; prices, live weight, 7a8c. per lb.; Dressed, 10a11c. per lb.

Shoats.—Wholesale, 8a9c. per lb.; Retail 9a10c. per lb.

The American Fertilizing Company.—A Company organized under the laws of New-York, and composed of practical farmers and business men, having after a careful investigation made arrangements to supply a cheap and valuable fertilizer, made according to a process lately patented by Charles Stearns, are prepared to receive orders. This valuable manure, they claim, is better than Peruvian guano, and can be sold at about half the price. We have conversed with the agent of the company, and find that he has excellent ideas on the composting and combining of fertilizing materials; but we know nothing of this manure. See advertisement.

TO OUR READERS.

Having some time since intimated a desire and an *intention*, so soon as our circumstances would warrant, to reduce our price to single subscribers, we are now able to announce the following as our terms, to take effect from January last:—To single subscribers, $2 00 a year; and to clubs of four and upwards, $1 50 each, payable invariably in advance.

The few who owe us on the year commencing with January last, shall have their bills adjusted accordingly; and those who have advanced on this year at a higher rate, shall have their time extended proportionally, that the change may operate alike favorably to all. To persons situated unfavorably for joining a club, and yet desirous of availing themselves of club prices, we will send them the current volume and the volume succeeding it, on the reception of $3 00.

And now will not our readers—such as have not yet done it, as we are happy to acknowledge that many have—interest themselves to exhibit our work and to form clubs for it on the above terms? As many as approve our efforts will feel a satisfaction in extending the influence and usefulness of this journal; and, as an additional inducement, we will send by return mail, post paid, the following:

For a club of four, "The Progressive Farmer," a 12mo, of 250 pages, especially adapted to young men; for a club of five, six, or seven, "The Farmer," a monthly, published at Amherst, Mass., in 1855, of about 200 pages quarto, neatly done up; and for a club of eight or upwards, a back volume of the *Plough. Loom, and Anvil*, handsomely bound.

And any one who will obtain for us thirty or more new subscribers, may retain one fourth of their subscription, in addition to the premium above offered, and the Journal shall be sent to each subscriber on the receipt of the other three fourths of the subscription at this office.

The name, Post office address, and time for commencing should be distinctly written.

The Cleveland Commercial Gazette, Cleveland, Ohio, always ably conducted and of rare merit, has greatly increased its value of late, by a large increase in its size. It ought to be well patronized.

Book Notices, Etc.

Morals for the Young; or, Good Principles, instilling Wisdom. Illustrated with engravings and moral stories. By Emma Willard. New-York: A. S. Barnes & Co. 1857. 217 pages, 16mo.

Mrs. Willard is well known as a most successful teacher, and an author of high reputation. In this little work she has done the public in general a good service in treating of "Wisdom" in the ordinary affairs of life, and in connection with our moral nature, Revelation and Christian Love, as illustrated by St. Paul in 13th of 1st Corinthians. It is a capital book

A Practical Treatise on Grapes and Forage Plants, comprising their natural history, comparative nutritious value, methods of cultivating, cutting and curing, and the management of grass lands. By Chas. L. Flint, Secretary of Massachsetts

Board of Agriculture, and Member of Boston Society of Nat. History. New-York: G. P. Putnam & Co. 1857. 236 pages, 8vo.

Mr. Flint is well known as a man of great industry and of good judgment, and he has turned these commendable qualities of character, in this volume, into a very useful direction, and has given us a book of great practical value, worthy of the attention of all intelligent farmers.

School Amusements; or, How to make the School interesting, embracing simple rules for military and gymnastic exercises, and hints upon the general management of the school-room; with engravings. By N. W. Taylor Root. New-York: A. S. Barnes & Co. 1857. 225 pages.

This book treats the subject it discusses wisely, and though the author might not introduce his entire system of physical exercises in all schools, perhaps every school may receive benefit from a careful examination of this little volume. It is handsomely printed, and its exercises, military and gymnastic, are perfectly intelligible through the numerous and well executed engravings.

List of Patents

ISSUED FROM THE U. S. PATENT OFFICE FROM JAN. 27 (THE TERMINATION OF THE PREVIOUS LIST) TO FEBRUARY 24.

[We change the arrangement of this list, from this date, giving the name of the thing patented before that of the patentee, as on the whole more convenient.]

Sewing Machine—Elias Alexander, New-York City.

Excavating and Dredging Machine—Jonathan R. Anderson, Chicago, Ill.

Coupling for Railroad Cars—Ed. H. Anderson, Milford, Del.

Filing Saws—A. M. Beardsley, Constantine, Mich.

Coupling for Wagons—Jacob Boyers, Grandville, Va.

Lard Lamp—J. S. Brown, Washington, D. C., assignor to Joseph Kent, Baltimore, Md.

Anvil—Otis Brigham and Seth E. Brigham, Fitchburg, Mass.

Cleaning Cotton—Francis A. Calvert, Lowell, Mass., and Chas. G. Sargent, Westford, Mass.

Window Blind—Alexander H. Cochran, New-York City.

Shaker Bar—Geo. W. Gardner, Troy, N. Y.

Sowing Grain and Fertilizers—J. C Gatson, Reading, Ohio.

Seed Drill—Oliver C. Green, Worcester, Ill.

Puddling Furnace—J. Green, Philadelphia, Pa.

Forging Gun Lock Springs—George P. Foster, Bristol, R. I.

Adjustable Seat for Carriages—Geo. and David Cook, New-Haven, Ct.

Cutting Veneers—P. Cook, Tonawanda, N. Y.

Harness Hames—Homer Compton, Wells' Corner, Penn.

Smith's Forge—John W. Crannel, Olivet, Mich.

Tennoing Spokes—John J. Croy, Caledonia, Mo.

Shirt Bosom Studs—John P. Derby, Cavendish, Vermont.

Cutting Tenons on Blind Slats—Seth C. Ellis, Albany, N. Y.

Tilting Buckets in Raising Water from Wells—Daniel P. Farnham, Milton, Wis.

Hydrant—Wm. Fields and Solomon Gerhard, Wilmington, Del.

Sowing Seed Broadcast—George Hall, Morgautown, Virginia.

Forming Felt Hat Bats—Washington G. Hagaman, Philadelphia, Pa.

Gas-generating Apparatus—James Hansor, of the Wandsworth Road, England. Patented in England March 21, 1852.

Dressing and Polishing Stone—David Hinman, Berea, Ohio.

Shingle Machine—Wm. Huey, Columbia, Pa.

Corn Planter—Sam. M. Perkins, Fort Hill, Ill.

Fan Blower—Chester P. Marshall, Worcester Co., Mass.

Boxes for Pise-work Walls—Otis & Wales, Needham, New-Haven, Ct.

Holding and Dispensing Syrups for Soda Fountains—James R. Nichols, Haverhill, Mass.

Cotton Seed Planter—James T. Orr, Orrville, Alabama.

Grinding File Blanks—Rob't G. Pine, Newark, N. J.

Cultivator—Norman W. Pomeroy, Meriden, Ct.

Sewing Machine—S. F. Pratt, Roxbury, Mass.

Life Preserver Warren A. Simons, Boston, Mass.

Ladies' Riding Saddle—Robert Spencer, New-York City.

Joining Boxes, etc.—James Simpson, Balwinsville, Mass.

Seed Planter—L. Beemer, Libertyville, N. J.

Pump—Ambrose Tower, New-York City. Patented in England July 23, 1856.

Hanging Window Sashes—Wm. Webster, Morrisania, N. Y.

Cotton Gin—L. S. Chichester, New-York City, assignor to Henry C. Evans, of same place.

Shingle Machine—Wm. A. Whiting, St. Louis, Missouri.

Stump Extractor—Jason S. Wood, Washington Township, N. Y.

Brass Kettle Machine—Mary A. Cannon, Warren, R. I., administratrix of John Cannon, deceased, late of the same place; assignor to the New-York and Brooklyn Brass Company, of New-York City.

Sewing Machine—Joshua Gray, Boston, Mass., assignor to himself and John Gault, of same place.

Blast Furnace—Henry Wiessenborn, New-York City.

Brick Machine—Wm. Wood, Hartford, Ct.

Washing Machine—Amos Jacobs, deceased, late of Ithaca, N. Y.

Accelerating Fire-arms—Azel S. Lyman, New-York City, assignor to the Accelerating Fire-arms Company, of same place.

Joiners' Plane—J. F. Palmer, Auburn, N. Y., assignor to S. W. Palmer, Detroit, Mich.

Cut-off Valve of Steam Engines—Geo. H. Reynolds, of Medford, Mass., assignor to himself and D. B. Hinckley, Bangor, Me.

Pistol—Wm. S. Butler, Rocky Hill, Ct, assignor to Butler, Suydam & Co., of same place.

Bridge—Thos. W. H. Moseley, Covington, Ky.

Stuffing Leather—Joseph Armstrong, Woburn Center, Mass.

Melodeon—J. C. Briggs, Woodbury, Ct.

Fire-arm—Francis S. Brettell and Joseph B. Frisbie, Alleghany City, Pa.

Making Envelopes—Theo. Bergner, Philadelphia, Penn.

Attaching Thills to Sleighs—J. M. Batchelor, Foxcraft, Me.

Extension Hoppers for Separators, Grain Mills, etc.—John Bean, Hudson, Mich.

Printing Stamp—W. H. Elliott, Plattsburg, N. Y.

Shoes for Truss Frames—R. Comins, Troy, N. Y.

Gunpowder—Elisha B. Dodson, Reading, Pa.

Raking Attachment for Reapers—Peter Harnist, Marinetown, Ill.

Razor Strop—E. K. Godfrey, New-York City.

Attaching the Eyes to the Blades of Hoes—Henry Havil, Newark, N. J.

Seed Planter—Thomas B. Houghton, Bloomington, Ill.

Guide for Sewing Machine—A. Hull, Brooklyn, N. Y.

Ramming Percussion Caps—Chas. Hicks, Haverstraw, N. Y.

Method of Surfacing Felt Hats—Alvin Hurd, Danbury, Ct.

Feathering Paddle Wheels—Lewis T. Howard, Smith Mills, Miss.

Seed Planter—J. Hildebrand, East Berlin, Pa.

Gas-making Process—Jas. Hansor, Wandsworth Road, England.

Seed Planter—R. Boeklen, Jersey City, N. J.

Controlling the Throttle Valve of Marine Engines—Wm. H. Elliott, Plattsburg, N. Y.

Smelting Zinc-iron Ore—Joseph C. Kent, Cooper Iron Works, N. J.

Safety Indicator for Steam Boilers—Lucius J. Knowles, Warren, Mass.

Fence Adaptable to Uneven Ground—G. R. McIlroy, Covington, Ky.

Reaping and Mowing Machine—Jeremiah W. Mulley, Amsterdam, N. Y.

Ornamental Daguerreotype Cases, etc—John F. Mascher, Philadelphia, Pa.

Preparing India Rubber Cloth—Gulielmus B. Millerd, Cocheron, Ct.

Abdominal Supporter—Julia M. Milligan, New Albany, Ind.

Chain Pump—Edmund Morris, Burlington, N. J.

Gauge and Water Regulator for Steam Boilers—Mighill Nutting, Portland, Me.

Rail for Street Railroads—Samuel Nicholson, Boston, Mass.

Suspending and Adjusting Sticks in Sawing Machines—Ezekiel Page, Platea, Pa.

Ventilating Stove—L. M. Parsons, Waukau, Wis.

Hand Stamp—Perley A. Ramsay, Boston, Mass.

Corn Planter—Martin Robbins, Cincinnati, O.

Sewing Machine—Thos. J. W. Robertson, New-York City.

Seed Planter—S. G. Randall, Rockford, Ill.

Attaching the Arms of Horse Powers—Cyrus Roberts, Bellville, Ill.

Rotary Steam Engine—John B. Root, Buffalo, N. Y.

Metallic Roofing—Benj. Ross and John C. Campbell, Syracuse, N. Y.

Facing Mill Stones—Benj. D. Sanders, Holliday's Cove, Va.

Self-adjusting Wind Wheel—Edw'd A. Tuttle, Brooklyn, N. Y.

Seed Planter—H. Thomason, Lafayette, Ind.

Three Harvesting Machines—Walter A. Wood, Hoosick Falls, N. Y.

Indicating the Hight of Water in the Holds of Vessels—Wm. R. Warden, Boston, Mass.

Wool-cleaning Machine—William H. Watrous, Brooklyn, N. Y.

Locomotive Cow-Catcher—Joel Wisner, Aurora, N. Y.

Cutting Dovetails—E. G. Matthews, Clear Water, Min. Ter., (assignor to Harvey Church, Troy, N. Y.

Calendar Clock—E. P. Monroe, Albany, N. Y., assignor to Gilbert H. Scribner, New-York City.

Patching Bullets—Fred'k D. Newbury, Albany, N. Y., assignor to Rich'd V. DeWitt, Jr., of same place.

Resawing Lumber—S. P. Winne, Albany, N. Y.

Spring for Vehicles—D. Babcock, Homer, N. Y., assignor to Thos. Harrop and Darius Babcock.

Fishing Rod Reel—Edward Deacon, Brooklyn, N. Y., assignor to John Warrin, New-York city.

Making Seamless Tubes—Wm. S. Platt, Waterbury, Ct., assignor to W. S. Alfred and Clark M. Platt.

Metallic Brad—John R. Wendt, Boston, Mass., assignor to J. R. Went and Aug. Rogers, of same place.

Improved Window Blind—Daniel Kelley and Wm. Livingston, Grand Rapids, Mich.

Husking Corn—E. S. Holmes, Lockport, N. Y.

Hair Triggered Gun Lock—Jonathan Altman, Armstrong Co., Pa.

Extension Chairs—Saml. J. Anderson and Nelson Richardson, Erieville, N. Y.

Seed Planter—Jacob Landes, Selma, Ohio.

Seed Planter—Leonard Arnold, Janesville, Wis.

Photographic Camera Box—Luzerne M. Bolles and Washington G. Smith, Cooperstown, N. Y.

Making Hames—Henry Burt and James T. Hedden, Newark City, N. J.

Gas Regulators—John H. Cooper, Philadelphia, Pa.

Bosom Pins—John P. Derby, South Reading, Mass.

Carpenters' Bench Clamp—James E. A. Gibbs, Mill Point, Va.

Allowing Circular Saws to Play Laterally, Independently of their Shafts—A. P. Gross, St. Louis, Mo.

Chimney Cowl—Moses H. Hale and Saml. Horton, Newburyport, Mass.

Method of Generating Air Blast—Isaiah J. Hendryx, New-York city.

Excavating Rock—J. C. Osgood, Troy, N. Y.

Gas Retorts—M. J. Miller, St. Louis, Mo.

Machine for Varnishing Percussion Caps—Chas. Hicks, Haverstraw, N. Y.

Folding Bedsteads—Benj. Hinckley, Troy, N. Y.

Gearing for Wagons—Edgar Huson, Ithaca, N. Y.

Brick Press—Samuel Lillie, Jr., Fort Wayne, Ind

Attaching Extra Top-sa ls to Vessels—E. H. Linnell, Orleans, Mass.

Fastening Skates—Henry Pickford, Boston, Mass.

Self-disengaging Car Coupling—J. C. Price, New Philadelphia, O.

Allowing Circular Saws end play independently of the Driving Shaft—Wm. S. Reeder, St. Louis, Mo.

Boat Oars—Rufus Rode, Manchester, Pa.

Spinning Flyers—J. N. Sawtell, Lowell, Mass.

Harvesting Grain and Grass—Wm. Schnebly and Thomas Schnebly, Hackensack, N. J.

Splitting Shoe Pegs—Nathaniel H. Shaw, Farnworth, N. H.

Fitting Gas Pipe—Caleb C. Walworth, Boston, Mass.

Harness for Horses—Joseph Smith, Delaware, O.

Securing Hubs on Axles—Alfred E. Smith, Bronxville, N. Y.

Feed Water Apparatus to Steam Boilers—Andrew J. Vandegrift, Delaware, O.

Damper Regulators for Steam Boilers—Wm. Webster, Morrisania, N. Y.

Electric Telegraphs—Wm. D. Wesson, Chillicothe, O.

Paring Apples—David H. Whitmore, Worcester, Mass.

Cutting Vegetables—H. A. Willard, Westminster, Vt.

Operating Valve for Steam Engines—Samuel R. Wilmot, Watertown, Ct.

Raising Water—Daniel K. Wider, Cincinnati, O.

Crimping Boots—J. G. Baker, Jr., assignor to himself and Chas. Bradfield, Philadelphia, Pa.

Sash Fastener—Thomas Floyd, assignor to himself and G. H. Merklein, Chambersburgh, Pa.

Tile Machine—Junius Foster, assignor to John Herbold, George Kuhn and Junius Foster, aforesaid, Brooklyn, N. Y.

Varnish Can—Alonzo Marshall, assignor to Benjamin Marsh, Newark, N. J.

Curtain Fixtures—Lewis B. Gusman, assignor to himself, Henry W., and Henry Safford, Philadelphia, Pa.

Securing the Panels of Field Fences—C. P. Garlick, Amadoa, Min. Ter., and G. M. Blackstone, Mainville, O.

Photographic Glass Holder—Joseph Longking, of the Township of New Windsor, N. Y.

Iron and Steel—J. G. Martien, Newark, N. J.

Calk for Horse Shoes—Edward Maynard, Williamsburgh, N. Y.

Iron Pavements—Chas. Meltam, New-York city.

Steam Boilers—J. J. Palmer, Flushing, N. Y.

Cordage Machines—James Pine, Hoosick Falls, N. Y.

Grain Separators and Straw Carriers—Cornelius Van Derzee, Albany, N. Y.

Saw Filer—Archibald Robbins, Alanson Shewman, and L. R. Bigelow, Watkins, N. Y.

Floating Sectional Dry Docks—John Seely, Buffalo, N. Y.

Ribs for Cotton Gins—John W. Webb, Cotton Valley, Ala.

Solar Camera—David A. Woodward, Baltimore.

Hanging the Sieves of Grain Separators—Benjamin Wright, Hudson, Mich.

Metallic Lathing—Wm. E. Worthen, New-York city.

Shoving Poles for Steamboats—D. Cumming, Jr., assignor to D. Cuming, Sen., Mobile, Ala.

Keeper for Right and Left-hand Door Locks—Calvin Adams, Oak Hill, N. Y.

Hand Seed Planters—J. H. Bruen, Penn Yan, N. Y.

Hinges—J. D. Browne, Cincinnati, O.

Cast-iron Kettles—C. C. Bradley, Syracuse N. Y.

Cauterizing Syringe—E. T. Bussell, Shelbyville, Ind.

File Cutting Machine—I. H. Coller, Poughkeepsie, N. Y.

Combining Hydrogen and Wood Gas—Warren C. Choate and C. N. Tyler, Washington, D. C.

Rotating Breech Fire-arms—Samuel Colt, Hartfort, Ct.

Elastic Cap for Sealing Cans, etc.—Mrs. Rhoda Davis, Brookhaven, N. Y.

Gig Mill for Napping Cloth—Ernest Gessner, Aue, Saxony.

Supplying Houses with Water—Thomas Hanson, New-York city.

Marking Slates—John W. Hoard, Providence, R. I.

Casting Skeins for Wagons—Andrew Leonard, Kenosha, Wis.

Saw Set—Joseph D. Spiller, Concord, N. H.

Operating Mandrel Cutters—Peter H. Niles, assignor to himself, Nehemiah Hunt, Ralph C. Webster, and Alfred Douglass, Jr , Boston, Mass.

Preparing Alkaline Silicates—John M. Ordway, assignor to the Roxbury Color Chemical Manufactory, Roxbury, Mass.

Friction Rollers in Ship's Blocks—John Allender, New-London, Ct.

Plates for Artificial Teeth—A. A. Bland , Baltimore, Md.

Shuttle Drivers—Saml. Boorn, Lowell, Mass.

Sewing Machines—C. D. Belcher, Charleston, S. C.

Pen and Pencil Holder—G. H. Byron, Governor's Island, N. Y.

Hand Stamp—Leonard Bailey, Winchester, Mass.

Sewing Machine—Joseph W. Burnham, Hartford, Ct.

Trip Hammers—Henry Bushnell, New-Haven, Ct.

Washing Machines—Rich. Collins, Chicopee, Mass.

Lubricating Fire-arms—Samuel Colt, Hartford, Ct.

Churns—E. P. Cowles and J. A. Cowles, Oakfield, N. Y.

Hand Printing Press—N. L. Chamberlin, Wes Roxbury, Mass.

Cutting Pasteboard for Boxes—E. E. Clarke, New-Haven, Ct.

Sheep Shears—E. G. Chambers, Bucyrus, O.

Harvesters—S. A. Clemens, Rockford, Ill.

Potato Diggers—Paul Dennis, Stillwater, N. Y

Suspending Wind Wheels—Joseph de Sendzimir, South Oyster Bay, N. Y.

Making Tire for Car Wheels—John Evans, Portsmouth, O.

Circular Sawing Mill—Philander Eggleston, Mobile, Ala.

Machines for Harvesting Corn—J. H. Frampton, Hopewell, O.

Chronometer Escapements — James Fulton, Louisville, Ky.

Bridge Trusses—Albert Fink, Parkersburgh, Va.

Harvesters—Lewis W. Harris, Waterville, N. Y.

Hand Stamp—Horace Holt, Winchester, Mass.

Screw Wrench—B. F. Joslyn, Worcester, Mass.

Weaver's Shuttles—Lucius J. Knowles, Warren, Mass.

Rakes for Reaping Machines—Caleb Lee, Knox Township, O.

Basin Cock—Robert Leitch, Baltimore, Md.

Corn Husker—Wm. Lewis, Seneca Falls, N. Y.

Photographic Plate Holder—Wm. and Wm. H. Lewis, New-York city.

Mastic Roofing Compounds—C. R. Milks, Detroit, Mich.

Husking Corn—John Massey, Buffalo, N. Y.

Curtain Rollers—Purches Miles, Hartford, Ct.

Shingle Machine—H. D. McGeorge, Morgantown, Va.

Composing Types—Wm. H. Mitchel, Brooklyn, N. Y.

Machines for Making Axes—Chas. Hutchins, East Douglass, Mass.

Grinding Card Cylinders—Jonathan Parker, Biddeford, Me.

Sewing Machines—S. F. Pratt, Roxbury, Mass.

Beveling and Jointing Staves—Erastus M. Pitman, Warren Co., Va.

Generating Steam—C. F. Pond, Hartford, Ct.

Centrifugal Friction Clutch—Rensselaer Reynolds, Stockport, N. Y.

Locks—J. Christian Reithmuller, Pittsburgh, Pa.

Soap Mixture—Isaac Roraback, Parish of Caddo, La

Washing Machines—Louis C. Rodier, Detroit, Mich.

Tin Pans—E. F. Parker and J. Smead, Proctorsville, Vt.

Projectiles—Malcom Shaw, Sandwich, Mass.

Mole Candle Machine—Benjamin D. Sanders, Holliday's Cove, Va.

Portable Fire-arms—John Tilton and William Floyd, Rock House, O.

Projectiles for Rifled Canon—John M. Sigourney, Watertown, N. Y.

Operating Supply and Discharge Valves of Hydraulic Engines—Homer H. Stuart, New-York city.

Cast Iron Pavements—Chas. J. Shepard, Brooklyn, N. Y.

Husking Corn—Hiram Strait, Covington, Ky.

Door Springs—Leopold Thomas, Alleghany City, Pa.

Melodeons—Thomas F Thornton, Buffalo, N.Y

Guide Wheels for Railroad cars—John B. Wickersham, New-York city.

Harvesters—David Watson, Newark, N. J.

Seed Planters—Firman Goodwin, Astoria, N. Y.

Hulling and Scouring Wheat—Joseph Weber, Braysville, Ind.

Valves for Steam Engines—Norman W. Wheeler, Cincinnati, O.

Plates for Fire Places and Grates—F. E. Pitts, Nashville, Tenn.

Agitating Liquors—Anson Wilson and A. Spencer Wolcott, East Bloomfield, N. Y.

Metallic Roof—Wm. E Worthen, New-York city.

Reflectors for Locomotives and other Lamps—Isaac Carleton, Brooklyn, N. Y,

Mastic Roofing Materials—N. A. Dyar, Lynn, Mass.

Fluxes for Treating Alloys—Eli Mourier and Jules Francois Eeward Vallent, Paris, France, assignors to Henry Migeon, New-York city. Patented in France Dec. 30, 1854.

Seeding Machines—L. B. Myers and H. A. Myers, Massillon, O., assignors to themselves and Isaac Myers, same place.

Ships Steering Apparatus—J. B. Holmes, New-York city, assignor to J. R. Pratt, same place.

Ships' Capstans—J. B Holmes, New-York city, assignor to J. R. Pratt, same place.

Swaging Iron—Junius Foster, Brooklyn, N. Y., assignor to John Herbold, George Kuhn and Junius Foster, same place.

Nautical Alarm—E. L. Seymour, New-York city, assignor to J. G. Wright, Chas. Wright, and H. I. Geyer, same place.

Reducing and Smoothing Boards to Uniform Thickness — Tristram D. Knight, Charleston, Tenn.

Pointing and Threading Screws—D. M. Robertson, Manchester, N. H.

The Plough, the Loom, and the Anvil.

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Agricultural.

TRICHOLOGIA MAMMALIUM.

Great Britain keeps about 320 sheep to the square mile; France, 140; Spain, 80; Saxony, 330; and the United States, 30. The above figures show that we keep less sheep than these nations in proportion to our territory.

The sheep of Great Britain average about one to each inhabitant; those of France, three or four to each inhabitant; and those of the United States, but one for two inhabitants. So we have but half as many sheep as Great Britain, compared with the population, and less than one tenth as many compared with the territory. As compared with France, that country has nearly five times as many to the square mile as we, and nearly six times as many relatively with population.

We manufacture annually 70,862,829 lbs. of wool; we grow but 52,576,959 lbs., leaving a deficiency for our own manufactures of 18,345,970 lbs. Believing that although a policy like this may have been wise in the past, it can hardly be so now, and certainly will not be so in the future, we can not but regard the question of sheep culture as one of very great importance. As a people we eat more meat than any other; we wear as fine coats and pants as any other; and in consideration of our climate, we shall need as many bed-blankets, flannels, horse-blankets, floor-cloths and carpets as any other people.

All this will require a great deal of mutton, a meat as digestible and strengthening as any other; and taken in due proportion with other meats, as conducive to health and long life, and with many, at least as desirable. It will require a great deal of short, fine wool, adapted to the manufacture of third rate, *second rate* and FIRST RATE fulled cloth. It will require also a great deal of long, fine wool, for the manufacture of unshrinkable flannels. And it will require immense quantities of coarse wools, suitable for blankets, business overcoats, carpets, etc., etc., etc.

Now we contend that it is the true policy of the American people to grow all this wool, and not to import it. The time for that has already come. The time for manufacturing it all ourselves instead of feeding and paying other nations for doing it for us is not far distant, that is, if we are a wise people, which we suppose is to be taken for granted. The American people then, will, at no distant day, make instead of buying their woolen-wares, and will make them from raw materials of home production. The coat which our next President will wear at his inauguration is now in the farmer's soil and manure heap; but it will emerge in the shape of corn and grass; it will appear next on the sheep's back, and then on the President's; and it will be a good coat, quite as good, for all practical purposes, as the English prince and the French emperor wear, and we hope as durable and withal as handsome.

We have nitrogen, phosphorous and sulphur enough in our fields and barn-yards to make our wool from; there are men and women enough to work it into coats, pants, hose, hats, gloves and all the rest. They want employment. If you drive them all to the soil for employment, the farmer will have to work for nothing, because there will be none to buy his produce; whereas, if you give them profitable employment in the factory and the shop, they will buy the farmer's produce, and will be able to give him a good price for it, from the very fact of having steady employment.

Taking it for granted that we are a wise people, it follows that we shall not be a nation of farmers, nor a nation of mechanics, but about equally of both, the farmer sustaining the mechanic, and the mechanic clothing the farmer and supplying his implements, each enriching the other, and both upholding the Republic. The sharper and the idler will of course hang about them and devour a pretty large share of their substance, without rendering an equivalent; but that is an evil incident to the present order of things; and so they must bear it as patiently as they can. That drones should live by others' industry, that sharpers should cheat working-men, and that farmers should pay double their fair proportion of taxes, are evils that we do not expect to see remedied.

But to approach the subject again: wool-growing must and will become a great and important interest in this country. It is therefore important that sound views should prevail. It will undoubtedly be the policy of farmers, in some localities, to look primarily at the meat-giving qualities of sheep; in others, at the wool-giving qualities. Our markets will require fine wool, but they will require coarse also, and they will require meat. We have supposed that the views detailed by Peter A. Brown, LL.D., of Philadelphia, under the head of "Trichologia Mammalium," might be of great service at this time. As Dr. Brown, owing to long continued microscopic investigations of wool, has so injured his eyes as to make it inconvenient for him to communicate the results of his investigations as freely to the public as he otherwise would, he has given us leave to speak for him, which we do with great pleasure, believing the subject important to our readers; but at the same time with some misgivings, conscious that we are not as familiar with the subject as we could desire. We would here say, that we believe Dr. Brown's views are partly the result of the study of foreign works on this subject, but mainly of his own investigations; and that whatever he has learned from the writings of others, he has subjected to the most rigid investigation before setting it down as truth; taking nothing for truth till proved.

According to our understanding of Dr. Brown, *there are two species of sheep*, and but two. These are *distinct* species, and should be kept distinct. The varieties under each may be crossed at pleasure, and thereby new varieties of fixed type may be established for the various purposes for which sheep are kept. But the species should not have been crossed, as *has* happened, till now the pure blood of either is rarely found.

One of these species produce hair, the other wool, and the descendants of the two both hair and wool. Some of our readers may suppose that there is no very fixed and definite distinction between hair and wool—that hair is nothing else than coarse wool, and that wool is fine hair and nothing more. This is not so. Wool may be coarse and hair may be fine. Irrespective of coarseness and fineness, they are unlike in form and structure, as unlike as the cotton plant and the flax plant, or any two productions of nature. Dr. Brown supposes there is no such thing as hair turning into wool or wool into hair by change of climate; that if you take a specimen of the hair-bearing sheep northward, the hair may become finer and thicker, but is hair still, and not wool; and that if you take one of the wool-bearing sheep southward, the wool may deteriorate in quality, but will be wool still and not hair. But what is the distinction between hair and wool? This we will endeavor to explain.

All the mammalia, including man, have an integument or covering over the whole or parts of the body, called variously hair and wool. No other animals have such an integument. It is not our purpose here to speak of that of any other animal than the sheep; nor will we trouble the reader with all the distinctions that exist in this, but will confine our remarks to a few that are distinctly characteristic. On the hair-bearing sheep we find a plant-like appurtenance growing out of the skin, eliptical and hollow. When severed by a sharp instrument the section presents about the appearance of an Italic *o*, having the longer diameter one third longer than the shorter, and having a central canal from one end to the other, through which the coloring matter flows. It is made up of a great number of fibres running longitudinally, and held together by a cortex or bark. The fibres are so disposed around an open central canal, that two sides, the opposites of each other have more of them than the intervening sides, giving to the hair the shape of a flattened tube. The cortex or bark is not continuous, but made up of scales, the end of each scale projecting a little beyond that above it; and the termini of these scales are not pointed but round; and they lie closely to the body of the hair, so as to produce little roughness, and to offer no obstruction when one hair is drawn or shoved over another. That is, there are no sharp, beard-like points to catch and hold fast to another object. This, we shall see by-and-by, is the reason why hair, however fine, will not mat—can not be wrought into fulled cloth. If you press it together it will not stay pressed; there is nothing to hold it.

On the wool-bearing sheep, we find also a plant-like appurtenance, having its root in the skin, and so much like that of the hair-bearing sheep that the unaided eye can not detect a specific difference. On applying a microscope of high power, it is found to be about twice as much flattened, to have no central canal, to be made up like the other of a great number of fibres, so arranged as to produce the flattened form of an Italic *o*, a little longer and narrower than the printer would make it, and to be covered with cortical scales. These scales are entirely unlike those of hair. Each scale is pointed instead of being round at the end; and instead of lying flat on the body of the hair, the point turns outward, so that every portion of fibre of wool is thoroughly bearded. If one portion of it comes in contact with another, a separation can not easily be effected. The peculiar shape and position of these cortical scales afford the reason why wool can be matted, or worked into fulled cloth, while hair can not.

We have before stated that the pure blood wool-bearing sheep produce wool; the pure blood hair-bearing sheep, hair; the mixed races, both hair and wool. It should be understood that the wool in these last may be as perfect as that on the wool-bearing sheep; and the hair as perfect as that on the hair-bearing. Yet the wool will not work into fulled cloth advantageously, because there is hair among it; nor the hair into unshrinkable flannel, because there is wool mingled with it. Were it possible to separate them, one would make good fulled cloth and the other good flannel; but as it is not, they are suitable for neither—will make neither of good quality.

To illustrate this matter further: suppose you buy a piece of flannel; you wash it—it does not shrink; you wear and wash it alternately till it becomes thin; still it does not shrink; the garment keeps its shape, does not curl or become rough, is as pleasant to the last as when first made—if anything, a little more so; has a soft, silky feel; and when it is worn out, you would give almost any thing if you could buy another such piece. That flannel was made of hair.

You buy another piece. It does not shrink very much, but it shrinks unevenly. Some portions shrink more than others. It becomes uneven. Spread it on a table, and it will touch the surface of the table only in here and there a place, while other parts will rise from a quarter to half an inch above the surface. It is doubtful whether all the skill of the cloth-dresser could bring it into shape again. This was made of hair and wool; and hence its unequal shrinkage and its roughness.

Again, you buy another piece of flannel; it shrinks evenly, keeps its smoothness, but soon becomes too small and entirely too thick—so compact and solid as to stop a healthy perspiration and become unfit for use. This was made of wool. The laundress need not be scolded for its shrinking. Its nature is to shrink.

You put on a beautiful coat, and get caught in a sudden shower. After your coat is dry, it is glossy and smooth as ever. This was made of wool. Again, you go fishing, slip from a log and wet the legs of your pants. When dry they present a curled, puckered surface. They were made of hair and wool. The wool shrunk a trifle by wetting—the hair did not; and hence their unevenness. You never can make them look well again.

Wool cloth shrinks evenly; cloth made of hair and wool, unevenly; that of hair, not at all.

The conclusion from all this is, that the two species of sheep should not have been crossed with each other. We may breed together varieties, within the same specific limits, and good results follow; but when we breed over the line separating species, the effect, so far as the propagation of valuable qualities is looked for, is bad, and only bad. From the double parentage of the mule, you may get an obstinate worker; and so far your object will be attained; but an attempt to carry the stock a few generations further would of course fail. We think it may be laid down as an infallible rule that, except for a mere temporary object, breeding should be rigidly confined to the same species.

From an immense number of facts, collected and compared with great labor, Dr. Brown, if we understand him rightly, has established the following conclusions:

1. The hair-bearing, or as we might now call them, the flannel-producing sheep, flourish best in island or coast localities; not but that they will do passibly well every where; but he is satisfied that within the influence of sea-breezes is their most appropriate home. Our Atlantic coast, and so inward to the head of tide water, from

New-Brunswick to Mexico,—a region now occupied by more than twelve millions of people—he supposes is at least as favorable to the growth of this kind of sheep as any in the world.

2. Inland, hilly or rolling country, with a tolerably dry atmosphere, he supposes the most favorable to the wool-bearing, or as we may now denominate them, the fulled cloth producing sheep. He lays it down that with the exception of the Atlantic strip above named, and some other oceanic regions, our country is the best in the world for the production of fine wool and faultless fabrics.

3. Our first care should be to separate the wool-bearing from the hair-bearing sheep; to breed one or the other, not both, on the same farm, and if possible in the same region. Dr. Brown supposes that a vast proportion of the existing sheep are mongrels or hybrids, producing a mixture of wool and hair; and that the breeder should look first of all at this point, and procure those to breed from that are of absolutely pure blood. The following paragraphs are from a published ecture of Dr. Brown on the policy of sheep culture for our country:

We have in the United States 180,528,000 acres of unimproved lands. Americans! Patriots! would you serve your country?—*Fill them with sheep!* Every valley in this State (Pennsylvania) should be dotted with these valuable animals—every hill and mountain should be crowned with a flock, Places hitherto desolate should reverberate with the cheering sound of their bleating. The silver tinkling of the wether's bell should be echoed and reëchoed throughout the entire length and breadth of the land. Sheep are the natural riches of man.

Every country, in every age, has so esteemed them; historians have deemed them worthy of their pens; poets have immortalized those who carried off the golden fleece; no landscape painter ever considered his picture complete until he had introduced a flock of snow-white sheep.

Sheep-breeding *commenced in Paradise*, and it has engaged the attention of patriarchs, kings, princes and patriots in all succeeding time. The flocks of Abraham and Lot were so large that the land would not support them united.

In Spain, (the fatherland of the merinos) besides their sedentary flocks, thousands of the transhumantes or migrating breed are driven some hundreds of miles, twice a year, in search of pasture.

In this *immense empire*, we enumerate a paltry fourteen millions of these invaluable animals!

The enlightened and industrious sovereign people of this great and still growing country should awake to the importance of sheep-breeding and wool-growing; and the earnest endeavor of all agricultural societies should be to encourage the selection of pure breeds!

FERTILIZERS—CHOICE OF—PRESERVATION.

We have seldom found the necessity of manures, and the choice to be made from among them, expressed so much to our minds as in the following, from the pen of Prof. Campbell of N. C., in the *Soil of the South.* Prof. Campbell says:

"Soils that have been long under cultivation, must necessarily become deficient in many of the elements of fertility, unless the exhausted supply be restored from time to time by proper applications. Without this restoration, farming would soon become a profitless business. Labor can not bring from a soil what is not there. When you wish your horse to do long and faithful service, you feed him well; if you do not, his strength soon fails, and whip and spur are insufficient to revive his drooping energies. So, plough and hoe are equally inefficient in reviving the energies of a *starving field.* Economy in sustaining or restoring the strength of soils, is no less important than economy in feeding horses and cattle. But as an abundance of such nutritious food as may arise from the products of home culture is most economical in feeding stock, so the free application of home made manure, *well collected and well kept*, is the most economical of all fertilizers. The farmer who goes abroad to buy guano, while he leaves at home masses of manure, from which wind and rain are rapidly carrying off some of the very same elements that give to guano its value, is not acting more wisely than he who leaves his hay to be drenched with rain and bleached by the sun, while he goes out to buy oats or barley to take the place of hay in his next winter's feeding. Let what you have be made as available as possible; then, if more is needed, it will be time to begin to look abroad for it. After all proper means have been resorted to for collecting and preserving your barn-yard, stable and hog-pen manure, ashes, soapsuds, etc., you can better afford an occasional ton of guano for the sake of an extra crop of wheat, and a succeeding 'fair set' of clover."

Reader, the above is worth reading *once*, if you agree with it, for it will confirm you in the right, but *more than once*, if you do not agree with it, for in that case it may set you right. It most assuredly will, if you weigh it thoroughly. You may better purchase guano, superphosphate, poudrette, anything that will answer the purpose, than cultivate land destitute of the ingredients for a crop. But what most pleases us in the above is, that "You can better afford an occasional ton of guano" after prudently preserving and applying the home manures. On the preservation and application of these, your success greatly depends.

In speaking of the importance of preventing loss in manures, during the interval elapsing before they can be applied, Prof. Campbell states the following experiment:

"A barrel was filled with fresh scrapings from the stalls of horses. Over the manure, as thrown in, a little ground plaster was sprinkled from time to time. After the barrel had been compactly filled, it was allowed to stand some weeks, until it had gone through the heating process found always to take place when newly collected manure is thrown into heaps. But during this heating or *fermentation*, (as it may with propriety be called,) there was none of that 'vapor' of strong odor which ordinarily arises from fermenting manure heaps. When the mass had become cool, clean rain water was passed through it and collected at the bottom of the barrel. This water was found to contain one of the elements of plaster, and one of the volatile substances (carbonate of ammonia) above alluded to. On emptying the barrel, a white powder, looking very much like plaster, was found mingled with its contents. But when tested, this powder was found to contain only one of the elements of plaster; while it contained also one element of the violatile carbonate of ammonia just mentioned."

This experiment, without some explanation, might seem of little value to practical men. Prof. Campbell explains as follows:

"In order that those who are not familiar with the principles of chemistry may understand the foregoing experiment and fully appreciate its results, a little explanation is necessary.

"The volatile matter which escapes so rapidly from heaps of manure, and the presence of which is perceived by its odor about stables where horses are fed, is called by chemical writers 'carbonate of ammonia,' consisting of carbonic acid and ammonia, combined.

"Plaster (gypsum) is, according to chemical nomenclature, a sulphate of lime; *i. e.*, sulphuric acid and lime combined. Liebig says, 'carbonate of ammonia and sulphate of lime (gypsum) can not be brought together at common temperatures without mutual decomposition. The ammonia enters into combination with the sulphuric acid and the carbonic acid with the lime, forming compounds which are not volatile; and, consequently, destitute of all smell.' Thus, we get two new compounds; namely, carbonate of lime in very fine powder, and sulphate of ammonia, which is not volatile, and of course not liable to be lost in the same way as the carbonate of ammonia. This sulphate, however, is readily dissolved in water. Hence, in the experiment above detailed, it was carried out in solution by the water and manure."

An important inference from the above experiment, as made and as explained by Prof. Campbell is, that the manures accumulating about the barn, during the summer, should be preserved in a similar manner. Let them be thrown together, under a shed if that is convenient, or in a pile outside if not; if the latter, the pile should be so high that rains may be retained in it and evaporated instead of running through, and let ground plaster be mixed, say half a peck to each load of the manure. We would say a bushel to a load, were we looking only at the preservation of the manure; but we have to look beyond that—to the application. If twenty loads were applied to the acre, it would imply as many bushels of plaster, which would be entirely too much. We would therefore mix but four quarts of plaster to the load, as this would give a fair allowance for the land on which this manure might be placed, implying as much sulphuric acid as would be likely to benefit the land. And then we would mix with the manure other substances—swamp muck, if it could be had, or, if not, leaf mold, scrapings from hedges, or loam, if nothing better were at hand; this to act as a retainer of the virtues of the manure.

So little plaster as we have recommended might not be sufficient alone to retain the ammonia, and hence the advantage of something more; and we venture to say that by adding well-cured swamp muck, the quantity of manure may be doubled, without deteriorating but very little, if at all, the quality. Water should be applied if the mass is likely to become entirely dry. *Moist always, but never leached*, is the rule for home manures. Can we make the reason of this plain to the non-chemical reader? we will try:—water is itself a pretty good retainer of ammonia. If the surface of a manure-heap could be always kept moist by the constant sprinkling of a little water—enough to penetrate eight or ten inches, but not enough to leach the manure —it is doubtful whether any other retainer would be needed. The water would keep the ammonia in the heap about as safely as a high fence wi'l keep cattle in a yard, even if no other retainer were employed; whereas, if the heap is suffered to become entirely dry, it is doubtful whether anything would keep the ammonia from escaping. Perfectly dry plaster, in manure that is entirely dry, has very little effect. Moisture is necessary to the result explained by Prof. Campbell, that of changing carbonate of ammonia into sulphate, as all chemists agree that plaster has this power in but a very limited degree till partially dissolved in water. If we have made ourselves understood, it will be seen why all manure-heaps containing ammonia should be kept in a moist state.

In case of dairies, where a large number of cows are yarded nights, it would be too much labor to preserve the manure, as we have recommended; and our recommendation would be defective, because it makes no provision for the liquid excrements, which are really of more value than the solid. The way to make the manure of the greatest possible value is, to carry into the yard, after it is cleared in the spring, large quantities of absorbent matter as swamp muck, leaf mold, turf, or rich loam, to cover the whole surface with this, and then to add more every few days, till the mass becomes so thick that a smart rain will no more than saturate it, and a long drouth will not entirely dry it. In this way, if the yard is a little higher at the circumference than in the center, the soluble salts will not be washed away, and the ammonia will be preserved. Considerable labor is implied, but then the manure from twenty-five cows will be worth a hundred dollars, when if left to itself to become alternately as dry as tinder and sufficiently liquid to run into the nearest brook, it would hardly be worth twenty. If the difference would pay for the labor and something more, it should be done. The whole yard by such a course becomes a manure heap; but owing to the great thickness of the mass, it does not become soft by rains to the extent of being impassible or as nearly so, as when the yard is left to itself; and in dry weather the mass is not often so dried through as to allow the ammonia to escape. We will only add that we have often seen this in practice, and have seen the good results both in the greatly increasing quantity of the manure, and in favorable effects on crops. N.

FERTILIZERS—EQUIVALENT VALUES.

In the last agricultural work of the late Prof. Johnston, a work of very great value, we find the following comparative estimate of the relative values of different animal manures, based mainly on the amount of nitrogen contained in each.

In reference to the relative quantity of nitrogen as the ammonia-making element, he has arranged them in the following order—the number opposite to each representing the weight in pounds, which is equal to, or would produce the same sensible effect upon the soil, as 100 lbs. of farm-yard manure.

Farm-yard manure, 100; solid excrements of the cow, 125; of the horse, 73; liquid excrements of the cow, 91; of the horse, 16; mixed excrements of the cow, 98; of the horse, 54; of the sheep, 36; of the pig, 64; dry flesh, 3; pigeons' dung, 5; Flemish liquid manure, 200; liquid blood, 15; dry blood, 4; feathers, 3; cow hair, 3; horn shavings, 3; dry woolen rags, 2 1-2.

Now we do not believe that 2 1-2 lbs. of dry woolen rags, or 3 lbs. of horn shavings, or three of feathers, is, or ever can be, *known* to be worth precisely as much as 100 lbs. of farm-yard manure. Prof. Johnston did not believe that. No man, combining as much science and common sense as he has shown, could ever believe that precise truth has been or can be reached on these points. But the above is, after all, as near an approximation probably to the relative values of animal manures as can yet be made. It is valuable, as showing the great worth of certain substances which have heretofore been neglected. It is valuable also as giving the farmer a clue to the question, What he can afford to give for the refuse of manufacturing establishments and slaughter-houses in his neighborhood.

Now we would not advise the farmer to pay the worth of 100 lbs. of farm-yard manure for 2 1-2 lbs. of woolen rags, because we do not believe that there would be a wide enough margin for profit, and it is quite time that he, as well as all others, should be looking out for a profit on his business; but certainly the above estimates show the farmer that if there is a woolen mill in his neighborhood, he should look to it that the wastes do not go down the river. We have seen results from their use on grass crops, which would approximate the value ascribed to them by Prof. Johnston; and so of many other substances to which he attaches a high—perhaps rather too high—value; and we fully believe that great loss is sustained by farmers not appreciating their full value.

We can not close these remarks without giving our readers a paragraph or two from Prof. Johnston's pen, which strike us as eminently discriminating and important. His views about mixing animal manures as much as is convenient, and then of employing a rotation of manures, where the mixing of them is inconvenient, are certainly true. If our barns were so constructed that every thing that goes from them, whether the stated accumulations of the place, or substances brought there for the purposes of preserving and increasing the fertilizers, were perfectly mixed together in one mass, not violently fermented, but commencing a moderate fermentation at the time of their application and for a few weeks before, we think that this would come about as near the idea of feeding the soil with all the elements required by crops as we shall be likely to get very soon.

Perhaps we talk too much about this matter of fertilizers. Manure, some one may say, is not a very sublime subject. Well, we know that. But it is the essence of good husbandry; and good husbandry is at the foundation of a vast amount of human weal; and so we are prone to talk about it in every number, without much inquiry whether the fastidious will be pleased or not. What could not a farmer do with his crops, and how would his fields teem with rich products, filling his purse, enabling him to indulge himself with a new suit and his wife with a new dress as often as real, sober, good sense would desire, to ride in a comfortable carriage after a decent span, to educate his children as well as the best, if—if what?—why if—and here we come back to the old subject, low, vulgar, common-place, always on hand—if he had manure enough, yes, if he had a capacious barn-cellar, or if the ground would not admit of that, a capacious stercory near his barn, well filled with the accumulations of a year, from the stalls, styes, vaults, swamp, hedge, grove, factory, bone-mill, slaughter-house, every place that can add to the growth of crops, all mixed in one homogeneous mass, and fermented sufficiently to have sprouted any seeds it might contain, but not enough to have lost its ammonia.

Let us see what such a depot on a well tilled farm of one hundred acres might contain. We will set it down in tons. Say solid excrements of animals of all sorts, 100; liquid do., 60; swamp mud, 300; half-decayed leaves and hedge-scrapings, 40; woolen flocks from neighbor Smith's mill, 1; ground plaster, 1; ground bones, 1; sundry items, which we can not name, because we do not know the locality where such a practice is to be adopted, 298; making in all 800 tons. But all this, if it had been kept under cover, and watered only enough to prevent anything like a violent fermentation, would have diminished in weight, without losing a particle of its value. By escape of watery vapor, the liquid excrements for instance, would have become nothing more or less than a ton or two of concentrated guano, diffused through the mass, and ready to act promptly on the crops. The whole might weigh, if it were managed with skill, 600 tons, and a good farmer of 100 acres ought to have that amount every spring, provided his locality is such that he can gather the materials without too great expense. It will imply labor at best; but then, where materials are at hand for augmenting manure, it is the best paid labor on the farm. The farmer who will make 600 loads of good manure, and not expend more than fifty dollars in extra labor and in the purchase of materials, can afford to buy more, in the shape of portable manures, and so can make his farm just about as productive as he pleases. There is a mighty difference whether you apply 600 loads of good, half-fermented, dryish manure, with not a hay or weed-seed in it, or 200 loads of poor, wet, sloshy stuff, full of all manner of seeds. How we wish there could be as much wisdom and skill on the farm as there is in the shop and the counting-room; and there will be ere long; in this respect there is a good time coming; we are only a little impatient that it comes no faster. But we are keeping the reader too long from the very valuable extract we have promised. With reference to the estimate, copied near the beginning of this article, Prof. Johnston says:

It is probable that the numbers in this table do not err very widely from the true relative values of these different manures, in so far as the *organic* matter they severally contain is concerned. The reader will bear in mind, however—

1. That the most powerful substances in this table, woolen rags for example—2½lbs. of which are equal in virtue to 100lbs. of farmyard manure—may yet show less *immediate* and sensible effect upon the crop than an equal weight of sheep's dung, or even urine. Such dry substances, as I have said, are long in dissolving and decomposing, and continue to evolve fertilizing matter, after the softer and more fluid manures have spent their force. Thus, while farmyard manure or rape-dust will immediately hasten the growth of turnips, woolen rags will come into operation at a later period, and will prolong their growth into the autumn.

2. That besides their general relative value, as represented in the above table, each of these substances has a further special value not

here exhibited, dependent upon the kind and quantity of the saline and other inorganic matters which they severally contain. Thus three of dry flesh are equal to five of pigeon's dung, in so far as the *organic* part is concerned; but the latter contains also a considerable quantity of bone and earth and of saline matter which is present only in minute quantity in the former. Hence, pigeons' dung will benefit vegetation in circumstances where dry flesh would in some degree fail. So the liquid excretions contain much important saline matter not present in the solid excretions—not present either in such substances as horn, wool, and hair—and, therefore, each must be capable of exercising an influence upon vegetation peculiar to itself.

Hence the practical farmer sees the reason why no one *simple* manure, such as hair or flesh, can long answer on the same land; and why, in all ages and countries, the habit of employing *mixed* manures and artificial composts has been universally diffused. When mixed manures are not employed, the kind of manure which has been used must, after a time, be changed. A species of *rotation* of manures must, in fact, be introduced, in order that a second or third species of manure may give to the land those substances with which the first was unable to supply it.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

IMPROVEMENTS AND EXPERIMENTS, INTENDED AND SUGGESTED.

Messrs. Editors:—Of all the agricultural societies with which we have ever been connected, we have found a small one composed of a *few* near neighbors, to contribute far more than any others, State and county societies included, to increase our stock of really serviceable knowledge, to stir our mind to activity, to cultivate habits of attentive reading, observation and research, and to augment our interest in agricultural subjects generally; and we feel moved by this experience, and by the hope that others may be induced to try a similar plan with equally gratifying and beneficial results, to communicate to you, and to the public through you, some items of information concerning our Mutual Improvement Club. It consists then, let us say, of a very small and select number of neighbors, all of whom are employed more or less in cultivating the soil, though two of them, one of the clerical and the other of the medical profession, would not be called farmers in the strictest acceptation of the term. We meet at each others' houses about once a month, making our time of meeting always so as to secure the benefit of moonlight on our way homeward. Our time, when assembled, is employed partly in viewing the state of the farm, garden or orchard, and the operations of the season, and partly in discussing some questions of especial interest agreed upon at the meeting immediately previous. That portion of our proceedings, however, which seems to be most generally interesting, instructive and profitable, consists in the rendering of a brief account, by each member, of such improvements as may have been suggested by recent readings, conversations, observations, etc., and which are intended to be adopted by the member who presents them or thought by him to be deserving of the adoption of the club or of farmers generally. Along with an account of intended improvements and such as seem likely to benefit the members or the public, we have occasionally accounts of experiments which have been tried, or of such as seem worth trying. By these brief accounts of improvements intended to be adopted, or seemingly well deserving of adoption, the members obtain the benefit of having laid before them, in the shortest and smallest compass, *the very cream* of all that each may have recently read, thought, planned, or observed, or in other words, the sum and substance of all that may have occupied the attention of each mind so far as practical utility and immediate serviceableness are concerned. We have the benefit, in this way, of a short and synoptical survey of the reading, thinking, planning and talking, performed by each individual member during the previous month. A great economy of time and mental labor is thus secured, as each member obtains the very best results of all the reading, and conversation, and research, and experience of the other members.

Some idea may be formed, we trust, from this outline sketch, of the interesting, instructive, and profitable character and tendency of our proceeding at the meeting of our Mutual Improvement Club. We hope the idea thus formed will be one of life and power sufficient to lead many other neighborhoods to institute similar organizations, and to maintain them in operation notwithstanding the discouragements which may arise in the incipient stages of a new enterprise. Good management and time will remove out of the way all ordinary difficulties and discouragements; and when the machinery, at length gets into good working order, results will be obtained which will amply compensate all the perseverance and ingenuity which may have been exercised. Let the number of members at first be small, and let those who engage in the enterprise be but a select few, embracing only such as are possessed of more than usual intelligence, energy, and information as agriculturists, and let them be, above all, ardent and enthusiastic lovers of improvement and progress in the science and art of cultivating the soil. Let there be no drones, nor mere followers in the footsteps of their fathers and grandfathers, for such will only clog and obstruct the wheels of the machinery of the club. Half a dozen men of the right stamp, of congenial minds and tastes, and living conveniently contiguous, will make a more efficient and prosperous organization than any larger number without zeal and intelligence. In every school district there might be found, it is to be hoped, half a dozen wide-awake farmers, who might contribute to each other's progress and advancement by organizing themselves into a club for mutual improvement.

To this statement of the aims and workings of a club which we have found to be both pleasant and profitable, and to the exhortation to form others of a like nature, we would now, with your leave, *Messrs. Editors*, append a few items from a report, made to the club at its last meeting, as to certain improvements which the member presenting it intends to make on his own lands, or thought deserving of the attention and adoption of the other members. He stated that while reading one of the early numbers of the current volume of the PLOUGH, LOOM AND ANVIL, he had come to the conclusion that one of the most useful improvements he could make upon his farm would be the planting of a belt of trees on the north and west sides of his orchard to protect the trees from the piercing winds of winter. He said that if he had had a protection of this kind during the last two winters, he would probably have escaped the loss of a good many peach trees and of one fine apple tree of the variety called the Baldwin. He admitted that the cold alone might have been severe enough, even with a still atmosphere, to have killed the trees referred to; but still he was quite certain that the winds accompanying the cold made it more penetrating, and reduced the temperature lower, as shown by the thermometer, than it was in sheltered positions. He said that he intended to plough up a strip two rods wide this spring, and proceed at once to plant elms and maples on the outer side, locusts and chestnuts farther in, leaving space on the inside row for some trees or shrubs of lower growth, perhaps the evergreen, recommeded in the P. L. & A., namely, Norway spruce. To be in possession of plants to be set out next spring he said, he intended to obtain seeds of locust, osage orange, and other fast growing trees, and to grow them in beds in the garden this year. Guided by the advice in the article referred to, he intended to cultivate the yellow locust most largely for his screen or belt, as it grows rapidly, and in the course of ten or fifteen years, will furnish excellent and durable posts for fencing. He seemed thorougly persuaded that cold winds injure the healthy growth and productiveness of an orchard, even when they did not kill a single limb or bud; and that a screen such as he proposed, might be made ornamental as well as useful on his premises.

The same member reported that it was his intention to try an experiment suggested by a passage in the October number of the P. L. & A., in the words following :—"A farmer at no great distance from where we write, is trying an experiment. It has now been in progress some half a dozen years, and its object is to show whether or not three acres of medium land can be so cultivated, that after paying for all the labor and all the fertilizers, and for taxes and the interest on the original value of the land, they will give a net profit equal to that of the average of farms of a hundred acres each, in the same country." The object of our club associate is a little different. He proposes to devote a small plat of well-drained, well-manured, and well tilled land to raising a portion of every crop grown on the farm, with the object of determining whether high farming or ordinary farming is the most profitable on the whole. MORE ANON.

Remarks. Such a club should be formed in every school district. We like the plan from beginning to end. The idea of each member communicating what he has learned within the month is capital.

It is a pity that the enterprising member who is going to shut out the prairie blasts from his orchard, and thousands of other Western farmers, had not done it sooner. But better late than never. Though perhaps we should not call this late, when we consider what settlers in a new country have to contend with. In a flying trip through the West last autumn, we thought that many of the farmers, who have commenced within the last twenty years, were too late in the matter of screening themselves from sun and wind, and of procuring abundance of fuel and timber; but then we saw such evidence of spirit and improvement, as led to the expectation that they *will not* long be behind the times in that or anything else, especially as they are ordering our journal numerously.

A word of explanation with regard to the three acre experiment referred to. It should be understood that that experiment is going on in a rough, broken region, where a hundred acre farm, not improved at great expense, produces but little. We did not suppose that three acres of unbroken land—land that is land, one might say—could be made to give as much net profit by a higher cultivation as a hundred adjoining acres by an ordinary cultivation, though such will assuredly be the result on the three acres alluded to, inasmuch as there a three acre lot is returning from five to ten hundred dollars a year, at great cost it is admitted, but still with a good margin for profit above all cost, while hundred acre farms in that region, cultivated in but the ordinary manner, are giving but precious little profit, much less, we suppose, than only tolerably well cultivated farms in the region of our correspondent; and we are glad that his friend is going to vary his experiment, and make it a simple trial between high and low cultivation. On this subject see short article on "cultivation," in this number. N.

HIGH AND LOW CULTIVATION.

A FARM may be cultivated with a great deal of patient toil, but with so little good calculation, forethought, economy and thrift, as only to pay for the labor, and leave no margin for profit. "That's so."

Does it follow that there is no profit in farming, that with wiser management it only pays for the labor, that it is necessarily a merely paying but not a profitable business, barely rewarding the toil, as a man is paid who works for another, but nothing more? "That's not so."

Setting aside all considerations of general management, and looking at the one thing of *high or low cultivation*, we are quite sure that many failures of a reasonable profit may be accounted for on this ground alone. The farmers who expend too much to enrich their fields, who work them better than they can afford, and so at the end of the year get but bare pay for their labor, and are left to feel that they might as well have worked out by the day, we imagine, are, like angels' visits, few and far between. Those, on the other hand, who fail of a profit from too low a cultivation, not expending enough to enrich the soil, not working it as much as it would pay for working, are as many, to speak vulgarly, as you could shake a stick at; and they ought to have a stick shaken at them, only it is nobody's special business, certainly not ours, to shake it.

It is possible that some farmer is expending in fertilizers and labor, $1500 a year, and getting back only $1500 and enough to pay the interest on the value of the farm and the taxes; when, if he would expend but $1000 in labor and fertilizers, he might take off $1250, plus the interest and taxes, and so make a clean profit of $250. It is possible others are still more extravagant, giving an outlay of three, five and seven thousand a year, when they ought to stop with two, four and six thousand, and so are failing of their profits simply from a too intense cultivation. We imagine, however, they are far from us, and would hardly hear our warnings if we should utter any against high farming.

But too low farming is nearer home—is all around us. Let us see; —there is a farm of 100 acres; it gives $750 worth of produce on the average of years, a little more when seasons are favorable and prices high, and a little less when the reverse takes place. Well, the worth of the owner's labor, that of his wife and children, together with interest on value of farm, taxes, insurance on buildings, etc., is $750 a year, a little less than the income some years and a little more others, in the long run just about equal. Such is the history and the present state of a prodigously large part of American farming. There is no profit; it costs just what it brings, and the occupants of the farm live by their labor and nothing else. There is a dignity and independence in being on one's own land, which we would not diminish in the public mind. Otherwise, this barely labor-paying business is no better than to work out by the month.

Now if the cost of raising the productiveness of the farm would equal the increased income, then nothing would be gained. But it would not. On half a million farms in our country the productiveness may be increased fifty per cent. by increasing the cost of cultivation less than twenty-five per cent. That there is a point in high cultivation, below which every dollar added to the cost would increase the productiveness more, and above which every dollar added to the cost would fail to be fully returned, no one can doubt. That is, there is a point of maximum profit; and whereabouts that point is, the farmer should inquire; for if he falls below that point or if he goes above it, his profits diminish; and if he departs widely from it, either above or below, his profits cease altogether, leaving him barely pay for his labor; or, if he departs too widely, the land runs in his debt, actually failing to pay fully for the labor.

We have before intimated that there is more danger of falling below the point of maximum profit than of going above it. It should be considered that some items in the expense of cultivation do not increase as you cultivate highly. Suppose you have an acre of good land, but rather hardly cropped, which you value at $100. The first cost of cultivation is the interest on its value. But that is the same, whether you take from it eighty bushels of the best corn or fifteen of the poorest. The next item, if your land is in some town and the authorities have found it, is the taxes. But these will be about the same, whether you take off thirty bushels of wheat or leave on a skimming of sorrel. Another item is the fencing. But it costs as much to fence round a light crop as a heavy one. Here then are three items of expense which are not increased by high cultivation. Only two items—the fertilizers and labor, are increased. One of these will be increased but in a slight degree. It requires considerable labor to cultivate an acre just as it should not be; and it requires not much more to cultivate just as it should be. Look at this;—if your acre is now in turf, and you wish to grow one crop of corn, one of potatoes, one of oats and two of grass the next five years, how much more will it cost you to work it seven inches deep and keep it clean, than to work it four inches and have it weedy? Not much. The difference will hardly be worth taking into the account. Almost the only item of cost of good cultivation over bad is the manure.

This, if you go in for high cultivation, will be a heavy expense. It will increase the outgoes of farming, but, up to a certain point, it will increase the income more; and to withhold the money for this seems to us just about as wise as for one who has bought a coat to make himself look decently in, to refuse to pay for the buttons, and so fail to look respectably when he puts it on.

If you put a hundred dollars' worth of manure on that acre, it will be bad policy. If you apply none, it will be bad. Somewhere between, is the true point: and in your endeavors to find that point, remember that your other expenses with that acre are about the same, whether you withhold the manure and get a very small crop, or douse it in and get a large one. Make the manure at home, as we have otherwhere advised, if possible; for on most farms, the value of the year's manure may be increased a hundred dollars by every fifty dollars' worth of labor wisely directed to that end; but if you can not make it, buy it, and don't be always growing small crops for the want of manure when every other expense is just about the same for small crops as for large ones.

MAPLE SUGAR.

The aggregate product of Maple Sugar in the United States in 1850, as returned by the census of that year, was 34,253,436 pounds, whereof the several States producing any considerable amount made severally as follows:

New-York	10,357,484 lbs.	Vermont	6,349,357 lbs.
Ohio	4,588,209 lbs.	Indiana	2,921,192 lbs.
Michigan	2,439,794 lbs.	Pennsylvania	2,326,523 lbs.
New-Hampshire	1,298,863 lbs.	Virginia	1,227,665 lbs.
Massachusetts	795,525 lbs.	Kentucky	437,405 lbs.
Illinois	248,904 lbs.	Missouri	178,910 lbs.
Maine	95,452 lbs.	Tennessee	158,557 lbs.

Considering the extension of our settlements toward the North and West, the present high prices of sugar, the general attention this year to sugar-making, and the long season in which the flow of sap, though fitful, has been continued, we estimate the maple sugar made this year at fully double that of 1850, or not less than seventy millions of pounds, worth at least ten cents per pound, or an aggregate of seven millions of dollars. In fact, we do not believe a supply of sugar equal in quantity and value to this could have been imported and distributed to the inland farmers, who will mainly consume this home-made staple, for less than ten millions of dollars.

How much has it really cost the country to make this maple sugar? —that is to say: Suppose we had not made it, how much other wealth would have been created in its stead? Bear in mind that it has mainly been made at a season when our farmers are least actively and least profitably employed, and that all the work of preparation for sugar making pertains to the very heart of winter. Our estimate is that, had no maple sugar at all been made in the United States this year, the production of other wealth from labor directed to sugar making would not have amounted to three millions of dollars.

There is a mine of economic suggestion in these facts, which we prefer that the reader should develop for himself.—*N. Y. Tribune.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

LARGE CROPS.

By David Rice, M. D.

Almost every ambitious and enterprising farmer feels a kind of honest pride in raising upon his premises what he styles "an extraordinary crop," or "a very large crop." This practice should be encouraged. Bring out the large crops, ye men of the soil! It shall be one of the crowning glories of your noble vocation. Literary men exult in having originated a "great thought;" this is well, but we must have food for the *body* as well as for the *mind.* "The house we live in must be cared for, as well as its immortal tenant. So give us the large crop farmers.

I do not encourage you to try to raise large crops, regardless of expense—extravagance in labor, lands, manures, etc.; no, but with an eye on the true principles of economy in regard to all these; study to produce with the least possible expense the best, the most excellent crop. Our New-England lands are capable of doing greater things than they have credit for. The Great West, is just now attracting much attention, as the styled "Garden of the World;" but when my neighbors are raising ninety-five bushels of Indian corn, twenty-five of wheat and seventy-six of oats to the acre, my faith in the superiority of the "Western Garden" is somewhat shaken I must confess.

It may require more labor, and ingenuity in the application of agricultural skill, and in the invention and apportioning of manures, here in New-England, in order to raise as large crops as our Western neighbors; but the crops will pay, and more than doubly reward every economical outlay—thus compensating and *honoring* the producer.

Strive to raise large crops then, in the blessed and healthful East, where no miasmatic vapors chill the blood, and where "yellow melancholy" seldom lays her blighting hand upon the heart!

I am not desirous of underrating the value of the Western world, nor her character, nor her prolific soil, nor the healthfulness of her climate; but I want New-England and her agriculturists to stand in the *right place*, and to have their dues.

It is for this reason that I urge upon New-England agriculturists not to undervalue the worth nor the powers of New-England soil; but by skillful agriculture to enter into laudable competition with their Western brothers, in the production of large and valuable crops, that may fully compensate them for every outlay, and yield a satisfactory profit besides. What are some of the benefits that will arise by thus endeavoring to raise large crops?

In the first place, if successful, the farmer will be the possessor of the large crop itself—a motive in itself worthy of encouraging the effort.

Again, he will have the benefit of his experience, and experiments, in selecting and preparing land—in manuring and planting, also in seeding and harvesting. He will learn how to adapt the crop to the particular piece of land most fit for it—how to prepare, with the least expense, the most valuable and fertilizing manures. He will find that "*Home-made manures*" may be made more economical than imported manures. He will learn what kind of manure each crop requires, and when and how to apply. His inventive genius may bring to his aid new labor-saving machines. He will learn to do every thing in the right time and in the right way. Method will be one of his watch-words and Economy the other. Not entirely contented with his own experiments and experience, he will strive to learn from his neighbors, from agricultural periodicals and from books. In a word, the endeavor to raise large crops makes the farmer a student of nature, a philosopher and a chemist; a learner from the great book of Nature, and a shareholder in her bank stock—the surest and most reliable bank stock in the world!

Seed time has come; the season for ploughing, manuring and nurturing the young crop. Remember "where there is a will there is a way." "*Will it*," and the golden stores of Autumn shall crown your efforts with her abundance, and you shall go forth rejoicing, bearing your sheaves with you. You will have learned that yours has been the lot of illustrating, by actual and profitable experiment, the grand and beautiful principle of "making two spires of grass to grow where only one grew before.

Levrett, April 10th.

A CHANGE FOR THE BETTER.

There is a tract of the town of Wilbraham on which the farmers of the last generation could not obtain a living, though they seemed willing to live poorly. They did not even raise the rye which they ate. This they obtained by going to other parts of the town, reaping rye by the day, and taking their pay in the grain which they reaped. Now that tract is occupied by some of the wealthiest farmers in the town, and they have made their money from the soil which they occupy. That soil *now* grows *rye*—and it grows anything else that grows in the town. I need not tell you that the present occupants of that tract of country have been active members of your society from its commencement. I am informed that twenty-five years ago, two thirds of the farms of Ludlow did not pay the current expenses of their occupants, and their expenses then were not so great as the current expenses of the occupants now, but instead of the heavy mortgages that then existed, now there is money to let. What is the cause of the change? Cause, sirs, there is cause enough. Beside the temperance reformation, to which no doubt they owe something, a flood of light and knowledge has been poured in upon them from the agricultural press and from agricultural fairs. And if any are there who do not take the papers, and who do not attend the fairs, still, the light from their neighbors' farms has shone in upon them, and dispelled the darkness in which they would willingly grope.—*Prof. Marcy's Address before the Hampden Co. Ag. Society at Springfield, Mass.*

COMPOST FOR POTATOES.

The following from the *Country Gentleman* is confirmatory of views we have often expressed, and which we are desirous of urging at this season. On land naturally sweet, not over rich, and not treated to large quantities of stimulating manure, there is very little danger of the potato disease if this application is made. The precise proportions here indicated we do not suppose to be important. It is enough that a handful of compost, consisting mostly of ashes, with a less quantity of lime and plaster, be applied to the hill. The more it is mixed with the soil the better, as it sometimes prevents the seed from sprouting if concentrated immediately under it. The *Country Gentleman* says:

During the present winter, a friend of mine furnished me with a prescription to prevent the potato disease. He said that the gentleman who gave it to him had made a thorough trial of it, and had found it to be efficacious in every instance in which he had applied it. It is composed of ashes, plaster of paris and lime, mixed in the following proportions:

1 bushel ashes,
1-2 do. plaster of paris,
1-4 do. lime (slacked),

mixed thoroughly together before using, and applied to the crop by putting a handful of the mixture in each hill when the potato is planted. It will be seen at once that the ingredients of which this mixture is composed, are all valuable as manure, and they can all be obtained in almost every part of the country without much expense or trouble; and wherever applied it must be beneficial to the crop and soil as a manure, if it fails to prevent the potato from rotting. As the season for planting potatoes will soon arrive, I intend to make a thorough trial of this prescription, and I would also propose to the readers of the *Country Gentleman* in various parts of the country, to do the same, and after the crop is harvested to furnish the publishers of this paper with a statement of the results of their respective trials—also any other successful experiments in relation to the same subject which may seem to be reliable and likely to be beneficial in the cultivation of this crop.—C. T. ALVORD, Wilmington, Vt.

QUESTIONS AND ANSWERS.

"DOES the King Philip, or brown corn, maintain its high reputation, and where can the seed be procured?" We are not quite sure whether the King Philip corn is as good as was thought by many a year ago. In our opinion the large Canada corn (12 to 20 rowed) is so good for very northern latitudes, and the Dutton (8 rowed, large, long ears, early ripening) so good for latitudes a little farther South, as Massachusetts and New-York, that better kinds for these regions would be hard to find. It is well enough to try other varieties. The seed of the King Philip is for sale at R. L. Allen's, Water street, near Fulton, New-York, and we presume at most seed stores.

"I have a plot of ground 20 feet by 5, in which I wish to start an asparagus bed. Can you give me any hints?" Trench the ground two feet deep. Fill six inches with old boots and shoes, parings from the shoe shop, old woolen rags, bones broken into small pieces, hair, bristles, waste locks of wool, anything that will require a very long time to decay. On these put a sprinkling of well-rotted manure, then a sprinkling of top soil, and so alternately till you have filled another six inches. Fill the next six inches in much the same way, but let there be more of the manure than of the soil. It would be well to fill the next three inches wholly with black, well-decomposed manure; and the last three wholly with top soil. Be careful that there be no seeds in the manure or top soil. If you are short for such manure as we have described, a rich and pretty thoroughly decomposed leaf mold from the woods might be substituted for a part of the manure. An asparagus bed must be very rich, and there should be matters near the bottom that will last at least twenty years, such as leather clippings, woolen rags, bones, hairs, hoofs, etc. The whole of the first foot might be filled with these things if you have plenty of them. Let the surface be only on a level with the general surface, as you will raise it by the addition of manure each fall, only a part of which should be taken off the following spring. If you buy your plants, buy them of some honest seedsman who will furnish the variety you demand. But you may about as well get either the plants or the seeds of some neighbor who has better asparagus than you have seen elsewhere. If you plant instead of setting, the first year's growth will be but small; and it will not be best to cut for use the second year; but the third year you may have a fair crop; and then a larger one for twenty years in succession; only cover the bed with manure each fall, some 3 or 4 inches thick, and remove about half in the spring, and fork in the rest. It is well to put a peck of salt on such a bed in the spring, as it nearly or quite overcomes the weeds, and if it does not benefit the asparagus, it certainly does not injure it.

INDIAN CORN.

The following, from a report on corn culture, by J. M. Merrick, of the Berkshire (Mass.) Agricultural Society, suggests more truth on that important subject than we recollect to have seen condensed into so small a space:

"We are happy to observe that the spirit of improvement noticeable in other departments of agriculture has reached the cultivation of corn; that more inquiries are made as to the best methods of proceeding; that greater attention is paid to the selection of seed—a very important point, and one that hitherto has been much neglected; that the relative values of different varieties are carefully considered; that manure is more generally spread and ploughed in, while the quantity is increased and the quality improved; that high hilling is more discountenanced; that frequent stirring of the land by the cultivator and hoe is believed to be the surest preventive against the effects of long-continued drought; and that the old prejudice in favor of the widest distance between the rows is abating. The consequence is, that greater crops are raised from the same extent of land, and the question of profitableness is brought nearer to a definite solution. Some of the most rigidly conservative farmers admit that probably the highest results are not yet attained, and that the time may come when, with better knowledge applied to the culture of corn, eighty bushels may be grown upon the acre that now yields forty or fifty. It will then be found that no more profitable field crop is raised in New-England."

Taking the foregoing as our text, and begging that the reader will remember the text, even if he forgets the sermon, and assuring him that the text is good, however the sermon may be, we will comment briefly upon it.

1. "The spirit of improvement noticeable in other departments of agriculture has reached the cultivation of corn." It is strange but true, that this did not happen sooner. Indian corn has had more than three centuries to win the esteem of mankind; yet of all the nations whose climate favors its growth, not one yet fully realizes its value; and of all the nations that are unable fully to supply their own bread, or the materials to fatten their meats, not one yet imports as much Indian corn as would be for its interest. Every corn-growing country will yet produce more, and every non-corn-growing country will import more. See, you who live a few years, if it is not so.

2. "More inquiries are made as to the best methods of proceeding." Better late than never. Why did our fathers make themselves the extra labor of putting manure in the hills, instead of ploughing it in on warm lands, harrowing in on those not so warm, and distributing in the hill only on the cold and backward? Why did they, and why do too many of us, hill their corn half way up to the moon, for no good purpose? Why have we been cultivating good corn land at only a few dollars profit per acre? It has been for the want of more inquiries after the best methods. A little earnest inquiry, a few accurate observations, a careful mark of the measure of success under different methods, would long ago have diminished the labor and increased the produce.

Thousands of hard working men have expended more labor to grow a hundred bushels of corn on four acres than would have sufficed to grow it on two.

3. "Greater attention is paid to the selection of seed." For the extreme North, the yellow, Canada corn, is good. The kind we mean has from twelve to twenty rows on the ear; the ears are about eight inches long; under good cultivation, two mature on a stalk; the kernals are close and deep, leaving a very small cob; the shelled corn equals two bushels for three of ears; and the yield is from fifty to one hundred bushels of shelled corn per acre, if the cultivation is good.

For a tier of States a little removed from our Northern frontier, including Rhode Island, Massachusetts, Connecticut, Middle and Southern New-York, Southern Michigan, Northern Ohio, and so on towards the Pacific, we can conceive of nothing superior to the Dutton corn. Its ears are about a foot in length; its rows, eight; kernals large, with no space between; color, deep yellow, inclining to red; yield just about one bushel of shelled corn to two bushels of ears.

Still farther South, larger kinds will commend themselves. Whatever variety is preferred, much will be gained by selecting the most perfect and the earliest ripe ears for seed. Seed corn is often kept over winter in heated rooms; and it is certain that no great evil results from such a course; but we can hardly resist the belief that it will sprout a little more vigorously if kept in a dry, but cool place; for we presume that the less changes of temperature a seed undergoes, the greater its vitality. Wheat from an Egyptian sarcophagus will germinate after 3000 years; and we presume that a kernal of corn would, after 10,000 years, if it could be kept all that time dry and at a temperature of 33°; whereas, if the temperature and the degree of moisture were often changed, it might loose a considerable part of its vitality in less than one year; and as there is no difficulty in preserving seed corn dry and cool, we would so preserve it.

4. "Manure is more generally spread and ploughed in." On dry, warm land, this should always be done. On land of but medium warmth and forwardness, it may be better to plough in a large part of the manure, and to put the remainder in the hill, especially in Northern districts, where a too short summer and an early frost is feared. On very cold lands it may be well to deposit the whole in the hill, for the sake of procuring an early start, though we doubt it. Corn, if the ground be properly mellowed, is willing to reach far for its pabulum. The manure benefits the corn most when most evenly incorporated with the whole soil, except in so far as its object is to procure an early germination. This, it is true, is important, since the nature of the corn plant is to grow rapidly from the first, or to receive a stint, from which it does not easily recover. Much judgment on the part of the husbandman is requisite, in order to administer best to its early thrift, and at the same time to provide for its continued growth and rich maturity.

5. "While the quantity is increased and the quality improved." That is quite possible. Ten loads of barn manure, composted with ten loads of well-cured swamp muck, with some ashes, shell lime, and a little plaster, will give as good a crop of corn as twenty loads of barn manure, and leave the ground just about as well prepared for a future crop. There is probably more gained by

composting manure for Indian corn than for any other crop; and one reason of this, we apprehend, is that when composted, it mingles more perfectly with the soil, not being buried in lumps, but permeating the whole mass, and thus diffusing pabulum for the roots in every part.

6. "High hilling is more discountenanced." If the soil is properly loosened to a depth of six or eight inches, no hilling is necessary. Perfectly flat cultivation is better for the crop. If the corn is to be followed by clover, it is desirable for the sake of a smooth surface. On heavy, clay lands, high hilling may possibly be of service; but the instances, we believe, are rare, in which it would not be the wiser course to thorough drain such lands, so that the corn should not require hilling before planting corn on them. On all feasible soils in good tilth, mellowed up to a sufficient depth, the only apology for hilling corn is, that it is a little easier to cover the weeds about the hill than to dispose of them otherwise, and so labor is saved, and that without special injury, except where the ground is to be seeded at the last dressing of the corn, in which case even a moderate hilling is objectionable.

7. "Frequent stirring of the land by the cultivator and hoe is the surest preventive against the effects of long continued drouth." It is so; and if the ground was mellowed to a good depth by previous cultivation, it is a sufficient remedy. Merely stirring the surface-soil, if the sub-soil is nearly impervious to air and water, will not suffice. The downward tendency of rain-water is reversed after long evaporation from the surface; the water that had sunk 10, 12, or 14 inches, is returned towards the surface; it comes up impregnated with the salts of the sub-soil; it brings up food for the corn from below where its roots penetrate; but the readiness with which it does this, and the quantity of plant-food which it brings up, depend very much upon the depth of the previous cultivation.

8. "Old prejudice in favor of the widest distance between the rows is abating." We do not exactly understand this, and so we will give our own views. *Very close planting only adds to the labor without increasing the crop.* Here many, perhaps a majority, will oppose us; but we have our own views, and here they are.—If you plant a very small variety of corn, you may get a larger crop by planting as thickly as three feet each way. If you plant a little larger variety, three and a half feet may be a suitable distance. And if your ground is very hard to till, but a strong soil and richly manured, it may be advisable to plant nearer than four feet. But if your corn is of such a variety as is most profitable to grow in the Middle States, and if your ground is feasible, four feet is near enough. We do not say without much experience and the most careful observation, but *with these*, and *most confidently*, that four is our favorite number:—rows *four* feet apart, hills *four* feet in the row, *four* stalks in the hill, and within *four* inches of each other. Our rule goes on all farms." But with a medium variety, it will give a return of more shelled corn than thicker planting, and will require less labor. With large varieties, such as are cultivated south of the Middle States, we presume a greater distance would be preferable; but of this we are not so confident.

We will not follow our author further; but will beg the reader to turn back and review his concluding remarks on the increase and profitableness of the corn crop. The ground for this crop, we repeat from a former number, should be kept loose and clean through May and June and the early part of July; but this should suffice; and we insist that after the ground has become filled with corn roots, *it should be let alone.* We would almost as soon drive a herd of wild buffalo over our broods of chickens, as drive a plough through our corn roots late in July or in August. Weeds can create no necessity for it if the ground has been cultivated as it should have been, previously.

We quite agree with Mr. Merrick, that no more profitable crop can be raised in New-England; and we think the same remark applies with equal truth to large portions, if not to the whole of the United States. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

SHELTERING LANDS.

The past winter has been full in the experiences of a severity of cold. December and January were marked not only by an unusual low degree of temperature, but of a uniformity which is seldom noted. February was as remarkable for unnatural mildness and April like character as the two former months were for their unrelaxed peculiarities. March, up to the middle of the month, was all that a rude, stormy, blustering March could be imagined to be. So the winter, like all past winters, has given us cold and storms, differing only in the facts that its cold was more intense than usual, and its storms more boisterous, and taking February into account, its features have marked extremes seldom realized.

The effect of these atmospheric extremes upon man and his beasts, have to some extent become understood, and have been counteracted by providing better buildings, and these in more sheltered positions, to give protection from the inclemencies which have, for a few seasons, been extending over a wider range of our country. So far as the limited extent of these improvements permits, a noble end is gained, whose advantages must be fully appreciated. But there is yet a point to be gained, beyond the erection of a building, which, in a few years, must yield to the workings of decay; and, unless prompt measures are taken to prevent, become more or less open to searching winds, and the storms they herald. Even where such buildings are erected, and it may be supposed will remain in perfect order through time to come, how it is the case that animals can not pass beyond the limits of the buildings without meeting the influence of searching winds, rendered still more penetrating in contrast with the kind shelter from which they came. Every person of common experience knows well the liabilities *to take cold* from going from a comfortable room to the open air, without the protection of additional clothing. That the same exposure awaits animals in being turned from a warm shelter into severe cold, no one has cause to doubt. To remedy this evil then, is an object worthy of attainment.

The influence of trees in breaking winds, and mitigating the severity of storms, is too well understood to require an argument in its behalf. Every observing person has experienced it in passing from the open fields to the grove that skirts its margin. And who has not seen how evenly the snows often lie on the sheltered sides of such groves, when away from their influence, perhaps but a few feet, it is driven away as by a whirlwind, and the ground left bare to the desolating blasts of winter. As a question of comfort then, and consequently of economy, it is clear that the protection of grounds and buildings by trees is fully practical, calculated to give a full return for the use of land they occupy, and the labor of planting when they do not already exist.

We are aware that objections will arise, with some, to having these surroundings of trees. "They hide the prospect." This may to some extent be the case, but need not be so altogether. Here and there a sufficient opening may be made, to make the prospect all the more enchanting. But if not, what has a *distant* prospect to do with the quiet and *comfort* of the farmer's home. The tree will occupy just so many rods of good land. Granted; we like good land for trees. Their additional growth in consequence, will give so much better *per cent*, which is the main point of most farmers. And then, we verily believe that the land sheltered by the trees, will produce more than is gained from it, and the land they occupy previous to their growth, in consequence of the protection they give, to say nothing of the comfort of the men and animals that claim a share in the shelter. Here, then, we have the growth of trees a clear gain. Then comes up the labor of transplanting to form the belt, which must be estimated according to facilities, but can not be very expensive, even if trees are purchased from the nurseries, at present prices; but can be cheaper done if a contribution is levied on old fields, woods, or swamps; and lastly, it will take so long for them to grow. Alas! how many who have admired trees, professedly "wished they had them around their buildings, and would set them out, if it did not take for ever for them to come to anything," have sung the same song, when if they had gone to work, spade in hand, when they pitched this tune of lamentation, might now have seen long rows of tall and beautiful trees of their own planting out. A few years in the growth of a tree shows almost a miracle. Yours truly, W. Bacon.

Richmond, Mass., March 17, 1857.

The above should have gone into our last number. Then was the time to set shade trees. But, reader, if your premises are bald of trees, do not let May go by without setting a few. Set more next fall; and do not fail to mark our friend Bacon's article to be revised when another April comes.

PROTECTION AGAINST INSECTS.

Mr. Editor:—It has long been evident that some more efficient method of protection against the ravages of the insect tribes than those now in use, ought to be adopted. Man has not begun to enter into his rightful dominion over "every creeping thing that creepeth upon the earth." The armies of these ungoverned subjects swarm over our fields and fill our houses; they quarter themselves upon us at will; they make their forays into every province of the vegetable kingdom. And we look on, for the most part, in the utter helplessness of an idle and stupid wonder.

Clearly, something ought to be done. Nor is it difficult to say what. The course recently entered upon in New-York, is the one which I have often urged as alone offering the promise of any security; that is, the appointment of one or more *competent persons, whose exclusive business it shall be to watch the movements of these creatures, and devise means of defense against them.*

There are many reasons why this can never be well done by ordinary observers. The diminutive size, the changing form, the sudden appearance, the rapid work, and above all, the great variety of countless numbers of these depredators, make the endeavor hopeless. We must have close and continued observation; we must have careful, connected, systematic, intelligent experiments; in short, we must have *organization.*

It is not to be denied that any farmer may make himself somewhat familiar with the character and habits of insects. He ought to do so. And the more knowledge he gets, the more fully he will be convinced of the necessity which has been referred to. He may be able to coöperate advantageously with the professional observers, but he can not do without them.

As a matter of fact, it is doubtful if a majority of our farmers can recognize the form even of one fiftieth of the insects that prey upon their crops. Some time since an intelligent gentleman pointed me to a row of apple trees, which he said were being ruined by the dry weather, or perhaps they had a "*blight,*" (a very common and ready generalization); the trees were in truth nearly destroyed by the "leaf hoppers," an animal of whose existence my friend had not the slightest notion. Instances similar to this might be given, without limit. But not to insist on them, it is clear that the most intelligent of the cultivators of the soil must find themselves laboring at an immense disadvantage, when they attempt the destruction of these Protean enemies.

They will discover the need of a division and a skillful direction of labors, and of a careful collection of experience, such as can be had only through the institution of a general and comprehensive scheme of superintendence. The agricultural interest requires nothing more urgently than this. C. B. R.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

PLANTING—FARMING—HOW MUCH LAND?

March 12, 1857.

Friend Nash:—I have just read your remarks pp. 464, 465, and am so highly pleased, that I beg to tender to you my thanks. There is a stereotype phrase,—"too much land," that goes the rounds, and though all admit that any one may have "too much land," yet it is used by the mass without thinking of its true meaning. It is not always good policy to make land produce to its utmost capacity, simply because it will "cost more than it comes to," like the "whistle" that Dr. Franklin wrote about. If a planter can keep up his present acres to a production highly remunerative, why should we say he had "too much land?" But, if his acres be much fewer, yet growing less year after year, we must admit *he* has "too much land." Land ought to improve; but if now fertile, and kept at that figure, under a system that promises to keep land so for twenty-five or fifty years, we should be well satisfied and bid the owner good-speed. This "too much land" talk is rather too much like school-boy days for me, with some ten to twenty boys in a class for months and years, the dull and stupid acting as a clog on the talented, until the latter become as lazy, mischievous, and worthless as the former. No, Sir, let us encourage the farmer with brain to plan and hand to execute. I have noticed carefully in our great S. W. the difference among men. Why, Sir, there are men here who are just as competent to manage the planting interest—which turns out 1000 to 5000 bales—as other men are fit to go to mill with a bag of corn. We have men here who began the world depending upon themselves; no fortune left them, nor had their fathers a "two story house,"—(I hope Mr. Spencer will give Mr. Yeomans another)—who now ship crops worth $40,000 to $100,000 per year; and they began on a few acres. A man of mind, business tact, observation and energy, certainly ought to improve in his ability to manage a farm. When he starts in the world, he may manage say 3 to 10 acres to the laborer, and not well at that; ere he is thirty, he certainly has improved; and if the right man, when at fifty, has gained even more.

Many thinking men even, do not estimate, in my judgment, properly, as to farming as they do in manufactures. The same expense of food, clothing, necessary and artificial, is required for the acre when he manages 100 acres, as it does when he manages 1000; and if he has *mind* and BODY and WILL competent to manage *as well* 1000 acres as he can 100, the body politic saves by this; and that there are men competent so to do, I doubt not, for I see rich men in the army, navy, navy-yard, factories, behind the counter, in the office, and pray why not in the field? Are we, the farmers, the only fools? Is our business the only one that has no need of mind? Farmers themselves, injure themselves. As for me and my calling, I shall hold it far above the pill-box, or the green bag, or the stump, and will acknowledge no calling superior, save one—the holy calling, seeking out lost souls. No, Sir, I would to-day prefer being the best planter or farmer in Mississippi to being Governor. So, as to the Presidency; for as I regard it, there is more mind, more talent, more varied learning, and a greater field for exercising them, than in the chair of state.

I mean not to disparage any. "Not that I love Cæsar less, but that I love Rome more." Yours truly, P.

Probably some will regard the closing expressions of the above, relative to the farmer and the President, as a little enthusiastic. Well enthusiasm is a good thing. We wish there were more of it among our farmers. Our correspondent seems to think that a farmer should be more capable at thirty than at the outset of life, and still more capable at fifty. Is not the reverse of this too often true? We hear of ministers "growing" in the estimation of their people, of lawyers "growing" in the estimation of the court, of doctors "growing" in the estimation of everybody. Now we will not say that there are no "growing" farmers among us. There are. There are many. Some of them are unfortunately "growing" the wrong way, and we believe it is so in all professions; but others are "growing" the right way; and the proofs are all about us that they are "growing" prodigiously fast. Too many farmers have the idea ingrained into them, that the farmer can not be much if he would. So long as they hold this opinion, it will be too true, of themselves, at least; but do not let them instill such an absurdity into the heads of their sons. The truth is, the farmer *can* be something, if he *will*;—he can be a *good man*, and that is more than half of what anybody ever was or ever will be. But more;—he can be *knowing*, enriched with a vast amount of *useful knowledge*, and that is two thirds of all the rest of what anybody can be. Still more, he can make his worth and his talents known. Notoriety is not worth living for, but so far as it is worth anything, the farmer can have his fair proportion of it; if not as much as the stump politician or the State-prison-bird, yet of a better quality, and on the whole about as desirable as that of any other calling. Yes, yes, the farmer can be a good citizen, a knowing man, pretty extensively appreciated as such. There's for you, farmers, and what do you want more? Only seize the God-given benefits of your profession, and, as our correspondent intimates, you need not much envy the President of the Union, or the Governors of the States. N.

Horticultural.

THE GARDEN.

Our first parents were placed in a garden "to dress and to keep it." The tired denizens of the city have no garden. What a drawback upon the pleasures of life—its most innocent pleasures, its combined utilities and beauties. Vegetables always fresh, blooming flowers, maturing fruits, songs that come unasked, thrilling upon the ear, sweet sunshine, cooling shade, delicious purity after the rain storm, the cooings of the doves and the loves of the household, all have a place in the garden; all may be purchased for a little forethought and a little pleasant labor. Who, that can, would not pay the price? Next to the folly of thousands, hurrying, jostling, crowding, squeezing through moving accumulations of humanity, running against, if not over each other, in the city, is the folly of those who live in the country, and yet do not have a profitable, fruitful, pleasure-provoking, beautiful garden. Reader, we suppose you have such a garden, one that will add to your pleasure and your wealth, to your moral elevation and your social enjoyment, to your self-esteem, and to the estimation in which others will hold you. If you have not, we hope you will have by another year; and although this is not the appropriate field of our labor, we will give you hints from time to time which may be a help to you. Attempt something liberal. No stingy patch is enough. Let the food for your family come largely from the garden. If you are a mechanic and have but little land, make that little food-giving and beautiful. A little garden is a great deal better than none. Let the farmer have a large one. Labor in the garden is at least as profitable as in the field. All the beauty and loveliness you create is so much extra profit over that of the farm at large. Yes, be liberal in laying off your garden; cultivate more of the good and beautiful things, roots, fruits and flowers than you want; give some of them to your neighbors who have no gardens; nothing will afford you a more exquisite pleasure; it will cure some of your selfishness; really it will make you a better man or woman; our word for it. N.

CULTIVATION OF THE STRAWBERRY.

At a recent meeting of the Farmers' Club at Concord, Massachusetts, the following remarks on the cultivation of the strawberry were delivered by John B. Moore:

"I have tried various modes, single rows, beds and hills, but were I now intending to grow them to any extent, I should adopt the following method: In April or May, having the land ploughed and harrowed fine, work in manure enough to last two years, and proceed to plant in rows three feet apart; then sow between each row a row of turnip-beets or some other vegetables that the crop could be gathered in August; keep the ground free from weeds, allowing the plants to spread as much as they please.

"The next spring, as soon as the land is dry enough to work, spade over the ground one foot wide where the rows of beets stood, which will leave the beds of strawberries two feet wide, the space of one foot which was dug over, making the path; then thin the plants where too thick. About the first week in June, mulch the paths with fresh cut grass, when every thing is done but gathering and marketing the crop. After they are all gathered, which will be from the 5th to the 10th of July, put on a dressing of manure, and plough with a sod plough, turn over smoothly, sow with rutabaga, or corn, or oats for fodder. My reasons for this course are the following: The first year the crop of vegetables between the rows will pay the expenses, and the strawberries are easily managed and very certain to leave the ground well stocked with plants; the second year you will get a full crop without much labor and little annoyance from weeds; if you undertake to weed out the bed and continue it another year, you will have an almost endless job of weeding in a very busy time of the year, and if you should go to the trouble, your crop will be much smaller than the first year. By following this plan I think they can be produced much cheaper than otherwise."—*New-England Farmer.*

TRANSPLANTING.

In setting out trees, all the soil should be removed for two feet in depth, and four or five feet in breadth. Then below this, the subsoil should be loosened as much as possible to the depth of another foot, so that the roots may easily penetrate the earth.

The whole border should then be filled with surface earth, if it be an ornamental tree. We have never found any thing equal to broken bones as a part of the borders of fruit trees. They do not stimulate to so great a growth of wood as some other manures that furnish ammonia in larger quantities, but they give a steady and uniform growth for many years, and induce long continued fruitfulness.—*Jeff. Democrat.*

CANTELOPES AND WATERMELONS.

CANTELOPES can be raised with all the certainty of the cucumber and the pumpkin. They require a little more care in preparing and selecting the ground. A sandy loam is always to be preferred; but any light, friable soil, with a southern exposure, free from prevailing moisture, will answer. The ground should be converted into a fine tilth—the hills should be dug out to a depth of eight or ten inches, eighteen inches in diameter, which should be filled with one third well-rotted short manure, one third good sand, (should the soil not possess any,) and one third rich earth, well mixed. The hills should be from eight to twelve feet apart each way, as room may allow, and the seed, say five to a hill, should be planted over the whole hill, an inch below the surface. When the sprouts are two inches high, give them a fair sprinkling of wood ashes, while the dew is on, or after watering them, and repeat three or four times during the two following weeks. This will drive away the insects. When they are six inches high, remove all but two or three vines, according to the space between the rows, and carefully put *round*, not *to*, the vines, a little guano. In removing the weeds from the beds, the vines should not be disturbed, as the rootlets which penetrate the earth from the vines and which supply the principal nourishment to the fruit, will be destroyed. Nothing more is needed to yield an amount of this delicious melon that will astonish the uninitiated, and of a quality *unequaled* by the best productions of Jersey.

Watermelons require exactly the same treatment, but the crop is not as certain as the cantelope. Still, if a light, friable, sandy soil, with a south-eastern exposure, is selected, and the Mountain Sweet variety is planted, a fair crop may almost certainly be counted on. We have raised twenty-one edible watermelons from three hills. The Orange watermelon is very luscious, and we think requires a rather shorter season than others, and produces abundantly.—*Germantown Telegraph.*

CULTIVATING YOUNG TREES.

FRIEND HARRIS:—The most perfect tree can be raised from planting the seed on level land, with soil of equal fertility all around it, because trees, like most other things, lean to the source from whence they derive their nourishment. In exposed situations, trees lean from the prevailing winds of the country, and should have more nourishment applied to the roots next to the prevailing winds, to counteract their influence.

The reason why a tree bends to a pile of manure on one side of it, is that it makes wood faster on that side, and the heart of the tree is soon nearer one side than the other. It is a notorious fact that all timber springs *from* the heart, as all hewers know, and when one side gets thicker and stronger than the other, it bends the tree towards the thick side. Trees attain size faster without trimming than with. And I have never been able to discover any advantage in pruning fruit trees, except sometimes when forks occur low down, and if allowed to grow would split apart and ruin the tree.

Persons wishing to set out orchards had better set out trees at one year old, than wait for them to get slim in the nursery; they are checked less by removal, and will become profitable sooner. It has been thought that fruit trees ought to be six or eight feet high without a limb, but experience has satisfied me that it is better to let young trees branch as low as they will. A person can gather twice as much fruit standing on the ground, as he can creeping about on a ladder twenty feet long. A short body is able to sustain more fruit than a long one of the same size. Besides, low limbs prevent the formation of a sod under the tree. All young trees should be manured and cultivated as carefully as vegetables.—MICAJAH T. JOHNSON, *in Ohio Cultivator.*

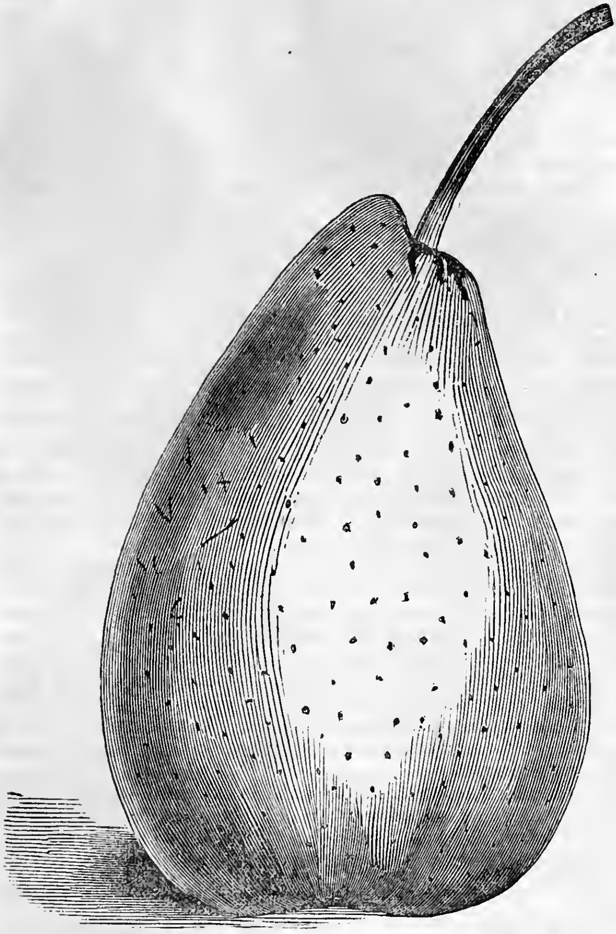
EXERCISE FOR WOMEN.

WORK in the garden, with thick shoes, substantial mitts, and a sun-bonnet rather wider than the present fashion, is a health-giving and beauty-creating employment for woman. Think of this, ye mothers and daughters. Riding on horseback is an exercise in which all women in the country, and as many as possible in the city, should be adepts; and if these two things are not more attended to among us than they have been, then the days in which American women will be regarded as peculiarly beautiful are waning. More of this another time. N.

THE FLOWER GARDEN.—Propagate and set out dahlias—plant the seeds of all hardy annuals—mulch your roses with a thick layer of leaves from the hollows of the woods, sprinkling a little soil over the mulching to keep the wind from blowing it away—transplant evergreens of all kinds now, just as the new birth is commencing—the only proper time. Clean up and roll your gravel walks—dress your borders—tie up all herbaceous flowering plants to stakes of cypress or China tree wood, and put everything in trim for the season. —*Southern Cultivator.*

☞ FRIEND, are those trees set out, that we spoke of last month? If not, it is yet in time. Just look about your premises and see where you would like it, if there were now a pretty well grown tree; and then *calculate*, that if you now set one, it will be well grown in a few years. The retired merchant, who wishes suddenly to convert his country-seat into a sort of Paradise, has heaps of money to expend. The surveyor, the landscape gardener, and all the rest are ready to give plenty of good advice to be well paid for. His workmen expect a great deal of money for a little labor. It is a *bleeding* business. But the farmer can make his home beautiful, and nobody can *bleed* him in the operation. He has only to take time beforehand, to look ahead and see that a full-grown tree would be beautiful here and another there, here a large forest tree and there a small one, here a lilac and there a clump of roses, and then transplant accordingly. N.

HORTICULTURAL.



We are receiving in advance the sheets of a forthcoming work on the Pear, by Wm. H. Starr, Esq., of Norwich, Ct. It is to embrace a description of 32 varieties, the choicest and the most valuable for general cultivation. Mr. Starr is an amateur; is enthusiastic, is fully "read up" on the subject; and what is more, is eminently a practical man—has done in this line what he recommends others to do, and knows well by actual experience whereof he affirms. In his book may be anticipated a most valuable accession to our horticultural literature. Its chief value will consist in its plain, reliable instruction, suited to all classes of cultivators, as well the experienced horticulturist as the farmer who would grow choice fruits for his own use. But beyond this, it is to be one of the most elegantly illustrated books of the age. Of thirty-two engravings of as many varieties of pears, there is not one but will make the eye sparkle and the mouth water. All who have land, little or much, will want this work for its practical value; and those who have not, will want it for its artistic beauty. If upper-tendom does not seize upon the first editions, and leave those of us, who have less money, to get a copy when we can, it will only show, as a great many other things do, that there are as many fools in high as in low life. As a sample of Mr. Starr's style (our engraving fails to be a sample of his illustrations, because it is not colored) we give the following from his introduction :

Horticulture is an employment that commends itself to every class in the community. To the man of wealth, and those in the common walks of life—to individuals of the highest intelligence and those of more humble capacity—to the young and the more advanced in years, it is equally and pleasingly adapted. It is a most healthy, delightful and interesting employment. While affording agreeable and profitable exercise for the mental and physical powers, it is equally conducive to the sustenance, the health, and the enjoyment of our fellow-men.

The employment of the fruit grower is one which is of the most elevating and ennobling character. He becomes delightfully enthusiastic in his avocation. A pleasure unknown to others takes possession of his mind. As he watches progressively the opening germ, the tender shoot, the growing stock, the spreading branch, the swelling bud, the expanding leaf, the blushing flower, and the ripening fruit, until in all its rich development of golden or crimson tint, it blushes in the sunbeam; his heart is filled with pleasing wonder and admiration, and his mind will instinctively revert to the great Creator, "and look through nature up to nature's God." He can not be an ardent and enthusiastic admirer of the beautiful and the bounteous productions of nature, and not be *a better man.*

It is not important that a man should possess extensive grounds or multiplied acres. It is not requisite that his soil should be of a certain character or a particular chemical analysis. In a country so extensive and diversified as ours, and with a climate embracing every variety, from the sunny south, to the hoary icebergs of the north, and having such an extensive and almost exhaustless variety of fruits at command, admitting of every description of temperature, soil and culture, very few, comparatively, need excuse themselves for not improving their taste in this interesting department.

The occupant of the most circumscribed garden-plot may enjoy the luxury of growing his own table fruits. Every inch of soil, of whatever quality or strength, whether wet or dry, rich or poor, sand or muck, loam or gravel, may be modified, and if necessary, improved and usefully appropriated to the production of some variety of fruit, beautiful to the eye and delicious to the taste.

With a knowledge of these facts, it is strange that comparatively so little importance has, by the great mass of the community, been attached to the culture of fruit, and that so large a proportion of our citizens are still willing to deprive themselves of so much real enjoyment as this truly ennobling employment is calculated to impart.

But this is not all, and to many in this gold-loving and wealth-seeking age, it is, perhaps, not the strongest argument that can be adduced in its favor. If we estimate the occupation by dollars and cents merely, it will be found to compare favorably in its results with the most coveted offices of emolument and distinction.

We have said otherwhere, and we mean to follow it up in future numbers with reasons for so thinking, that unless American women become more familiar with the garden and the management of the horse, as weed-pullers, flower-growers and equestrians, the prospects before us are not flattering. One trouble, and one in which the ladies may *possibly* have a part, will be that there will be an enormous crop of old bachelors. Man needs a companion with strength to breast the ills of life, as well as taste to enjoy its blessings. The prospect of a wife feeble, faded, gone to the grave, just at the time she should be a fully developed, *magnificent woman*, is a terrible discouragement to the young man who longs (as heaven has made him to) for some one to be loved and to love him all his life. To be a widower at forty, with half a dozen sickly children, he may well think would be the next worst thing after being a dried-up old bachelor. But enough said for the present. If the young ladies, and more, if their mothers, are as wise as we think they are, we have said enough already to create a demand for ladies' garden tools and side-saddles. N.

Manufactures, Mechanics, etc.

GAS FOR DOMESTIC PURPOSES.

We have devoted considerable space to a description of the nature, cost, and mode of using several of the different materials employed in illuminating our dwellings, and we now purpose to give a short space to the consideration of the use of gas, which, in view of all the favorable and unfavorable features connected with its general adoption for a stationary light, we regard as the best yet discovered.

That arrangement for illumination which is best for certain purposes, is not, of course, best for all. Among the great variety of conditions in which light is required, perhaps no one of the many forms of contrivances for illumination could be spared without some loss. Even the pine-knot of the frontiersman may be desirable, considering the cost and his necessities, rather than any of the improved lamps of recent times. But we do not hesitate to give it as our opinion that for stationary lights, whether for economy or comfort, nothing is superior to gas, at its actual cost; and with the facilities furnished at the present day, we have no doubt that improvements of substantial value will be made, even upon these. Many minds are turning their attention to this subject.

As a general rule, one fourth of a cubic foot of good coal gas is equal to the light of a mould candle for one hour, of which one pound will burn forty hours. Hence, the cost of that amount of gas must equal that of 1-40 a pound of candles, to be equally economical. But if gas is $3 00 a thousand feet, that is, three mills a foot, it is a great deal cheaper than sperm candles at the usual rates. At forty cents a pound, the cost of the given quantity would be one cent, or nearly three times the cost of gas, producing the same amount of light. But the economy of candles consists in the fact that families are content with a less quantity of light than they would naturally demand if they used gas. The usual cost of these candles is, generally, something less than forty cents a pound at retail.

Gas obviously has some advantages over every other form of illuminating material. But there is no process yet devised for lighting houses that has not its inconveniencies. The regulation of its flow and the manner of its production deserve special attention and constant care. Gas deteriorates if not used soon after its manufacture. Oil gas, of the specific gravity of 1.054, when newly prepared gave the light of a candle for an hour, and consumed 200 cubic inches.

After being kept two days, in giving the same light it consumed 215 cubic inches. After four days it required 240 cubic inches to produce the same amount of light. After three weeks it required 606 cubic inches. Coal gas required 460 cubic inches, after it had been kept two days, to produce the same light given by 404 cubic inches when first made.

The consumption or discharge of gas is nearly proportioned to the square root of the height of the column of water by which it is pressed, and inversely as the square root of the specific gravity of the gas. But this result will be greatly modified by the amount of friction, and the length of pipes through which the gas is conveyed, though a column of water at the place where the gas is consumed would furnish a fair basis for such calculations.

There have been many inventions, the design of which was to improve the machinery used in the manufacture of gas, both upon a large scale and for families. The former we do not purpose to elucidate. Large companies can take care of themselves. We write for small neighborhoods and for families.

WOODWORTH'S PATENT.

One of these "portable gas works" is manufactured by our Baltimore friends, Messrs. C. R. Woodworth & Co., who also have an office in Wall street. The machinery is simple, safe, and operates very successfully. It consists of an oil can or reservoir for the raw material, a stove, in which is set the retort or generating apparatus, a siphon, or condensing box, the water tank and gasometer, which contains from 300 to 1000 cubic feet. The care of it may be safely trusted to a domestic. The material used, is a rosin oil, (though not the "rosin oil" of the market,) which costs eighteen cents per gallon, each gallon producing the amount of one hundred cubic feet of gas. Such are the statements of the proprietors. Though we have often seen the light, we have had no means of testing the cost of the gas, or the amount of material required, or of the gas produced in a given time. The estimate of the company is a half-cent per hour for each two-and-a-half-feet burner. The cost of the apparatus of different sizes, delivered in New-York, is from $350 to $1000, with the traveling expenses of the workman, and time while traveling, and the expense of a tank or cistern, etc. etc.—(See advertisement.)

THE BENZOLE GAS LIGHT.

The discovery of Benzole is recent, and its first application to the manufacture of gas was in connection with the patent now owned by the American Gas Company of this city. It is extracted from the soft coals. Benzole, it is said contains 92 per cent. of carbon and 8 of hydrogen, and a cubic foot of it weighs two and a quarter pounds Troy. Benzole gas is described as consisting of six parts hydrogen and twelve of carbon. In its combustion, it has been mingled with alcohol; but the alcohol, more recently, is omitted, and water only added to it, upon the surface of which the benzole floats. A gallon of benzole, thus arranged, will produce a thousand cubic feet of gas.

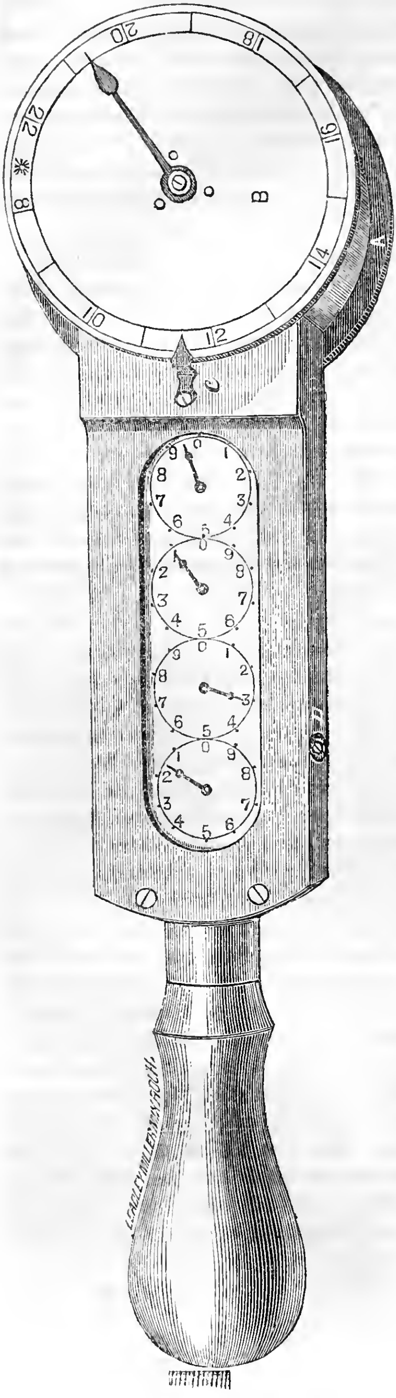
The machinery used is a revolving cylinder, moved by a weight, wound up like the weight of a clock. The revolution produces a current of air through the cylinder, which passing through the water and benzole, becomes carbonized, so as to burn with a very brilliant flame. The entire apparatus, sufficient for a dozen burners, occupies scarcely more space than a flour barrel; and larger ones, for fifty or sixty burners, do not occupy much more room. It includes arrangements for keeping up a moderate temperature, thereby adding to the brilliancy of the flame. The benzole now costs \$1 00 or \$1 12½ per gallon. The cost of all the machinery for an ordinary dwelling house will not exceed \$150. With these estimates, a thousand feet of gas will cost about \$1 12½. The benzole ought to be manufactured for about half-a-dollar a gallon. It would then pay a good profit, and this would reduce the price of gas to a very small sum. The machinery requires scarcely more care than the filling of a solar lamp, once in a day or two, or as often as the benzole is consumed.

The following arrangement was secured by letters patent in April, 1855.

Gas Generator in a Parlor stove.—Let an outer cylinder surround an inner, each of such dimensions as the amount of service may require. The outer connects with a chimney, and the inner is connected by a pipe from the top, through a tube in any convenient direction to a side, or basement room, containing the condenser and clarifier, and to the gazometer. From the gazometer, the gas may be conducted by pipes to the rooms to be lighted. For using this, let both cylinders be filled with coal; the outer cylinder warms the room and also heats the inner one, answering to a retort, and the gas will pass through the pipes to the condenser and purifier into the gazometer, where it is ready for use. The gas being extracted from the coal, the refuse coal or coke can then be used as fuel in the outer cylinder, and thus the same material be used for generating gas and for warming the room.

The following description of the process used at the Astor House in this city in 1850, was originally published in the *Evening Post:* "The water used in its manufacture is discharged from a can in limited quantities into a pipe, passing through the retort. This retort is kept constantly supplied with iron or charcoal, the intense heat from which converts the water, in passing through the pipe, into steam. The steam thus formed is amalgamated with liquid rosin, of which there is always a large supply kept in a boiler, so that the gas is obtained simply from the combination of steam generated in the manner described and the liquid rosin. The volatile oil produced during the manufacturing process is discharged through a separate pipe into receiving vessels, and is disposed of at half a dollar per barrel. This apparatus was put up by the Union Gas Company, of Jersey City." For some reason, it is not now in operation.

Another important advantage secured by the use of gas is, that besides its convenience and economy for purposes of illumination, it may also be used to advantage often, for fuel, in heating rooms and in culinary processes. In former numbers we have alluded to this application of gas, and those familiar with Broadway can not fail to have noticed the "stoves" and cooking arragements, of especial benefit to small families, living in a "snug way," and to all families on special occasions. At this season of the year, we can keep our own room at 70° by an expenditure of ten cents worth of gas, at Manhattan prices, by the use of Shaw's stove. We have had one of them these two years, and for cooking a lunch or late supper, or for supplying any such wants, on a small scale, these and Demorest's (which also have an oven) are of very great convenience.



PLANIMETRE.

We have recently examined an instrument patented by Messrs. Jones & Griffen, of Rochester, N.Y., to which they have applied the name in our caption. For the uses for which it is designed, it seems to us all that can be desired. It is adapted to the measurement of surfaces, whether of lumber, of floors, sides, or ceilings of rooms, roofs, etc., etc., provided both dimensions do not exceed the limits of the largest index, which is twenty-two feet. These dimensions might be enlarged by a change in its mechanical arrangements.

It consists of a wooden case and handle of the size of the engraving in the margin. At the end opposite the handle, is a cog-wheel of brass, A, which is connected, by clock work, with four dials, corresponding to the dials of a gas meter, as described in our March number. A fifth and large dial is constructed at the end of the instrument, the index of which, *c*, is set to the length of the surface to be measured. The index of the four small dials, being set at O, the instrument is made to roll across the surface or surfaces. The revolution of this wheel setting in motion the clock work, with its indexes (or indices) on the small dials, shows the exact contents of the given surface. The large index C is designed to point to the margin of the board, and secure accuracy in the placing of the instrument. Its position does not affect the wheel work. The square feet of lumber, or floor, etc., can be exactly found in a much shorter time than its dimensions could be measured by a scale, yard-stick, or tape line. It requires a tally only when the total measurement reaches ten thousand feet, and no calculation will be required in measuring openings, as doors, windows, etc., further than to subtract their sum from the total. The whole may be measured as one surface, then the deductions measured as so many several surfaces, and their total as registered by the indices, etc., deducted from the gross amount.

The proprietors claim that, with this instrument, they can measure and compute the number of feet or yards in less time than any two men can take the dimensions of the same surface in the ordinary way, with rule or tape line. Hence they regard it as the best instrument for joiners, masons, plasterers, painters, roofers, etc. Rights and Instruments are for sale by the proprietors and manufacturers above named.

Recent Patents,

[ISSUED SINCE OUR LAST LIST]

LIST OF AMERICAN PATENTS.

We have decided upon a still more thorough reform in this department of our journal, and we shall henceforth prepare a classified list of all new patents, specifying what is claimed under the patent right so far as is possible and practicable. In the following we have not stricly followed priority of dates, though we purpose to do so hereafter. P.

Agricultural.

Churn, E. P. and J. A. Cowles, Oakfield, N. Y. The arms of the dasher are curved, so as to draw the cream from the center of the churn, and press it against the sides.——Sheep Shears, E. G. Chambers, Bucyrus, O.——Harvesters, S. A. Clemens, Rockford, Ill.——Potato Diggers, Paul Dennis, Stillwater, N. Y.——Machines for harvesting corn, J. H. Frampton, Hopewell, O.——Harvesters, Lewis W. Harris, Waterville, N. Y.——Raker for reaping machines, Caleb Lee, Knox Township, O.——Corn Husker, Wm. Lewis, Seneca Falls, N. Y.——Same, John Massey, Buffalo, N. Y.——Grain Cradle, S. D. Warren, Lebanon, Ala.——Preparing Fertilizers, Lawrence Reid, Barren Island, N. Y. Consists in treating with acid the liquid parts of animals, obtained by boiling or being treated by high pressure steam, and then with bone dust and absorbents.——Harvesting Machine, Geo. Esterly, Heart Prairie, Westerly, Wis.——Harvester, C. Halloway, Petersburgh, Va. Fixtures by which the machine may swing back and forward as it is lowered or raised, but be rigid when the draught is on.——Harvester, M. G. Hubbard, Penn Yan, Pa. Claim, a shifting seat, etc.——Convertible cider mill, Samuel Males, Cincinnati, O. A mill convertible from a cider mill to a corn sheller and *vice versa.* Mowing Machine, John Taggart, Roxbury, Mass. Claims a series of rotary cutters, working in recesses or guides, in combination with a knife sharpener, etc.——Paring apples, Benj. F. Joslyn, Worcester, Mass. The spur wheel is set obliquely to the axis of the fork shaft, and by the rotation of the apple, which it presses on, feeds it ahead, without the aid of other mechanism.——Harrows, Sidney S. Hogle, York, O. Its forward movement secures a rotary motion.——Harvester, Hiram Clark, Rochester, N. Y. Each of the cutting bars has, alternately, an advancing upward stroke against the grain.——Harvesting grain, G. R. Crane, Caldwell, N. J. Operating the bars to which the rake teeth are attached from left to right, by means of straps, etc.——Raising or lowering farm gates, to allow them to pass over obstacles, Dennis E. Fenn, Tallmadge, O.

Metallurgy, etc.,

[A portion placed under separate titles.]

Enamelling cast iron, Geo. W. Holly, Niagara, N. Y. The skeleton, core plate and core bed are covered with the coating substance, and then, pouring the melted iron around said composition, and melting or softening the same, so that it will adhere to the iron as it becomes cold.——Escutcheon for key holes, Edmund Field, Greenwich, Ct. A key hole drop in two parts, pivoted together. ——Nipples, Wm. Cleveland Hicks, New-Haven, Ct. For withdrawing loaded balls or cartridges from breech loading fire-arms.——Shearing steel plates, Perry G. Gardner, New-York.——Coiling steel springs, Perry G. Gardner, New-York.——Carriage springs, Chas. A. McElroy, Delaware, O.——Cutting screws, Thompson Newbury, Taunton, Mass.——Bending sheet metal, Daniel Newton, Southington, Ct.——Carpenters' plane, Oldin Nichols, Lowell, Mass. ——Fluid gates or faucets, J. W. Smith, Hartford, Ct.——Chuck for watchmakers' lathes, Wm. Stephens, Richmond, Ind.——Hoop pole Splitting-knife, C. Washburn, Bridgewater, Mass.——Stamping figures in carpenters' squares, Heman Whipple, Shaftsbury, Vt.——Second anchor shackle, G. Gilmour, Chelsea, Mass.——Shirt studs, J. P. Derby, Cavendish, Vt.——Lock, Wm. Whiting, Roxbury, Mass., and Henry Pickford, Boston, Mass.——Pocket lanterns, Andrew Ralston, West Middletown, Pa.——Hinge, Kingston Goddard, Philadelphia, Pa. ——Cutting and bending sheet metal, Elliott Savage, East Berlin, Ct.——Metallic seals, Joseph Wappenstein, Philadelphia.——Trip hammer, Henry Bushnell, New-Haven, Ct.——Screw wrench, B. F. Joslyn, Worcester, Mass.—— Grinding Saws, E Andrews, Elmira, N. Y. Connecting the saw to the mandrel by the ball joint, etc., for adjusting it while operated on by the stones.

Manufacture of Textiles, etc.

Machinery for felting hat bodies, J. B. Blakslee, Newtown, and E. R. Barnes, Brookfield, Ct.——Power loom, J. L. Cheney, Lowell, Mass.——Machinery for cleaning and separating cotton, wool, fur and other fibrous materials, Isaac Hayden, Lawrence, Mass.——Method of cleansing fibrous materials, John Howarth, Salem, Mass.——Combing wool, Michael H. Simpson, Boston, Mass. ——Combing fibrous materials, Milton D. Whipple, Charlestown, Mass., assignor, etc.——Sewing machine, T. G. W. Robertson, New-York. Feeding the cloth by means of a hook, etc.——Cordage machine, Jas. P. Arnold, Louisville, Ky.——Manufacturing cotton flannel, A. S. Carleton, Clinton, Mass. A hard thread foundation, and extra filling of soft yarn upon one or both sides. ——Shuttle drivers, Samuel Boorn, Lowell, Mass. A composition to be used in the manufacture of the striker of a shuttle driver.——Weavers' shuttles, Lucius J. Knowles, Warren, Mass. Contrivance to stop the loom when a thread breaks.——Sewing machine, C. D. Belcher, Charleston, S. C. An improvement on Wilson's, in the use of a brake to hold the loop upon the revolving hook.—— Same, Joseph W. Barnham, Hartford, Ct. Mechanism to cut or clip the thread on the under side of the work.——Curtain rollers, Purches Miles, Hartford, Ct. ——Felt cloth, Geo. C. Bishop, Norwalk, Ct. A bat made from roping or rovings, carded and formed as described.

Rope and Cordage.

Unmaking ropes and cordage, Joseph Wood, Brooklyn, N. Y. Reduces the cordage to the condition of oakum, in a very effective manner.——Rope manufacture, Michael H.. Johnson, St. Louis, Mo. Combination of the condensing rollers with the calendar roller and bobbin as described.——Cordage machine, Jas. P. Arnold, Louisville, Ky. Improvements in outer end of nose tube, the wedge shaped opening between the face of the upper portion of the jaws of the nippers, and in the moveable jaw.

Gas Lights, etc.

Lubricating gas cocks, C. H. Johnson, Boston, Mass., assignor, etc.——Lard lamp, I. N. Coffin, Washington, D. C. Flat tubes inclined to each other at right angles, with concave reflector.——Gas generator, A. M. Giles, Boston, Mass. Mode of increasing the heat of the retort.——Gas burner, John McHenry, Cincinnati, O. A removeable disk for varying the size of the burner. ——Fluid lamp burners, R. W. Sargent, Philadelphia.——Pocket lanterns, Andrew Ralston, West Middletown, Pa.

Steam Engines, etc.

Lubrication for steam engines and other apparatus moved by steam, John Henwood, New-York.——Valve gear of direct action, J. P. Ross, Lewisburgh, Pa.——Steam brakes for railroad cars, T. E. Sickles, Kennett Square, Pa.——Steam spades, G. M. Ramsey, N. Y.——Stop motion for steam engines, J. T. Ackley, Philadelphia.——Cut-off of steam engines, John F. Allen, New-York.

Navigation and Maratime Implemenfs.

Rigging vesssels, Geo. F. Trescott, Charleston, S. C.——Grappling and dredging machine, Augustus Stener, Mt. Joy, Pa.——Ships' windlass, Norman Smith, Stonington, Ct.——Friction rollers in ships' blocks, John Allender, New-London, Ct.

Civil Engineering and Architecture.

Veneering the walls of buildings, Geo. B. Field, St. Louis, Mo. A new mode of securing their plates of iron, marble, etc., to the walls and ceilings of rooms previously built. Weather strips, J. T. Foster and J. J. Banta, Jersey City, N. J., and J. H. Banta, Pierpont, N. Y. Constructing the weather strips with diagonal slots, taking pins in the door, so that an endwise motion given the strip in shutting the door shall cause the strip to press on to the still or casing, etc.——Breaking slabs or blocks of stones, Ira Merrill, Shelbury, Mass. By pressure and percussion combined.——Mastic roofing compounds, C. R. Milks, Detroit, Mich.——Bridge trusses, Albert Fink, Parkersburg, Va.

Land Conveyance.

Tire for car wheels, John Evans, Portsmouth, O.——Preventing dust from entering railroad cars, Philip M. Pyfer, Baltimore, Md. Rotary fans, outside the car, in connection with the windows.——Cast-iron wheels for railroads, J. M. Ross, Springfield, Mass.——Casting railroad car-wheels, Norman Aylesworth, Rochester, N. Y. A partially tubular cone, for the center of railroad car wheels.——Lubricating under pressure, Jacob D. Custer, Norristown, Pa. ——Steam brakes for railroad cars, T. E. Sickles, Kennett Square, Pa.——Railroads, Hiram Carpenter, New-York. Construction of chairs.——Supporting the tongues of coaches, T. B. Wakeman, Beloit, Wis. A brace in connection with a spiral spring.

Waterwheels and Windwheels.

Samuel Reynolds, Oswego, N. Y. Radical floats above the horizontal plane in combination with the buckets or floats below said plane.——Suspending windwheels, Joseph de Sendzimer, South Oyster Bay, N. Y.——Regulating velocity of windwheels, A. W. Wood, Milwaukie, Wis.——Same, F. W. Whiting, Twelve Mile Coletts, Gin, Texas.——Self-regulating do., A. P. Wilson, Salem, Ill. Simple and effective.

Hydraulics and Pneumatics.

Hydraulic jack, Geo. Lindsay, New-York.——Pump, J. F. Brickley, Winchester, Ind. A rod in connection with the valve, so that an ordinary lifting pump may be converted into a forcing pump, or *vice versa*.——Rotary pump, Abel Barker, Honesdale, Pa.——Same, Geo. W. Griswold, Carbondale, Pa.

Lumber, and machines for working, etc.

Circular sawing mill, Philander Eggleston, Mobile, Ala. Mode of suspending the log.——Shingle machine, H. D. McGeorge, Morgantown, Va.——Table gauge for circular sawing machine, M. B. Tidy, Ithaca, N. Y.——Circular sawing machine, C. R. S. Wardwell, Lake Village, N. H.——Saw-mill dogs, John A. Taplin, Fiskhill, N. Y.——Cross cut sawing machine, Osborn E. Stephens, Mc'-Call's Ferry, Pa.——Double carriages in saw mills, F. B. Kendall, Bath, Me.——Machine for planing tapering staves, Valentine Menck, Carrolton, La.——Graduating carpenters' squares, Heman Whipple, Shaftsbury, Vt.——Attaching hubs to axles, J. M. White, Tenia, O.——Wooden chair seats, Edwin, Artimas and Cheney Kilburn, Burlington, Vt. Mode of hollowing out the concave seat of wooden chairs by means of a grinding or cutting wheel.

Arts, Ornamental, etc.

Photograghic plate holder, Wm. and Wm. H. Lewis, New-York.——Photographic plate vise, J. W. Jarboe, New-York.——Melodeon, Riley Burditt and Hatsell Green, Brattleboro', Vt. A new mode of sounding octaves by pressing a single key. The levers are all "fulcrumed" on the same fulcrum board, and both board and levers may be removed and replaced readily.——Pianoforte action, J. A. Gray, Albany, N. Y.

Printing.—Hand printing press, N. L. Chamberlain, West Roxbury, Mass. ——Same, Francis C. Coburn, Ipswich, Mass., assignor, etc.——Rotary printing press, J. C. Davis and Wm. Miller, Elizabeth, N. J.——Printing press, Horace Holt, Manchester, N. H. Designed particularly for printing cards. The platen is operated by a cam, with a rotating and vibrating ink roller, with novel means for throwing the cards from the platen.——Composing types, Wm. H. Mitchell, Brooklyn, N. Y. Regards the manner of dropping one type at a time from the line of types in the conductors, etc.——Hand stamp, Leonard Bailey, Winchester, Mass. New arrangement of ink fountain and its discharging roller, etc.——Same, Horace Holt, Winchester, Mass. Combination for inking and taking the impression.

Jewelry, etc.—Guard for breast-pin, J. M. Ross, Springfield, Mass.——Chronometer escapement, James Fulton, Louisville, Ky.

Fire-arms, etc.—Fire-arms, S. K. Lovewell, Gardner, Me.——Piston for muzzle loaded gun, John T. Foster and Jacob J. Banta, Jersey City, N. J., assignors, etc.——Bomb shell for killing whales, N. Scholfield and Wm. W. Wright, Norwich, Ct., assignors, etc.——Lubricating fire-arms, Samuel Colt, Hartford, Ct.

Household Implements, etc.

Washing machine, Richard Collins, Chicopee, Mass. A vibratory dasher, soap receptacles, with an aperture for discharge, etc.——Churn, E. P. and J. A. Cowles, Oakfield, N. Y.——Curtain rollers, Purches Miles, Hartford, Ct.——A combination of the tooth and flanged pulling, endless eyelet band, friction spring, etc.——Washing machine, L. C. Rodier, Detroit, Mich. A revolving cylinder in connection with an elastic jacket.——Soap mixture, Isaac Rooraback, Parish of Caddo, La.——Tin pan, G. Smead and E. F. Parker, Proctorsville, Vt. A milk pan with a stuck up bottom, and united to the side as described. ——Paring apples, Benj. F. Joslyn, Worcester, Mass.——Baby walkers, Joseph Thomas, Brooklyn, N. Y., assignor, etc. A circular cushion or annular table constructed in halves, confining the child in a vertical position, but allowing it to turn at will with the cushion, etc.——Clamps for brooms, Samuel Mason, Indian Springs, Ind. So uniting the hinged portion of the case to the handle by a thong, cord or wire, that the leverage of the handle may be used for closing the hinged portion, etc.——Mangle, R. A. Stratton, Philadelphia.

Medical, etc.

Enema giving apparatus, B. T. Babbitt, New-York. By the employment of hydrostatic pressure, and a portable reservoir, etc.——Hernial trusses, A. T. Hardin, Shelby, N. C. A new position and application of the lever.

Miscellaneous.

Fire-proof stone, Thos. Hodgson, Brooklyn, N. Y. Molded stone for stucco work, architectural ornaments, etc., of pulverized granite, sulphates of iron, zinc and lime, starch and tannin.——Basin cock, Robert Leitch, Baltimore, Md.

——Plates for teeth, A. A. Blandy, Baltimore, Md. Manner of molding the plate.——Rock drill, T. H. Barridge, St. Louis, Mo.——Pen and pencil holder, G. H. Byron, Governor's Island, N. Y.——Cutting pasteboard for boxes, E. B. Clarke, New-Haven, Ct.——Telegraphic repeaters, M. G. Farmer, Salem, Mass., and A. F. Woodman, Portland, Me.——Bill holders, E. F. French, Franklin, Vt. ——Machine for stuffing horse collars, W. H. Haworth, Philadelphia. Peculiar position and application of the lever.——Brick machine, A. V. Hough and R. W. Jones, Greencastle, Ind.——Compensating the local attraction of the magnetic needle on ships, Calvin Kline, New-York.——Combs, Thos. P. Calking, Hartford, Ct., assignor, etc.——Fireman's mask and respirator, Israel P. Nelson, Cambridge, Mass., assignor, etc.——Making nitric acid, Philip O'Rielly, Providence, R. I.——Smut machine, Wm. Zimmerman, Quincy, Ill.——Feeding drill shaft, Geo. C. Taft, Worcester, Mass.

Method of preserving Meat.—It is claimed by Messrs. Shroeder and Durch that meats may be preserved a long time in filtered air. This is accomplished by lining the closet, in which the meat is kept, with panels of cotton wadding.

Wood—Fire-proof.—A patent has been secured for a process claimed to accomplish this, by steeping the planks in a solution of the phosphate of ammonia, and afterwards subjecting them to heat.

Iron converted into Steel.—The Damascus Steel Manufacturing Company have patented a method for converting wrought iron into steel.

Brick-making Machine. John Roberts.—A mode of making pressed bricks from the coarsest material has been brought before the English public. A series of cast iron molds is fixed in a circular track, and a roller, weighing from one to ten tons, connected with a beam and moved by cog-wheels, is driven round it by steam, or other convenient power. The clay or earth is thrown into the molds, when the roller presses it in firmly. This wheel is followed by a scraper, to remove the excess of material from the surface of the molds, a smaller roller acting as a balance, to prevent the scraper from rising. A wheel passing a second time over the molds raises the manufactured bricks from the molds. The bricks can be made of any form, and with any pattern or design impressed upon them.

Preservative Composition. Jo. E. Cook, of Greenwich.—This is designed to protect ships' bottoms, if made of iron; they are preserved from oxidation and the adhesion of various substances by the use of this composition. It keeps out dampness from oil-painted work, Roman cement, and brick-work, and protects stone-work from the influence of the weather and varying temperatures. It is also useful on plastered walls, where paper is to be laid on.

CEMENT FOR IRON.

The following recipe for cementing cracked iron, stoves, ware, etc., we can commend from our own experience:

Take iron turnings or borings, 1 lb.; salammoniac, 2 oz.; flowers of sulphur, 1 oz. Rub well together in a mortar, and keep for use. When wanted, take one part of the above, and twenty parts of iron borings, pounded and sifted, as before, mix in a mortar, and pour in water enough to give it the proper consistency. Apply it between the parts with a blunt caulking iron, or other convenient tool.

LARGE BRASS CASTING.

The Wedegar Iron Works, Richmond, Va., have recently turned out the largest brass propellers ever produced in this country. They are designed for the war steamers Roanoke and Colorado. Their diameter is 17 feet 6 inches, pitch 23 feet, and the weight of each is 27,000 lbs. The metals used were mixed as follows: copper, 100 lbs.; tin, 10 lbs.; zinc, 2 lbs.

FIRE-WATER, DOUBLY DISTILLED.

It is ascertained that we need not be dependent upon the vegetable world for our intoxicating liquors, but we may get most gloriously intoxicated upon the products of minerals. The Breckenridge coal is found to yield very respectable brandy, and if brandy, then all kinds of distilled liquors. Coal gas is first distilled and conducted into a receiver. It then contains about eight per cent. of hydrogenous bicarbon, which is separated from other matters and mixed with sulphuric acid. Water is added to this, and the compound distilled, and alcohol is the product. All it then requires is the flavor, and that is imparted by the same process now employed for seven eighths of what is sold for "Best Cognac." This, surely, is fire-water, and twice distilled.

COAL BURNING ENGINES.

We have given, as our opinion, that we are on the eve of very great changes in the production of artificial lights. We also believe that similar progress may be anticipated in respect to artificial heat. Thousands of minds are intently fixed on this as a practical question, and important results are certain.

One branch of this subject applies itself to the production of steam for locomotives and marine engines; unless, indeed, superseded by another improvement in the substitution of something else for steam. If careful and costly experiments will suffice, even this problem will, ere long, be wrought out and demonstrated. The use of coal on railroads is not new, entirely. We remember being on board an experimental train, in the Bay State, years ago, and the result compelled us to be satisfied with a cold dinner. But this, of course, was because the machinery, boiler, furnace, etc., were not adapted to that fuel. Changes have been made, and now experiments seem to promise success. We cut the following from two exchanges, though we are sorry to say that we have lost the name of the sheet containing one of them. The first is from the *R. R. Advocate*, which says:

"Those of our readers who are interested in railroad affairs, have doubtless noticed a new engine, of peculiar appearance, on the track of the Illinois Central Railroad, having a smoke-stack of the small straight pattern of English locomotives, in place of the large spark collector we have become accustomed to. These were built by William Mason & Co., of Taunton, Mass., under a contract to finish, for the Illinois Central Company, two passenger engines adapted to the use of coal, guaranteeing that they should burn the ordinary product of our Illinois mines without incommoding passengers with the smoke, using exclusively the coal found on the Company's line, until the test was satisfactorily met, and the machines accepted. Not discouraged by some difficulties met with in introducing the first engine, they have put on a second, and this has run the passenger train between Chicago and Urbana for a fortnight past, probably not one passenger out of fifty knowing that the engine was burning coal. To test the machine more completely, several of the officers of the road left Chicago last week for Cairo, thence to Dunleith and back to Chicago, via Mendota—a grand circuit of 1,044 miles, run with one engine; and the whole was performed without the slightest delay or accident, or any visible failing in the tireless steed.

The consumption of coal during the trip was six tons. This experiment is the most successful of those which have yet been tried with Illinois coal, and the result is likely to be of the greatest importance in railroad economy."

Another, which arrived the same day, says:

"A very satisfactory experiment was made last Saturday upon the Boston and Worcester Railway, under the direction of Mr. A. S. Adams, the Master Mechanic. The coal-burner *Ajax*, with the Delano grate improvement, hauled five well filled passenger cars to Worcester and back, a round trip of 90 miles, burning but 2,450 pounds of coal and evaporating 1,998 gallons of water. This is equal to 6 8-10ths pounds of water to 1 pound of coal. The whole cost per mile run was 7 91-100ths cents. The *Ajax* is used for the freight service, and has 5 1-2 foot wheels, 15 inch cylinder, 20 inch stroke, 54 inch grate, 120 two inch brass flues, 10 feet 5 inches long, and is inside connected.

Another experiment was recently made on the Boston and Providence Railway with a Coal-burning freight engine built by the Manchester Locomotive Works. Although the engine was not adapted for the particular trials, she hauled at one trial a passenger train over the road and back, a distance of 90 miles, making the usual stops, and used 2,827 pounds of coal, evaporating 20,564 pounds of water, or 7 28-100ths lbs. of water per pound of coal. The engine has brass tubes."

ANSWER TO MECHANICAL PROBLEM.

[See April number.]

Clinton, Mass., April 18, 1857.

Messrs. Plough, Loom & Anvil:—Being an interested reader of your valuable pages, I take the liberty to send you the following solution of the "Mechanical Problem" contained in your April issue:

The *man* on shore must pull as hard as his fellow in the boat, in order to retain his position. The *post* on shore does the same. The resistance to each boat is overcome by the force acting against the bottom or sides of the boat by means of the feet or limbs of its navigator, in bracing himself to pull upon the rope. The resistance to each boat being the same, and the forces applied to overcome that resistance being equal, both boats will reach the shore at the same time.

The problem is one which does not require and hardly admits of a *mathematical demonstration*, the point at issue turning entirely upon the question whether the pulling of the *live* post on shore makes the force applied to one boat more available than the pulling of the *dead* post does the force applied to the other; for, according to the statement of the problem, both these *posts* do precisely an equal amount of pulling.

P. W. F. C.

Recent Foreign Inventions.

CEMENT FOR UNITING PLAIN OR ORNAMENTED SURFACES OF GLASS, OR OF GLASS AND METAL OR OTHER MATERIAL. LOUIS CORNIDES, London.

THIS invention consists in the use of the following improved transparent cementing compositions or solutions for attaching metallic and other surfaces to glass; which operation is effected in an air-tight apparatus of the construction hereinafter described, into which the materials to be united are placed after the contact surfaces thereof have been coated with the cementing mixture; and further, in exhausting the air, by any suitable means, from the chamber containing the materials to be united; and, lastly, in the application of heat to the said chamber.

The cementing mixtures or solutions to be employed for uniting surfaces together are as follows: Cement No. 1, is composed of four parts of gum damar, or other transparent gums or resins, mixed with one part of spirits of turpentine or other solvent. Cement No. 2 is composed of one part gelatine, one part sugar, and eight parts water. No. 3 cement is composed of four parts gelatine, one part sugar, four parts water, and one sixteenth part of creosote, thoroughly mixed and incorporated together. In making and using cement No. 1, the gum is dissolved with turpentine by the aid of a sand bath, and when strained, a certain quantity is poured in the center upon one of the surfaces to be cemented; the edges of the surface are covered with paper to prevent the cement from running over the edges, and in this state the other surface is laid thereon, and pressure is applied to it by weights. When the process of cementing is completed, the paper is stripped from the edges thereof, and the edges are dipped in a thick solution composed of one part gelatine, one part sugar, and two parts water, which forms a cement, to be employed to receive a mounting of strips of lead, such as are used by glaziers for glazing small squares of glass with.

In using cement No. 2, the two surfaces to be cemented together are coated with the cementing solution, and when the coating is dry these surfaces are placed one upon the other, and afterwards subjected to the action of the apparatus hereinafter described. The edges of the two surfaces are next cleansed, and afterwards dipped in a thick solution of damar or other gum, dissolved in any suitable solvent.

In using cement No. 3, a small quantity of the cementing solution is poured upon the center of one of the surfaces to be cemented, and the other surface to be united is placed thereon, and by the application of pressure the solution is spread over the entire surfaces which are in contact. The edges of the plates thus united are cleaned, and afterwards dipped into a solution of damar or other gum, as aforesaid.

The following is the construction of the apparatus before mentioned to be employed for the purposes of this invention: The general form of the apparatus somewhat resembles a screw press, such as is commonly employed for copying letters; to the bottom of which a washer of vulcanized India-rubber, about half an inch thick, is adapted; and instead of making the top platten (to which the screw is affixed) flat, the edges thereof are made deeper or thicker than the middle, so that, when the platten is screwed down tight upon the India-rubber washer, it leaves an air-tight space, into which the materials to be cemented are placed—the depth of such chamber being in accordance with the quantity of surfaces to be operated upon at one time. The bottom of the apparatus is formed hollow, and has steam or other heat admitted thereinto. This cementing chamber is put into connection with an air-pump for exhausting the air therefrom, and causing perfect forced contact of the cemented surfaces, the heat fixing them in that position.

When it is desired to cement or unite together a larger quantity of surfaces than could be conveniently performed in the above apparatus, an air-tight room, constructed upon the same principle as the above apparatus, is used.

Mode of lubricating the spindles of machinery for preparing or spinning cotton, etc. John Elce and S. F. Cottam, Manchester.

This invention consists in attaching to the lifting-rail of a roving-frame or throstle, or other machine for preparing and spinning, in which a lifting-rail is employed, a rib covered with flannel or other suitable material, which being kept saturated with oil or other lubricating material, lubricates the spindles as the lifting-rail moves up and down.

Improvement in Spindles. James Mills, Oldham.

This invention consists in applying bushes or hollow-tubes of cast-iron or other suitable metal to the spindles used in spinning and doubling machines, in such manner that the bush will rotate with the spindles, and at the same time be at liberty to slide up or down on the same, as may be required.

Improvement in Throstles. Peter McGregor, of Manchester, and Thomas Marquis, of Lancashire.

This invention consists, firstly, in giving a longitudinal to-and-fro motion to a strip or rail of wood, iron, leather, gutta-percha, or other suitable material, covered with flannel or other suitable material, on which the bobbins are supported, for the purpose of producing a uniform friction between the bobbin and the flannel or other material. Secondly, the invention consists in driving the spindles by means of bands passing round vertical drums driven by a horizontal shaft and gearing.

Improved machine for boring Stone, etc. Alexandre Tolhausen, Adelphi.

This invention for improvements in boring and cutting stone is applicable to a variety of boring and internal cutting purposes, but is only intended to be used in operating within a hole which has been previously drilled or bored by some other means. It is capable of enlarging and making perfectly true the irregularly-shaped holes which are produced by the drill, which is most commonly employed for drilling stone. It is also capable of producing a large chamber of almost any shape, at the bottom of or at any distance from the mouth of a small hole, to contain a large charge of powder for blasting purposes, or to serve any other purpose. It is further capable of enlarging the lower part of any hole for fastening a shaft, pillar, or other support therein. It may also be employed to cut a screw-thread in the interior of a hole, and it may serve to perform many other useful boring and internal cutting operations.

Improvements in ornamenting or decorating Glass. Henry Page, of Whitechapel-road.

This invention for improvements in ornamenting glass, consists in cutting on blocks the designs with which the surface of glass is to be ornamented or decorated, after the manner of blocks used in calico printing, paper staining, etc.; or the designs are cut out of thin metal or other suitable material, as in stencilling. If cut on blocks, the blocks are dipped, and receive the color from a sieve or roller, as in paper staining. If the designs are cut out in metal or other plates, the color is applied with a brush, and may be applied at once to the surface of the glass after it is prepared; but the following is preferred:—The surface of calico, paper, or other suitable material, is coated with size, gum, or starch, and when dry, the design is printed on it with colors made up in varnish, oil, or spirit. The size prevents the printed colors from entering the surface on which the design is printed, and when the whole is dry may be kept rolled up until wanted to be fixed on the glass. The glass is now prepared by taking off the polished surface with emery or other suitable material, and made quite rough, so that the first coat of varnish or cement may adhere well to the glass, which is then ready to receive a coat of white hard varnish, japan, copal, or other suitable body varnish, and when that is done, and before it dries, the surface of the printed design is turned down upon it and pressed down evenly. When quite flat the back is wetted with water, and that softens the size, which allows the fabric on which the design was printed to come away, leaving only the printed design on the glass: the whole is dried off together, and then washed well in water to remove any size that may have passed in the transfer.

The design or ornament now only requires hardening, and this is effected by placing the glass in a drying stove, oven, or other suitable apparatus: care must be taken that the heat is applied slowly, and not carried high. The heat must never be carried beyond the degree the nature of the colors will allow without injury. It should be observed, that if the stencil mode is followed, the design not only can be applied at once on the glass, but can, like the block printing, be first applied on paper or any other suitable fabric previously coated with size, gum, or starch, and then transferred, as before stated.

A new Metallic Composition for the coating of Surfaces and for Molds and Castings. Benoit Frederic Ortet, Finsbury.

This invention consists in treating iron pyrites either alone or in combination with iron ore, or sulphur, or products containing sulphur; by which a substance called "ferreine" is produced, which is susceptible of being molded and applied to the manufacture of cisterns, basins, and pipes for conducting water, and to the construction of pavement, floorings, roofs, and the foundations of houses, for the coating of surfaces, and for other useful purposes.

In producing the substance called ferreine, two boilers of a given capacity, connected together by a tube adapted to each of their lids, are employed. In one of these boilers, yellow iron pyrites, or other product containing sulphur, is placed, such as the sulphurets,—but the natural sulphuret of iron, on account of its abundance and cheap price, is preferred. In the second boiler powdered pyrites or iron ore is placed. The fire under the first boiler being lighted, the pyrites is melted, and the sulphur (about fifteen per cent.) given off under the influence of the heat, distils over to the second boiler, heated to a low temperature, by means of which the sulphur combines with the iron ore in the second boiler, and produces a bisulphuret of iron termed ferreine.

Ferreine is produced in various ways, according to the intended application: first, the ferreine is prepared by melting the pyrites direct without distillation; secondly, by adding sulphur to it; thirdly, by mixing other sulphurets with it; fourthly, by preparing it artificially with ores containing sulphur and iron combined in any proportions. The different changes which the ore undergoes during its treatment, cause it to acquire properties which render it completely unalterable under the effect of air, water, and acids.

The ferreine, when produced, must be submitted to the molding and casting processes, for the purpose of obtaining the required result, when it may be painted, gilded, or bronzed, like the metals.

Method of preserving Wood from Decay and from Injury by Insects. Robert Wiltiam Sievier, Bruxelles, Belgium.

This invention consists in subjecting timber or wood, when saturated or impregnated with materials or solutions used for preserving such wood or timber, to pressure between rollers, or otherwise, so as to compress the substance thereof and close up the intersticial spaces, by bringing the woody matter into closer contact,—the result being that the wood is rendered perfectly impervious to the decaying influence of air or water, and the attacks of insects, while at the same time it is rendered more dense and durable; and it is also capable of being used in place of the harder and more scarce and costly woods, being, by this process, capable of receiving the highest polish and of resembling them in their general properties. The wood is prepared for pressure by causing the pores to become filled with rosin, tar, pitch, bituminous matters, or any other materials or compounds used for preserving wood, and, if necessary, with coloring matter. Solutions of gelatine, in combination with certain solutions of metallic salts, are sometimes employed—the process being so arranged that their mutual decomposition may take place in the pores of the wood, and solid matter be therein deposited and precipitated; or any of the well-known chemical salts or compounds are employed, which will, upon contact or mixture, throw down or deposit solid matter. Chemical compounds, such as chloride of mercury, sulphate of copper, sulphate or chloride of zinc, arsenious acid, nitrate or acetate of lead, antimony, or any other suitable salt or poisonous drug, are also used to prepare the wood, prior to its treatment with any of the substances mentioned (by preference), when it is required to preserve such woods from the action of insects; or these salts or materials are used, in combination with the others named, whenever it is desired. If the wood or ttmber is intended for situations where the "toredo navalis," or any other destructive insects abound, it must be first impregnated with some of the above, or other poisonous substances; and (by preference), when the wood is dry, it is to be impregnated with the bituminous substances, and then subjected to pressure.

In carrying out this invention, the wood is first heated in any convenient manner, in order to expel all moisture and air, and then it is plunged into a bath of pitch, rosin, bitumen, or any of the solutions named, or pitch, bitumen, rosin, etc., dissolved in any suitable solvent; and the process of impregnation is also promoted by means of proper exhausting apparatus communicating with the timber, by means of which the pores of the timber may become exhausted of air, and the materials be driven therein by reason of the pressure of the atmosphere; but any of the well-known methods of saturating or impregnating timber with substances, for its preservation, may be adopted.

The operation of saturating or impregnating being complete, the timber is removed from the bath or vessel, and placed in some convenient situation for draining it, and removing all superfluous fluid. The wood, so saturated, is then subjected to the pressure of powerful rollers, the surfaces of which may be made to correspond to any suitable shape or design which it may be desired to give to the timber; or any other suitable means of effecting the necessary pressure, and sustaining the same for the necessary period, is employed. The fibres and cells of the wood thus become powerfully compressed, and squeezed closely together in a more compact and reduced mass; which compactness is increased and rendered durable by reason of the resinous, bituminous, or other matter contained therein; and the pores of the wood being filled and condensed, the timber is thus rendered impervious to water or air, and the attacks of insects. The wood should be passed slowly between rollers, which will shape the wood and squeeze the fibres closer togegher: it should be gradually pressed into the shape required, in the same manner as the rolling of iron: for instance, a piece of American pine wood will easily press into half its former bulk; but if the pressure is given at first with too great a force, the fibre of the wood is, to a certain extent, destroyed, and its strength injured. The wood is passed several times between the rollers slowly; each time the pressure being increased: this gives the fibres of the wood time to arrange themselves without being injured by fracture. The wood should be sawn a little into the form intended to be rolled: for instance, suppose a sash window-frame is desired to be made, the sectional form of the wood should be a sort of lozenge, so that the rollers may more easily press it into the shape intended. The same must be done with the wood intended for girders or any large pieces of timber. Should the timber require bending, the machines in use might be so modified as to bend and compress at one operation. When planks of compressed wood are required, the timber may be sawn into planks before or after compression; but it is preferable to compress the wood after being sawn into planks. The same with regard to veneers, which are produced, by this invention, of great utility and value. Wood, when colored or stained, and impregnated as described, posesess, after compression and subsequent finish, a very compact and beautiful appearance, which renders it extremely serviceable in ornamental or cabinet work, and for tesselated wood floorings.

A NEW OR IMPROVED METHOD OF MANUFACTURING TUBES OF COPPER AND ALLOYS OF COPPER. By THOMAS WILKES, of Birmingham.

In manufacturing hollow cylinders or tubes of copper, or brass, or such alloys of copper, thick hollow cylinders are first made by casting or otherwise. They are subjected to the operation of grooved rolls, so as to elongate them and diminish their diameter, and thereby to convert them into such tubes as are required in commerce. The tube has an internal support or mandril while being subjected to the action of the rolls, and it is rolled in a series of progressively diminishing grooves until it has been sufficiently elongated and reduced in diameter.

Miscellaneous.

Scientific.

CHEMISTRY.

We have never supposed that the practical farmer should undertake to be a practical chemist. The latter is a trade by itself. The former is the best business in the world—the great, Heaven-appointed employment, for about half of the whole human family—an avocation compatible with high intelligence, great self-respect and general esteem, but not favorable to a cultivation of the exact sciences. If, therefore, an individual wishes to be a chemist, we would advise him not to be a farmer; and *vice versa*, if he has the ambition (and it is not a low ambition) to be a first-rate farmer, we would not advise him to undertake to be a chemist also.

There is, however, such a thing as chemistry for the million, including the farmer and all the industrial classes. It might be called the *chemistry of common life.* Now, there are sixty-four simple substances in nature, making up, as is believed, the solid globe and all that is upon and around it. This is not a large number. At first thought, we should say that anybody might become acquainted with so many, or rather so few. But these combine variously with each other, and form millions upon millions of compounds. It seems hopeless, therefore, for any, except those who give nearly the whole of life to the study, to be chemists in any liberal sense of the term; and it is for this reason that we would not advise a person to attempt very much in this line, unless he means to make it a life business.

Shall, then, the active, the useful, the laborious—those who exercise the bone and the muscle that hold up the world—despair of knowing any thing of so important, so useful a science? We say not. For a long time, we have been of the opinion, that chemical facts, interwoven with the industries of life, and especially with agriculture, may be drawn out and presented to the unchemical mind, (if we may coin a word,) so as to be comprehensible to all who have a little patience; and not only satisfactory, but highly useful. Of the sixty-four elements which are supposed to constitute the whole globe, fifteen only compose by far the greater part, probably more than ninety-nine hundredths of the whole. It is true that almost innumerable compounds are derived from these fifteen, but a few of them only are important. If we take the fifteen elements and thirty-five of their more important compounds, making fifty in all, we have about all that constitutes our soils, the vegetables and animals upon them, the air above them, our own bodies, our garments, dwellings, every thing with which we are conversant.

To know how these substances exist in the air and soil, how they are transmuted first into vegetable and then into animal life, how upon the destruction of organized beings they return again to the soil and the air, and by what laws they are reproduced in other forms of life, is not only a matter of ingenuous curiosity, affording a high degree of rational pleasure to the inquiring mind, but of real, practical utility; since such knowledge improves the judgment, makes good common sense better common sense, and often decides the best course to be pursued, where other indications, without this, would be insufficient. Let us not be understood to say that science can create good common sense and sound judgment where they do not exist. It can not; and yet these are all-important; nothing can be a substitute for them. But we do say, that these, and every practical quality of the good farmer, may be improved by such knowledge of the chemistry of soils and crops, as every farmer, and more especially the young farmer, and the boys not long out of school, may, without much difficulty, and without the consumption of much time, acquire.

Disclaiming the idea that farmers, and men in the other active pursuits, can be chemists, in any such sense as to compete with men whose life-work is science, we insist, nevertheless, that with a little patience, the grappling with a few terms uncommon to them, and the appliance of thought and memory to no large extent, they may learn what will be of great service—may pass the threshold, if they can not traverse the whole interior—may see much to gratify no idle curiosity, but a rational love of knowledge, and may bring away much that will be subsidiary to the important work of their lives.

With these views, we propose to commence a series of articles, to be entitled *Chemistry for the Million.* The first will be found below. If our readers generally, shall find instruction or pleasure in their perusal, we shall be gratified; and we say to them here, that after a few of the first articles, which must of necessity be destitute of much that is directly practical, we shall endeavor to make them useful, by the application of truths before developed, to the every-day business and interests of life.

But our aim will be more particularly to benefit the younger members of the families, to which our work is a monthly visitant. To them we say, conquer the hard names; do not let them discourage you in the outset; we will introduce no more of them than is absolutely necessary; understand them from our definitions, as well as you can, without the living teacher at hand, with eye on yours, to answer your questions; and we promise you that that the study will be easier as we advance. One of the Greek philosophers—we are ashamed to have forgotton which—said: "The roots of education are bitter, but the fruits are sweet." The first is *not* true, in our experience; the last is.

We do not propose to make you profound chemists in a few short lessons. If your parents can send you to better school than ours, it will be well. But with your efforts to comprehend the science, in connection with ours to simplify and make it plain, we will give you what will be a great deal better than nothing, on a science interwoven with all the affairs of life.

Our first number must be short, for the want of space. Succeeding numbers will be short, because we shall not choose to occupy long spaces with matter that may not interest all. And we shall continue these articles no longer than we have evidence that they are appreciated as useful.

If any of our young friends will write us, stating their difficulty to understand us on any point, we will either explain their point of difficulty in a letter returned ,or in a subsequent number of this journal.

CHEMISTRY FOR THE MILLION.

Matter, chemically considered, is *organic* or *inorganic.* Vegetables and animals—any thing that is organized into the various forms of life—are composed principally of organic matter; rocks, soils, and other things without life, are composed mostly of inorganic matter.

Mineral is often used in the same sense as *inorganic.* Thus, we might say of a soil, that it contains two per cent., that is two parts in a hundred, of organic matter, and 98 per cent., or 98 parts in a hundred, of inorganic or mineral matter, both terms, when so used, implying the same thing.

When a body is destroyed—so far as any thing can be destroyed by man, not put out of being, but reduced to the elements of matter, out of which it was first made—the organic parts go into the air; the inorganic parts into the earth. Hence, we conclude, that when that body was produced, the inorganic parts came from the earth, the organic from the air; and we infer that all which grows—a plant, a piece of wood, a quantity of flesh, a bone, for instance—comes partly from the air and partly from the earth; and that the earth and the air are the great store-houses from which all plants and all animals are produced.

It may be interesting to inquire in what proportions the materials for all living organizations come from each of these sources. If you burn a piece of pine wood, weighing 100 lbs., 99 lbs. of it go into the air. So much, then, must have come from the air, when the tree grew. If you burn 100 lbs. of oak wood, about 98 lbs. pass into the air, and about 2 lbs. fall as ash. Then, 98 lbs. came from the air and 2 lbs. from the ground, when the tree grew. If you burn 100 lbs. of dry potato vines, about 88 lbs. or 88 per cent. rise into the air, and not far from 12 lbs. or 12 per cent. fall as ash. Then, 88 per cent. came from the air, when these vines grew, and 12 per cent. from the soil.

But if instead of burning these things, you were to throw them upon the ground, the results would be similar. The same parts would pass into the air and the same into the ground. The only difference would be in the time. By combustion, the process would be performed in a few minutes; by ordinary decay, it might require many years.

What these substances are, which come from the air and soil, to build up first vegetable life, and then, through vegetables used as food, to construct animal organizations, it is the province of chemistry to inquire. Our senses are utterly unable to detect them, as they exist in air and soil. Reasoning, argumentation, philosophizing, are inadequate. Only hard work in the laboratory, "*going at it*," fire and tongues and hammer, torturing nature resolutely, has compelled her to give up her secrets. She has yielded a prodigious number of them under this torturing process, and is destined to yield far more. Chemistry is a vast science. Through it, a mighty revelation—we say this reverently—is being made, for which we all ought to thank God; for although we may not all know much of chemistry, yet we are all enjoying a thousand comforts and luxuries, which we should not have enjoyed, had not others known more of it.

If we again recur to the question, What are those things in the soil and air which feed plants, and through them, animals? the answer is, they are fifteen simple elements of matter, and with the exception of the merest trifle of one or two others, no more. Each of these is distinct in its nature from all the others. Each is very unlike any other. Each, under certain circumstances, combines with one or more of the others, and forms compounds. These compounds are as unlike the elements composing them, as light and darkness, or fire and water.

Four of the fifteen elements are *organic*, viz.: *carbon, hydrogen, oxygen, and nitrogen*. These may be remembered by the short word, or syllable, C H O N, C standing for carbon, H for hydrogen, etc. The other eleven are *inorganic*. They are chlorine, sulphur, phosphorus, silicon; iron, manganese; potassium, sodium, calcium, magnesium and aluminum.

Every one of these fifteen elements, except perhaps, the last, is found in our own bodies, and in all animals, in plants and in soils, the plant taking them from the air and the soil; the animal taking them from the plant, or from other animals used as food.

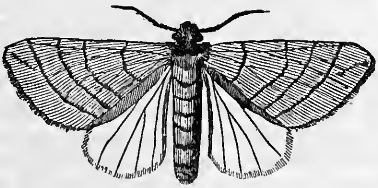
Would the reader like to have a more definite idea of *what* these elements are, *how* they contribute to build up plants and animals, and *what* becomes of them when these living organisms perish? If so, we will strive, in future numbers, to gratify his curiosity, or rather his love of utility; for we believe that, curious as are the revelations of chemistry, they are far more useful than curious.

INSECTS—

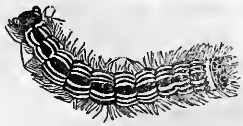
Injurious to the leaves of Trees and Shrubs.

CATERPILLARS, CONCLUDED.

The gellow naked apple tree worm, or the Handmaid Moth—Eumetopoma ministra, (Drury.) Petasia ministra, (Westwood.)



HANDMAID MOTH.



HANDMAID MOTH WORM.

This destrective caterpillar is cylindrical, dull yellow with light yellow stripes and black head when young, becoming black, with light yellow stripes and yellow neck. When alarmed, they elevate both extremities of their body. They live in dense clusters, and strip whole limbs of their verdure.

The wings of the moth vary in color from buff yellow to brown, and are crossed by four or five narrow bands, regularly curved. The fringe of the wings is short, and of the same color with the bands. The hind wings are pale or whitish, tinged more or less with tawny yellow, or dusky. The head and fore part of the thorax is yellow or orange, behind, nearly the color of the wings. The feelers or palpi are very small, and pressed close to the under side of the head, and are clothed with short hair-like scales, their tips being very slightly exposed. The antennæ in the males have two rows of short hairs along their inner sides; in the females, they are entirely naked and scarcely a third the length of the wings.

The presence of these worms is often noticed for the first time, by the nakedness of a limb. On examination, numbers of plump, glossy worms, varying in color from dull yellow to black, may be found on a contiguous branch, all crowded together, with their extremities raised upwards if at rest, or if eating, arranged on the under side, each head near the margin of the leaf, appearing like a string of beads. If the limb is struck, they elevate their extremities and remain rigid and motionless till their alarm has subsided.

In passing from one limb to another, they spin a thread so fine as to be invisible to the naked eye, which clings to the bark, and furnishes a guide by which the few stragglers that are sometimes left behind after the mass have removed their quarters, can track them without difficulty and rejoin their company.

The worms are from six to eight weeks in coming to their full size, but when ready for their transformation, they all, with rare exceptions, evacuate the tree in a single night, and enter the ground three or four inches, and in twenty-four hours (according to Dr. Harris) become chrysalids. But Dr. Fitch has found them, he says, unchanged, though contracted in size, after they had been in the ground ten days.

The Apple shoulder striped Tortrix, Brachytænia Malana.—This is a thick cylindrical worm, about one inch and a quarter in length, of a pale green color, and fine white lines and numerous white dots. It appears sometimes in the last days of May, and sometimes later, and does not disappear till August or September. It eats irregular notches in the margin of the leaves of the apple tree, and sometimes of the cherry, peach, and some few forest trees, and also holes in the middle of the leaves When ready for its transformation, the worm detects a thrifty leaf, one half of which it bends into a cylindrical or curved position by attaching silken threads to its edge, and also at or beyond its mid-rib, thus gradually drawing the two points together, and forming a hollow cavity of sufficient size to contain its own body. It then crawls into it, and continues to weave its web until it is entirely covered. The first moths appear in July.

These moths lay their eggs upon the leaves, and produce another brood the same year. The pupa of this second brood is dropped upon the ground with the leaves, in the autumn, where they lie till spring, when the warm weather hatches them. But Dr. Fitch believes that some of these moths are hatched during the fall, and secrete themselves in crevices, as under the bark of trees, and remain torpid through the winter. His own observation has satisfied him that freezing one of these moths does not always kill it.

These worms are not so destructive as those before described, but they ought to be familiar to the farmer, so that he may not misjudge as to the nature of the enemy he finds himself obliged to encounter. It should also be remembered that worms resembling these are found, with similar habits, producing moths of a very different species, to wit, an ash gray moth, belonging to the family of Noctuidæ, or those which fly by night only.

It is not necessary to describe the means by which the fruit-grower may defend himself from these species. The directions before given in reference to others far more destructive, will be sufficient to turn his attention to the use of any one or more of those, as the extent of the danger threatened may lead him to judge to be expedient.

CLASSIFICATION.

We can scarcely be charged with frequent or overdosing our patient (?) reader, if we here describe the three great sections of Lepidopterous insects, while the knowledge derived from it may enable one to be confident in determining the name of a worm or moth where our past explanations may leave him in doubt. The differences thus brought into notice, unlike some, in other parts of the system, are perfectly simple and easily understood.

The first section includes all the *Butterflies proper*, and all the insects of the genera belonging to it are furnished with antennæ which are thread-like, and *have a knob at their extremities*. This section is the original PAPILIO of Linnæus, the individuals belonging to it being called, in the plural, Papiliones, or true butterflies. The second section contains the *Sphinges*, or *Hawk moths*, all of which are furnished with antennæ, thickened towards the middle, and more or less tapering towards either extremity. Many have their antennæ hooked at their tips. They chiefly fly during twilight—fly rapidly, and make a noise much like that produced by the flight of a humming bird. When at rest, their wings lie horizontally or in an inclined position on the back. The third class contains the *moths* which have antennæ that are neither knobbed nor thickened towards the middle, but which are naked, tapering or bristled-formed, or else which are feathered on each side. These are of two classes, those which fly by day and those which fly by night only. Familiarity with this short statement will prove of great service to the student of entomology.

THE AGE OF SEEDS.—The fact that age adds value to seeds may be perfectly familiar to agriculturists, but it is new to us. A gentleman in this city is in the habit of saving his melon seeds until they are six or seven years old, and maintains with entire confidence, that, in consequence, they germinate more readily, and originate more prolific plants. This theory has recently received striking confirmation in France. In 1852, as we learn from the Paris correspondent of the *N. Y. Times*, a few grains of wheat were discovered in the tombs of some ancient mummies in the south of France, supposed to have been two thousand years old. They were planted, and produced the astonishing amount of 1,200 grains to one. The Government assumed charge of the matter; and since that, the product has been magnified in such an immense proportion, that the minister of agriculture is now enabled to distribute large quantities over the empire, with instructions from the government farm as to the best mode of cultivation.

It is suggested that the immense productiveness of this wheat is owing to the long *rest* of the seed. We imagine that it would be hard to find sufficient cause in any other direction. It opens a very fine field for speculation and inquiry, and if any of our readers have facts bearing upon the subject we should like to get hold of them.—*Springfield Republican.*

We have long been of opinion that seeds, kept at a low temperature and subject to no changes of heat, cold or moisture, would preserve their vitality an indefinitely long time—ten years, or ten thousand, or ten million. Our belief is founded on the idea that no change is going on without a variation of temperature, or in the degree of moisture; and if no change is passing, then no matter how long the time, the seed will be the *same* at any and all points of the limitless future.

It is so with cold-blooded animals. If a frog, after being locked up in solid rock thousands of years, will arouse himself from suspended animation, and snuff the nearest water, and instinctively hop away towards it, why would he not after millions of years. If a change were going on in his organization, a few years would destroy his vitality; but if no change is going on, then it makes no difference how long or how short the time.

The idea that seeds improve by keeping, is "*bran*" new to us, and we hardly think it can be correct; but it may be, and it is well worthy of the French Government and any other to inquire into it. One thing is certain—there is a great deal yet to be learned. If governments will employ their resources to enlarge the boundaries of human knowledge, it will be well.

We are six thousand years old, as a race, and not half as wise as we might be. If the American people would establish an Agricultural Department of the Government, it would make 10,000,000 farmers wiser. At an expense of $5,000,000 a year—an enormously high estimate, five times as much, we suppose, as need be expended—it would cost but fifty cents a head—almost cheap enough.

Domestic.

FUNNY RAT-TRAP.—A correspondent of the *Genessee Farmer* relates the following funny way of catching rats: "I build my corn-crib on posts about eighteen inches high, made rat-proof by putting a broad board or sheet-iron on top of the posts. Make every thing secure against rats except the granary, and have this rat-proof except at one of the back corners. Here, where they will like it best, make a nice hole with a spout five inches long on the outside where they can go in and out and eat at pleasure. Then, if I think the rats are too numerous, I take a bag, after dark, and slip the mouth over the spout on the outside of the granary. Then send "Ben" in at the door with a light, and the rats and mice will all run into the bag. Then slip the bag off the spout, and slap it once or twice against the side of the granary. Turn out the dead, and in an hour or two repeat the process. After all are killed, stop up the hole till new recruits arrive, which catch in the same way."

Another, but too selfish.—An inquirer wishes to know how he may rid himself of the rats which so infest his premises, and I desire to inform him how I got rid of mine, that had taken possession of my house both up-stairs and down. I just went to the paper-mill and procured three or four pounds of chloride of lime and placed it in their paths, and they all left forthwith; a neighbor declaring, that on that night he had about a thousand of them on his premises, and I guess he had!

LOOK ON THE BRIGHTEST SIDE.

By N. Stone.

Old man, I prithee tell me why
  You always wear a smile,
Though others oft look wan and sad;
  How do you care beguile?
Though doomed to toil and penury,
  And bowing down with age;
Yet still light hearted, blithe and gay
  You tread life's weary stage.

I'll tell thee all, my youthful friend,
  The good old man replied;
Whate'er may hap I always look
  Upon the brightest side.
O'er all the land there's not a man,
  How hard soe'er his lot,
But if he will, can often find
  A bright and sunny spot.

Washing Fluid.—Take one pound of sal-soda and half a pound of unslacked lime, put them in a gallon of water and boil twenty minutes, let it stand till cool, then drain off, and put away in a stone jug or jar. Soak your dirty clothes over night, or until they are well wet through, then wring them out and rub on plenty of soap, and to one boiler of clothes well covered over with water add one tea-cupfull of the washing fluid. Boil half an hour, briskly, then wash them thoroughly through one suds and rinse well through two waters, and your clothes will look better than the old way of washing twice before boiling.

This is an invaluable recipe, and I do want every poor tired woman to try it. I think, with a patent wash-tub to do the little rubbing, the wash-woman might take the last novel and compose herself on the lounge and let the washing do itself. The woman who *can* keep a secret has known this a year or two, but her husband told it while on an electioneering tour.—*Indiana Farmer.*

Cure for the Hog Cholera —A correspondent residing in Ohio writes that he has discovered a remedy for the malady among hogs which has proved so fatal in that and other States. His remedy is two quarts of flax seed boiled in ten gallons of water till the seed is thoroughly cooked; let it stand till cold, then give it to the hogs as fast as they can drink it—turn it down if they refuse to drink. Repeat the dose for a week or so, and it will effect a cure. Pulverized charcoal and sulphur mixed in milk, I know to have cured the hogs of this fatal disease last fall in this neighborhood.—*Genesee Farmer.*

☞ Sir William Temple has observed that the love of gardens is the only passion which augments with age, and adds, that all men eat fruit who can get it; so that the choice is only whether one will eat good or bad; and all things produced in a garden, whether of salads or fruits, a poor man will eat better who has a garden of his own, than a rich man who has none.

☞ A countryman in a light hat who was too modest to give his name, brought a bushel of black snakes into Hartford. There were 91 of the beauties, weighing 81 lbs., and they were found by their captor rolled into a ball, about two feet below the surface of the earth.

☞ Conscience is a curious commodity.—It is warranted to stretch; and though it will not exactly wash, it will turn perfectly well, and often nobody can tell when the "seamy side" is without or within.

The Marriage Relation.—The great secret is to learn to bear with each other's failings; not to be blind to them—that is either an impossibility or a folly; we must see and feel them; if we do neither, they are not evils to us, and there is obviously no need of forbearance; but to throw the mantle of affection round them, concealing them from each other's eyes; to determine not to let them chill the affections; to resolve to cultivate good-tempered forbearance, because it is the only way of mitigating the present evil, always with a view to ultimate amendment.

Children's Page.

We have not that variety of amusement for the children in this number, which we hope to have for future numbers; but here is an excellent little poem, which has been handed us by a friend; and if the children will learn it "by heart," we will strive to give them something good at other times.—Ed.

DO GOOD.

Do good, whilst here on earth you dwell;
'Twill meet a sure reward;
The angel harps each deed will tell,
And God the pay award.

What though nor fame nor fortune fall,
Nor loud acclaim of men;
That God whose eye is over all
Each noble act will ken.

Is it not great, when, from the heart,
A kindness doth proceed,
Which doth at once a joy impart,
To him who hath your need?

Then, when you can, to sorrow's call,
The drooping heart elate,
Rememb'ring though the cost is small,
All kindly deeds are great.

THE VEGETABLE KINGDOM.

Read what Captain Job Prest, in his "Wonderful Adventures," says of the vegetable kingdom:—"The term vegetable—sometimes pronounced wegetable—is probably derived from the peculiar long and pointed form of this description of esculent; hence, originally called wedge-eatable, then wedgeatable, and now refined into the present form.

"Annual flowering plants resemble whales, as they come up to blow. Flowers are very warlike in their disposition, and ever armed with pistils. They are migratory in their habits; for wherever they may winter, they are sure to leave in the spring, most of them very polite and full of boughs. Like dandies, the coating of many trees is their most valuable portion—cork-trees and boot trees for instance. Grain and seeds are not considered dangerous, except when about to shoot. Several trees, like watch-dogs, are valued mostly for their bark. A little bark will make a rope, but it takes a large pile of wood for a cord. Though there are no vegetable beaux, there are a number of spruce trees. It is considered only right and proper to ax trees before you fell them. Fruit-trees have military characteristics; when young, they are trained; they have many kernels, and their shoots are straight. Grain must be treated like infants; when the head bends it must be cradled, and threshing must be resorted to, to fit it for use. Tares are mostly found with smaller grains—which require sewing. Great indulgence in fruit is dangerous—and too free use of melons produces a melon-cholic effect. Old maids are fond of pairs—but can not endure any reference to dates. Sailors are attached to bays; oyster-men to beaches; love-sick maidens to pine."

"Did you ever go to a military ball?" inquired a lively girl of an old soldier.—"No, my dear," replied the old Revolutionary; "in those days the military balls came to us.

A drunkard's nose is said to be a "light-house, warning us of the little water that passes underneath."

Diogenes being asked of what beast the bite was most dangerous, answered: "Of wild beasts, that of a slanderer; of tame, that of a flatterer."

☞ It is not money *earned* that makes a man wealthy: it is what he *saves* from his earnings.

Book Notices, etc.

Elements of Agricultural Chemistry and Geology. By Jas. F. W. Johnston, M.A, late of Durham, England, with a complete index and American preface, by Simon Brown, editor of the *New-England Farmer*. Published by C. M. Saxton & Co., 140 Fulton-st., N.Y.

This is not a new book. The substance of it has been before the English and American people in various forms for at least a dozen years. Neither is it a good book for indiscriminate circulation. Superficial readers can be better suited. We notice it at this late day, for the purpose of giving to our agricultural readers our opinion of its value, and for whom it is valuable.

In the first place then, we consider it worth nothing for that class of farmers who cherish ignorance as a sort of birthright, and think that all are born with knowledge enough to be farmers, but have a great deal to learn in order to be any thing else—a class, *we are thankful*, small, and becoming smaller.

In the second place, it is worth little for those who want a work on agriculture to be so eminently *practical*, as they mistakenly call it, as to teach them what to do every day in the year—always explaining the *when* and the *where*, and sometimes the *how*, but never the WHY—as if the writer presumed the farmer to be incapable of investigation, a thing which we regard as a gross insult to the class.

For men who love to go into the *reasons of things*, to know the *why* and the *wherefore*, to conquer difficulties, comprehend great principles, be *independent thinkers*, doers of farm work with an enlightened judgment and a good profit, Johnston's *Elements of Agricultural Chemistry is the very book.* It is a capital thing for young men, who would improve as much upon their fathers as their fathers have upon their grandfathers, and so keep the progress up.

Men, who abhor science, and want a book that they can skim over as they would a trashy novel, at two or three sittings, should not buy this. Those who are willing "to dig" a little for the sake of being well instructed, should give ten dollars for it if they could not get it of the publishers, post-paid, for one. It embraces, in 372 pages 8vo., the cream of all Prof. Johnston's writings on the application of science to agriculture; and although Prof. Johnston said some things about our country, not as gratifying to our national vanity as we could have desired, yet it is but simple justice to say, that of all the departed, he has done more than any other man to advance an intelligent cultivation of the soil.

We really wish that so many of our farmers as approve of a thoroughly instructive, scientific work, expressed in the plainest, most common sense English possible, would read this of Prof. Johnston, as revised and condensed by himself in the last days of his most useful life.

As a matter of accommodation to our subscribers, we will send this or any other book, post-paid, to their order, for the publisher's price enclosed—$1 00 in this case.

The Object of Life.

This is one of the publications of the London Religious Tract Society. It is a beautifully-written, touching and impressive story. Its moral is that the largest measure of worldly success is altogether insufficient to satisfy the cravings of the soul, and that nothing but the religion of Christ can render life happy, either in prosperity or adversity. It is published by Carlton & Porter, 200 Mulbury st., New-York.

The Itinerant Side; or, Pictures of Life in the Itineracy.

The name of this book sufficiently indicates its object. It is pleasantly written, and is adapted to be useful as well to other denominations as to that with which it is more specially connected. It is mostly in the narrative style, and embraces a great deal of what we consider an agreeable and profitable mode of teaching by example. Carlton & Porter, 200 Mulberry-st., New-York, are the publishers.

SERMONS OF THE REV. C. H. SPURGEON, OF LONDON. *Second Series.*

Of the first series of this powerful but excentric preacher's discourses, 15,000 copies were sold in this country. The volume before us is published by Sheldon, Blakeman & Co., New-York; Gould & Lincoln, Boston; and Griggs & Co., Chicago. The style is attractive, though, in some particulars, faulty. From the earnestness of the man, however, more than from any peculiarities of style, we presume his power proceeds. This volume contains 441 pages, and is well executed mechanically.

LIFE PICTURES; from a Pastor's Note Book. By ROBERT TURNBULL, author of "Christ a History," "Genius of Scotland," &c. New-York: Sheldon, Blakeman & Co. 1857. 342 pages, 12mo.

The object of this work is to bring out, "in concrete form," the true idea of the inner or divine life The style is exceedingly attractive, and the object of the writer, whose reputation is already widely spread, is very successfully carried out. It will be not only a popular but a very useful book. It is very handsomely executed.

GRACIE AMBER. By Mrs. C. W. DENISON, author of Home Pictures, What Not, Carrie Hamilton, &c. New-York: Sheldon, Blakeman & Co. 1857. 450 pages 12mo.

This is a sprightly volume, containing twenty-eight stories, with almost every variety of scene and character. A cursory reading leads us to a favorable opinion of the whole. Mrs. D. is already an author well known to a large circle of friends, who will be glad to see this volume.

ILLINOIS AS IT IS.—Its History, Geography, Statistics, Constitution, Laws, Government, Finances, Climate, Soil, Plants, Animals, State of Health, Prairies, Agriculture, Cattle breeding, Orcharding, Cultivation of the Grape, Timber growing, Market prices, Land and Land prices, Geology, Mining, Commerce, Banks, Railroads, Public Institutions, Newspapers, &c., &c. By FRED. GERHARD. Chicago, Ill.: Keen & Lee. New-York: Fowler & Wells. 451 pages, 12mo.

This Index, transferred to and forming a title page, tells the whole story. It is well got up, and is a very convenient manual for the emigrant and his friends, and for the general student.

THE LAWS OF HEALTH; or, SEQUEL TO THE HOUSE I LIVE IN. By WM. A. ALCOTT, M. D.; for families and schools. Boston: J. P. Jewett & Co. 1857. 424 pages, 12mo.

A full and well-written treatise on the very important subject of "Hygiene," covering, all the social and domestic habits, and showing their influence on health. It is handsomely executed by the publishers.

THE MORAL PHILOSOPHY OF COURTSHIP AND MARRIAGE; designed as a companion to The Physiology of Marriage. By the same author. Boston: J. P. Jewett & Co. 1857. 308 pages, 12mo.

This useful volume treats in two parts—of the nature and objects of courtship and marriage, and the proper qualifications for marriage, and is worthy of a place in every family, young or old.

MR. DUNN BROWNE'S EXPERIENCES IN FOREIGN PARTS. Boston: J. P. Jewett & Co. 1857. 285 pages, 12mo.

This neat little volume "enlarged from the Springfield Edition," is by a very funny writer. He sees everything with very remarkable eyes, and describes everything in a very remarkable manner. It is good to read it when your digestion troubles you.

How to Talk.—There is a neat little work of 152 pages, and an appendix, published by Fowler & Wells, 308 Broadway, New-York. Most people are more prone to talk than to hear, but as this book is adapted to teach them to talk in accordance with the rules of grammar and good sense, we think it a good thing. It may prevent a great many murders—we mean of the Queen's English—and a great deal of nonsense.

National Readers.—These are a series of readers, 1st, 2nd and 3rd, adapted to the various advancement of classes. The selections seem to be judiciously made. They are accompanied with exercises in articulation, accent, emphasis, pronounciation, and punctuation. Richard J. Parker, A. M., and J. Madison Watson are the authors, and A. S. Barnes & Co., 51 John-street, New-York, the publishers.

OUR JOURNAL.

We are for making it spicy, readable, varied in matter, of solid worth; meeting the wants of sober industry, yet containing something in each number *pleasing* as well as *instructive*, adapted to all the members of the families visited by it. Will fathers be offended if it contain rather more scientific articles than they might choose to trouble their own heads with, for the sake of their older children, or if we should have a few conundrums, riddles, curious questions, etc., etc., for the younger ones? We think not, as we would not allow these things to encroach very much upon the more solid matters to which our efforts are directed.

In order to economize space, and to condense into our numbers as great a variety as possible, we purpose hereafter to give in each number thirty-two pages, at the beginning, of matter specially practical and instructive to the farmer, under the separate heads of *Agriculture and Horticulture*. To make our work acceptable and useful to the husbandman, is our first and highest aim. The part he enacts in the world's economy is essential to the welfare of all; and whatever we can do to lighten his labors, to secure for them a better reward, or to hasten that high appreciation in which he deserves to be held, will be done with a *will*, with *earnestness*, with heartfelt *satisfaction.*

Our next sixteen pages will be devoted to matters of great interest to the mechanic—but of hardly less to the farmer. We shall write and select with reference to both; and under the distinct heads of *American Inventions*, *Foreign Inventions*, and *Patents*, we shall condense into these sixteen pages a large amount of information, if not as directly useful to the farmer as the preceding thirty-two pages, yet highly useful to him, as explaning important principles of farm engineering, and the construction of improved implements; but preëminently useful to the mechanic, and making our work at least as desirable for him as any other, especially if he consults our previous pages on the cultivation of the orchard and the garden, which every mechanic ought, if possible, to possess

Farmers and mechanics should never give in to the idea that they have nothing in common with each other. They are co-workers; they are mutual supporters of each other; together, they are the Atlas that upholds the world; severed, the collosal over-striding power of commerce will trample on them both. From the very fact that they are *workers*, not *talkers*, this noisy world will be tardy in doing them justice, dependent though it is on their service, as an infant upon its parents. We have undertaken to expound their rights and to defend their interests, as no other journal has. We ask their support. Shall we have it?

Our remaining sixteen pages will be filled with miscellaneous matters, under the heads of *Scientific, Domestic, Children's Page, and Book Notices.* Under the first, we propose to give a series of articles, more strictly scientific than is common with such journals; and yet not abstractly scientific, not scientific in the miserable sense of using terms that few understand, but in that of illustrating important truths, of bringing them within the comprehension of all, and of applying them intelligibly to the great business of cultivating the soil. We hope to make these articles of great value to the farmers, and especially to young men aspiring to excel in this noble calling.

Under the head of *Domestic*, it is our purpose to concentrate as much information on matters of household economy as our space will allow. Our *Children's page* will be instructive to the *little folks*—perchance amusing; and we suppose no harm will be done if our oddities should make them laugh, and some good perhaps, if our questions should set them to *thinking.* In our *Book Notices, etc.*, we shall endeavor to give correct views of such works as come under our notice, and occasionally, as in this number, of an old one which we regard as peculiarly valuable.

We have reduced our price and adopted the cash system. It is our fixed purpose to publish a larger and better work than any other of the same price. And now, readers, there are two things we want you to do for us:—1st, those who have not paid, to pay up, and 2d, all to send us each a new subscriber or two. On the first point we have but little to say. We beg the few who are behind to remember that the balance due is but a small affair for each one of them, but in the aggregate is important to us, and to enclose accordingly. As mistakes will happen, we may have in some cases erred in our charges. We certainly have not intended it. If any, to whom bills may have been forwarded wrongfully, will write us an explanation of the case, they shall find us ready for an honorable and fair adjustment.

On the other point we have more to say. Every one can see that a reduction in the price of a publication implies a much larger reduction in the profits. If it costs you a dollar to grow a bushel of wheat, and you sell it for two dollars, your profit is a hundred per cent; but it does not follow that if you sell it for half as much, your profit is half as great. On the contrary, it is reduced to nothing. Now, we do not pretend that we have put our price down to the point of no profit; but we have reduced it to a point requiring five times as many subscribers to support the work, as would have supported it at the old price; and we are not sorry for it—only give the increased number, and we shall be far better suited than before. But as we have put our price below the point, at which a periodical can be sustained by sending out agents, paying commissions and traveling expenses, we are dependent upon our old readers—those who already know and approve our efforts—to make them known among their neighbors and acquaintances, and we beg that they will do so. We should be ungrateful not to acknowledge that many of them have, and that we are daily reaping the benefits; but as others have not, we must beg them to go and do likewise. The fact is, a very little persuading will induce almost any man to subscribe for such a journal, at such a price.

Reader, just try it, and you will find it as we say. There are probably half a dozen men in your neighborhood, who would either take this journal at the price per single copy, or in a club, at club prices, if you would show them a copy and name the terms. Look around you and see if it is not so, and let us hear from you. Fresh copies shall be forwarded without expense to you, to be used as samples, if you will notify us by a line that you desire it; and if you choose to form a club, and become one of its members, thereby reducing the price of your own subscription, you are at full liberty to do it. All we ask, and in that we are heartily in earnest, is, that you will aid us in making our journal—its character and object, its claims and its terms—known in your region. That you *will* do. Now, don't say us nay.

CORRECTION.—The printer's boy in our last made us notice a treatise, a most valuable one it is, on "Grapes and Forage Plants," by C. L. Flint, Esq., Secretary of the Mass. State Agricultural Board. We suppose the boy was not aware that cattle oftener feed on *grasses* than on *grapes*. But probably our readers "*guessed*" at what was meant.

THE GOOD OUTWEIGHS THE EVIL.—A writer in the *Germantown Telegraph* says—and we think proves beyond the possibility of a doubt—that the birds are the farmer's best friends; that even the crow, the most hated of all, does him more good by the destruction of insects, than harm by his occasional depredations; and that crows should rather be encouraged by the farmer as friends, than persecuted as enemies. We will publish his thoughts and reasonings in a future number. Meantime, let farmers and farmers' boys "*spare the birds.*" N.

BLACK CURRANT WINE.—At the late Convention of Fruit Growers of Western New-York, several gentlemen presented facts in relation to the manufacture of *Currant Wine*. These gentlemen were requested to prepare a statement of their practice for publication. In accordance with this request, Dr. Long furnishes the following:

Pick and squeeze the currants when fully ripe. To one gallon of juice add six quarts of water, and to each gallon of this mixture add three and a half pounds of brown sugar. Mix well together and strain. Put into a cask, and let it be ventilated till it shall have passed the active or vinous fermentation, when it may be well corked. As it will improve by age, it may be well to let it stand undisturbed for years, unless wanted for medical purposes.—*Rural New-Yorker.*

TO MAKE CORN BREAD.—Two qts. corn meal, one qt. rye, one qt. of sweet milk, one qt. of buttermilk, one teacup of molasses, one spoonful of salt, and one teaspoonful of soda. Beat with a spoon until well mixed. The crust, if not burned, will make excellent coffee.

PICKLE FOR BEEF.—To one hundred weight of beef four qts. of salt, two oz. of saltpetre, and one pint of molasses; mix in water enough to cover the meat.

NEW-YORK CATTLE MARKET.

TOTAL RECEIPTS FOR THE WEEK ENDING APRIL 22.

	Beeves.	Cows.	Calves.	Sheep and Lambs.	Swine.
At Allerton's	2,135	47	841	615	1,375
" Browning's	174	57	62	1,829	—
" O'Brien's	102	160	34	—	—
" Chamberlain's	114	407	181	,343	—
Sold at Bergen	80	—	—	—	—
	2,605	817	1,188	3,287	4,[illegible]75
Last week	3,[illegible]84	388	965	3,288	7,741

PRICES.—*Cattle*, first quality, $13@13 50; medium, $12@12 50; ordinary, $11 50@12. *Cows* and *Calves*, of fair quality, $50, and from that, according to quality, to $100, and in some cases as high as $100 and $125. *Calves*, numerous but poor, some half starved and some more than half, some finished by the butcher's knife and some by the storm; and as we New-Yorkers are a hungry set, they all get eaten. *Sheep*, fair quality, 13 cents a lb. *Swine*, first quality, 7¼@7½c. a lb., live weight; second quality, 7@7½c.; first quality, small sizes, fat and prime for the butcher, 7¾@8c.

PREMIUM EXTRA.—We will send (carefully inclosed, warranted perfect, and without expense to the receiver,) a copy of The People's Pictorial Domestic Bible, (**See Advertisement,**) to any person who will send us the names of eight new subscribers with sixteen dollars. See also in our last, page 636, the offer of premiums for clubs:—a book worth 75 cents for a club of four; a bound volume worth $1 for a club of five, six or seven; and a bound volume richly worth $2 for a club of eight or upwards, to be sent by return of mail post paid.—EDS.

The Plough, the Loom, and the Anvil.

Vol. IX. JUNE, 1857. No. 12.

Agricultural.

LABOR-SAVING IMPLEMENTS.

Between the farmer and the mechanic, there need be no controversy. It is for the interest of the mechanic, that farm produce should command a remunerating price; and it is as clearly for the interest of the farmer, that mechanical skill and industry should be fairly compensated. In a well governed country, these two classes, while working out the material prosperity of all, must necessarily be customers to each other; and each, if a liberal view of things be taken, must, it would seem, rejoice in the other's prosperity. When farmers and mechanics are justly distributed over a country, the former producing the raw material, and the latter manufacturing it into all the necessities and luxuries of life, and the two freely exchanging products, it would hardly seem possible that either should envy the other, or begrudge the patronage necessarily extended to his fellow-laborer.

But the middle men come in between; and the farther the farmer and the mechanic are from each other, the more of them get between; and the more there are between, in the character of merchants, carriers, speculators, agents, solicitors, "*et id genus omne*;" the more the farmer fails to get from the mechanic, all that he, as a consumer, pays for farm produce, and the more the mechanic fails to get for the result of his labor, all that the farmer pays for it; till by-and-by it happens that if either gets for any article produced by skill and labor, about half of what the other pays, he thinks it is doing pretty well. For instance, the farmer gets one dollar for a bushel of wheat, and the mechanic pays two for it, or the mechanic gets three dollars for an implement, for which the farmer pays six. So the world goes; and if this is the best state of things that is possible, it is not a very good state of things after all; and we think we should not be blamed for grumbling a little, even if grumbling will do no good.

One evil that grows out of this state of things is that farmers become, we will not say *excessively*, but at least, *injuriously*, cautious —afraid, and we confess that they have reason to be afraid, that somebody will cheat them. A new tool is wanted. The cost of manufacturing it would be 68 cents. But there is a patented improvement on it. The patentee must be well paid, and that is right; the manufacturer must have a good profit, and that is right, too; the carrier must be paid, and that is all right; the country merchant must have a profit, and nobody would find fault with that; but when the patent hoe, curry-comb, or corn-husker, gets into the farmer's hand, it has become quite an expensive article. If it happens to be one of those useless inventions that are to be sold quick or never,—before it is found out,—or an infringement upon some other patent, then, instead of going the regular rounds of trade, it is put into the hands of some voluble creature, more tonguey than truthful, and worked off at double quick time. A specimen of this genus must be sent into every district; and, strange to say, their services command a great price. Even they will not sell their services, conscience and all—without a good price. Half of what the purchaser pays would not satisfy them. Two-thirds or three-fourths would secure more enlistments into the important service of forcing a doubtful article upon the public *quick.*

It is so with portable manures, with implements, with seeds. And what shall the farmer do? He has a strong provocation to brace himself against all innovation. But this would not be wise; for although much is lost by jumping at articles which do not prove to be what they were represented, yet three times more is lost by not adopting real improvements as soon as they are offered. What then shall the farmer do, since there is danger from being too credulous, and still more from being incredulous of new things? He admits that there *are* great improvements. He may safely make up his mind that there *will be* other improvements. So much mind as is brought to bear upon this subject, so many publications as are distributed, so much inquiry as is aroused, will not be barren of results. The world *is* not standing still. It *will not* stand still. The farmer's success will depend hereafter more than at any former period, upon keeping up with the age. Let him keep himself informed—too well *read up* to be taken in by sharpers, too *progressive* to be thro n back upon old methods, when better are demonstrated.

Agricultural journals are certainly doing much to inform the farmer what implements are worthy of his attention, and to warn him against frauds. If it be said that the editors are always under a temptation to join in the conspiracy, that they can not be trusted, we admit the first, but deny the second. That there are enough who would bribe them if they could, we have no doubt, but without claiming that editors are the most incorruptible of mortals, we may assert, that in the present attitude of affairs in our country, their interest absolutely requires them to be true to the farmer. We have spoken in the preceding pages of persons who will sell their conscience for a high price. In the matter of which we are speaking, we will not sell ours at any price. We would not, if we recognized no higher account, than we owe to the farmers of this country. Not to be true to the farmers, in our position, would be wretched morality, but it would be worse policy.

We have not cried humbug, at venders of manures, implements, seeds, &c., as loudly as some others. We are peaceably disposed. We feel that it is more agreeable *to build up* than *to pull down.* We will make war upon no man or set of men, for the sake of war. But we assure our readers, that we are not inactive. We are seeking information, as our residence in this commercial metropolis enables us, and as evidence of attempted frauds upon the farmer come to our knowledge, we will expose them. In the meantime we ask our agricultural readers to let us hear from them. Give us a note of whatever in your region would be of general interest and value; and if you accompany your notes with questions about fertilizers, implements, any thing in which you conceive yourselves liable to be defrauded, and on which you suppose that our position enables us to throw light, we will answer them in the pages of this Journal, to the best of our knowledge, and as best we can gather information for the purpose, assured that if it brings us into a quarrel with any who wish to sell what you ought not to buy, or at prices which you ought not to pay, you will stand by us, and believing also, as we turn our eye to the right and left, that our own shoulders are somewhat broad.—Ed.

ROOTS.

Have you arranged for the cultivation of a good patch of carrots? If not, you are too late for this year; but do not fail to be in time for the next. The farmer's policy is to be looking ahead. Much is lost by not having far-reaching plans well *thought out*, beforehand. Considerable can be saved in labor, and more in augmented crops by working on a well devised and comprehensive plan. Every field and patch should be worked and manured, with some reference to the future. A speedy return, we grant, is the main thing; but it is not the only thing; the cultivation, the manuring, the fencing of a field—all that you do to it, must have a bearing on the crops for the next year, and the succeeding years; and the more a farmer can carry along the two objects—one of securing a profitable crop this year, and the other of paving the way to more profitable next, and on—the more successful he will be. But we must come back to the roots.

Are your arrangements made for 500, or from that to 5000 bushels of turnips? It is not yet too late for these. Have you land to appropriate to them? Have you reserved manure? You should set apart a patch, at least, for this purpose, and it would be better to purchase manure, than not to have a plot of turnips, yielding at the rate of eight, ten, twelve or fifteen hundred bushels to the acre. Not that we are great advocates for the root crops. In the damp regions of Northern Europe, they are the farmer's sheet-anchor. We have seen that there he can do nothing without them. It is different here. We can grow profitable successions of crops, without introducing roots as one of the series. Farmers in the north of Europe can not. They must have roots, as a hoe crop, in order to make out a profitable rotation. Corn, *Corn*, Indian Corn, is the greatest crop in the world; and our country is the best in world for it. If our English brethren could grow corn as we can, they would think less of turnips. If we grow as much corn as we ought, we shall have little need of turnips. We wish to take a candid view of this subject. We would drag in no outlandish rules of agriculture, which do not apply to our country; for much as we have admired the thrift, economy and adaptation to soil and climate, of English farming, we are prepared to view every thing in its relations to our own climate and our own wants, and to commend nothing on mere foreign authority. It by no means follows that because turnips are all important to the English farmer, they are equally important to the American. We do not believe they are.

One bushel of corn-meal will lay more fat upon our beasts, and produce more growth, than half a dozen bushels of turnips. With us, turnips are not essential to a judicious rotation, and as food for animals they are not a necessity. This we readily admit. Nevertheless, we think that something should be ascribed to the turnip as a means of preparing the soil for other crops; that as a succulent, to be given with the dry food, on which our cattle are fed too exclusively, the turnip possesses considerable value; and that it would be a *mighty* convenient thing for a farmer to have a few thousand bushels of roots to commence our long winters with. Nothing so enlarges the manure heap as the root crops. If you have to buy manure for the first crop, you may rely upon them as a powerful auxiliary to the home fertilizers in the sequel. Distributed in just proportions with dry food, their tendency is to keep cattle in fine health, thrifty and growing. And then what a saving of second-rate fodder.

No farmer can have fine, sweet, June-cut, well-cured hay enough for all his stock. It is an impossibility; and besides, it never can be profitable to winter stock on such hay alone. Have you considered that half a bushel of roots, with a supply of corn-stocks, straw and coarse hay, will keep store cattle in about as thriving order, as the best hay alone? The effect of the roots is to keep them healthy, to make them hardy, to enable them to devour much that would otherwise be trodden under foot and lost. Our belief is that all the dry forage—corn stover, marsh hay, straw, etc., etc.—should be cut and consumed by growing stock, and that it may be thus turned into manure, with a clear profit, provided that corn-meal or roots, or, what would perhaps be better, both, were so intermixed as to make the food, as a whole, of a fair quality, such as will keep stock in a steadily thriving condition, notwithstanding that some of it is too poor in itself for the sustenance of cattle in a thrifty condition.

With these views, but without the least expectation that turnips and other roots are ever to assume the same importance here as in Europe, we advise farmers to try them. See how many you can raise to the acre; note the expense of growing them; watch the effect on your cattle; see whether they help you to dispose of your coarse feed more advantageously; and last, but not unimportant, note the effect on the manure heap; and you will be the best judge in the world, as to whether or not they are, in view of all their bearings, a profitable crop for you.—Ed.

DEEP AND THOROUGH CULTIVATION.

A Writer in the *Iowa Farmer*, by the name of Fast—and he is *fast* in the way of deep ploughing, but not too fast—says, we ought to raise a great deal more corn to the acre, and recommends the following as a remedy, in part, for small crops:

"In the first place, make as large a draft as possible on the Farmer's Bank, (the manure pile,) and when the plough is started, which should be a No. one article and no other, set it about one third or half deeper than usually is done on old land, say ten or twelve inches, and with about two thirds the width generally taken; then, if you have a good team, it is not very hard work to do your ploughing first rate, and if you have any taste for seeing work done just right, you will not return to the cut and cover mode of ploughing again. Harrow well; mark out in straight rows both ways, then if you have good seed, as by all means you should have, laid carefully away since last fall, so as to prevent the cob from freezing before it dries out, plant carefully, (with a good planter if you have one); when through, take your team and go on it with a good heavy roller; roll smooth, and by giving it a reasonable amount of work with the plough or cultivator in tending the crop, you may almost bid defiance to drouth or rain."

This writer should remember that four or five inches is about the average depth of what has hitherto been called deep ploughing among us. Even in England, and on the continent of Europe the ploughing is a little hypocritical—pretends to be deeper than it really is—and we always deduct a fifth from their accounts, and rather more from our own, believing, from careful observation, that Europeans do not as a general thing pulverize the soil thoroughly to more than four fifths of the depth which their accounts imply, and Americans only about three fourths.

Our fast friend—we can think of a farmer with such *notions* as his only as a friend—recommends ploughing nearly three times as deeply as has been the practice of even deep ploughers in this country. We are not going to take him to do for this, for we believe he is right. We would only guard against too sudden a change, without considering what the subsoil consists of. Some subsoils contain abundance of the salts of protoxide of iron, and other matters too sour and cold to favor the growth of crops, till long exposed to rains and air, or neutralized by the application of an alkali in the form of lime or ashes; and even that "large draft" on the farmer's bank may prove inadequate to secure a crop the first year.

It may be said that if you deepen your soil all at once from three or four to ten or twelve inches, and lose the first crop, it is no matter, that you will be more than paid in the after crops. This might do for the retired merchant, who has money enough and more than enough; but the great body of American farmers can ill afford to plough deep, draw deeply from the manure-heap, and then wait years for a return. They need the return within six months of making the outlay.

We have generally recommended the deepening of a soil by degrees. We have said, run the plough an inch or two deeper each year, and watch the effect. Apply if possible a dressing of ashes or lime to the surface, to neutralize any acidity that may be turned up. If the crops are increased more than the expenses of cultivation are, keep on till they cease to be so increased. This would seem to be a safe course; and it is one which we would still recommend to farmers of limited means; though it may not in all cases be the best.

To illustrate our meaning:—suppose you have a field that has been ploughed four inches deep, and with twelve loads of manure to the acre has given you forty bushels of corn and other crops in proportion. There can be no very great risk in ploughing that land six inches deep and applying sixteen loads of manure to the acre, and ashes or lime on the surface of equal value with four loads more, equivalent in expense to twenty loads of manure instead of twelve. This, it must be confessed, would increase the cost of cultivation, for you can not thoroughly loosen and pulverize the soil two inches deeper than before without additional labor, and the eight extra loads of manure are a part of the farmer's bank. If he uses them on that field he will not have them for another. But if the corn crop should be increased to sixty bushels and the after crops proportionally, the the extra labor and manure would be more than met; and the farmer might with great confidence venture to eight inches with twenty-eight loads of manure for the next rotation, ten inches with thirty-six loads of manure for the next, and so on, increasing the depth two inches and the manure eight loads a year, as long as paying results should follow.

We may be thought over cautious by some. It may be said that the country is full of proofs, that we ourselves have published abundant evidence that deep ploughing pays better than shallow, and heavy better than light manuring. All this is true beyond a question, as a general rule. Nobody within gunshot of the age we live in doubts that ten inches of loosened soil, well filled with manure, pays better than a scratched surface with a *pinch* of manure. The farmers who have practised the former are maintaining their families in good style, educating their children, getting rich, growing large souled, elevating their profession; those who pursue the latter, unless rich by inheritance, are poor, and *getting* poorer, unable to send a child to a good school, too hard up to pay for an agricultural paper, close from necessity, and doing nothing to honor their calling. All this is but too manifest. It *sticks out*, is in *alto relievo* everywhere, can be read by all who have eyes.

Why, then, it may be asked, not sink the plough twelve inches at once and not wait till others become rich and you poor, through excessive caution? We answer; if you have abundant means, go ahead, sink the plough *all over in*, apply fifty or a hundred loads of manure for a rotation, douse in the lime and ashes to correct bad qualities in soil newly turned up, and probably you will come out well. But we are bound to say that it is not yet proved that such a treatment of every soil will be followed by results convenient to a man of limited means. If, therefore, men in this condition will *feel* their way to a better and a deeper cultivation, experimenting and *observing* as they proceed, we think they will come *surely* and not very *slowly* to the best course for them—to the one best adapted to *their* soil; and that, we believe, will turn out, in ninety-nine cases in a hundred, to be a course of *deep cultivation and heavy manuring.* If any say, It is vain to talk about heavy manuring, since every farmer uses all the manure he has and can use no more, we have only to reply, that heavy crops make more manure than light ones, and that it is very much at the discretion of the farmer, as we have shown otherwhere and mean to show again, whether he is to have only a few loads of poor manure, or several hundred loads of good per year.

Those who think us over cautious, and would put down the plough from four or five to ten and twelve inches at once, would do well to choose the fall as the best time for doing it, as there is much in the influence of winter to correct those qualities of a soil just turned up, which might prove unfavorable to the first crop. If turned over again in the spring, manured proportionally with the depth of the ploughing and ashed, there can be no risk which a farmer of plentiful means need fear. Our caution is rather for those for whom it would be inconvenient to cultivate expensively and then fail of a somewhat speedy return.

FARM STOCK.

At a recent meeting of the Legislative Agricultural Society, in Boston, Hon. John Brooks in the Chair,

Mr. W. J. Buckminster spoke of the freedom of men in their choice of stock, and how their taste and judgment are indicated by the choice they make. In the selection of animals the great object should be to secure those that possess the qualities that are desired for the particular uses to which they are to be put. Some men ask why this society does not make some recommendations of the different classes of animals, and say that such animals are best for milk, such for work, and such for speed, etc. The reason is that all do not agree, and all are free to suit their own taste. Large animals are not generally most desirable; even for fatting-hogs, the breed should be selected that will make the most pork on a given quantity of food. So of horses and cattle; the amount of feed they require in proportion to their ability to labor, should be taken into consideration. Form and adaptation are the two principal elements to guide a choice.

Mr. Sheldon, of Wilmington, said the reason why he desired this meeting was that there never was a time when the raising of stock was more important than now. Hay, he thought, was not likely to be high for three years to come, and in that time it will be impossible to overstock the market. A good cow can not be bought for less than $50, and he hoped that those who have good cows will raise their calves, believing that they would make more money than by fatting them for veal. There is no danger that beef can be very low within three years; for the calves must be raised and fatted before the amount of beef can be increased.

It is now profitable to raise pigs too. Since disease has affected hogs at the West, those raised in this State are more saleable; they have been sold for eleven or twelve cents a pound. He hoped there would be interest enough felt in the subject before the meeting to secure the raising of at least one more heifer calf in consequence of this meeting; indeed, he hoped there would be a general interest in raising more stock.

Mr. Stebbins, of Deerfield, coïncided with the views of Mr. Sheldon. He thought it would not only be three, but six years before there could be any reduction in the price of stock; calves are now brought from Ohio to the New-York market for veal. He knew of no business more profitable than raising stock; he had not killed more than five young cattle in ten years. Farmers in his section of the State make a great mistake in neglecting their young stock, suffering the calves to grow up without much care. Many seem to think that if they can keep a calf through the winter, with the breath of life in its body, it will do well enough in spring. A man may as well keep his laborers on half feed and expect them to do a good day's work. It is as important to keep cattle warm and well fed as to keep men so. Steers are broken and put to work too young; it is well to train them young, but not to work them hard till they are at least three years old.

As to horses, there are many more diseased horses now than there were thirty years ago. This is in consequence of too early and too hard work. It is possible to have a good horse for fast travel, for work, and a docile one that a woman may drive, in the same animal.

Mr. Macomber, of Marshfield, thought the subject of stock had been too much neglected in his part of the State. In his neighborhood, the stock of swine had been improved by the introduction of a breed by Mr. Webster—a cross of the Mackay and Suffolk. There is more attention paid to stock-growing in his region than formerly. More calves are being raised this spring than ever before. Their stock had been much benefitted by the introduction of foreign breeds of cattle.

Mr. Wetherell spoke of the great difference in the size of cattle at the present day compared with what it was twenty-five years ago. It is not uncommon now, to hear of cattle weighing, when dressed, 1500 lbs., while at that period it was very rare to hear of one that weighed 1000 lbs. That indicates improvement. One great objection to raising cattle is that a good veal calf will bring as much at six weeks old, as when a year old. Another objection is that butter, cheese and milk are so high. When a calf can be sold at six weeks old for from $16 to $20, and the milk can then be had for sale, it is difficult to persuade a farmer that it is not profitable to do it, rather than raise the calf. He spoke of seeing a yard of cows in Worcester County, so poor in the spring that they could scarcely get up. It would take half the summer to get them in decent heart, and the owner lost much by that course. Instead of being economy it is stinginess to pursue such a course. There is nothing so bad as that spirit of stinginess. Farmers do not cultivate an *esprit du corps* sufficiently. There is nothing so lamentable as to see farmers looking so much to professional men for opinion, and for the lean in society. Let farmers estimate themselves as they really are—the real aristocracy of society. If they will respect themselves they will command respect, and make their vocation respected as the highest and noblest employment of man. If any man can afford to speak out his opinion, it is the farmer.

Mr. H. E. Rockwell said he was reminded by the remarks of gentlemen in regard to the impolicy of keeping stock poorly through the winter, of a stanza upon that subject written many years ago by a Connecticut farmer of much sagacity and experience, which was:

> "Alas the fate of lousy calves!
> They are ever on the wing;
> For if they live the winter through
> They often die in spring."

The same gentleman was remarkable for his love of order, and was much annoyed by the displacement of tools by careless help, and having been much annoyed by the trouble of finding the curry-comb, he one day put up in the stable in large characters the following, which may apply, as a principle, to other tools:

> "Cursed be he, whoever he be,—
> And let the whole stable resound it,—
> Who uses a curry, although in a hurry,
> And don't put it up where he found it."

Mr. Whetherell alluded to the practice of feeding poisons to some animals, particularly arsenic, as it is sometimes done, for the purpose of affecting the breathing of horses, or making their coats sleek. In that connection he spoke of the fact that at a certain distillery in Ohio *strychnine* and *tobacco* were used so as thereby to increase the amount of whisky. The fact that poison was thus used was brought to light by the other fact that the fish in the stream below the distillery were killed.

A WORD ABOUT TREE PLANTING.

An exchange says: "Let a tree be set so as to be two inches deeper than it stood in the nursery; let some of the manure come to the roots; and when the hole is nearly filled pour in half a bucket of water."

We would set it just as low as it stood in the nursery; would carefully exclude all manure from the roots, letting nothing but clean soil touch them; and would pour the water on the ground at a little distance from the tree, so that it should reach the roots in the same minutely divided state as when trees are watered by showers.

If you were going to neglect a tree ever after transplanting it, it might possibly live longer if set two inches lower than it stood in the nursery; for in that position it might stand a severer drouth. But if the tree is to be neglected, better not set it at all.

As for letting the manure touch the roots, unless it were well rotted and composted most thoroughly with the soil, we certainly would not; and we would about as soon swallow mud pills to cure the dyspepsia, as to put the lacerated roots of a tree into a bed of mud. The soil should be in a moist, but pulverulent state, so as to fall into the cavities in a natural state; and then in order to afford sufficient, but not redundant moisture, the water should be left to trickle through as gently as in a rain storm, filtering itself as it passes.

In this way it would come to the roots as limpid as pure fountain-water. Who ever thought of applying muddy water to a fresh wound? And yet nothing can be more grateful than fresh, clean water, slightly warmed. An ordinary cut, in a healthy person, will heal in twenty hours, if kept moistened with fresh water and secluded from the air. You have only to apply half a dozen thicknesses of linen, to keep them moist with water only—no rum to keep out the cold—and the healing process will go on of itself, and that rapidly and without pain.

It is so with wounded roots;—they should be moist but not drenched, and above all should not be smeared with mud. The truth is, trees will live in spite of a flood of water, at setting; but they will be more sure to live without it, and will do better.

These are our *notions:* but it is well that our readers can follow whose notions they please.—Ed.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

DOTS BY AN EAST TENNESSEAN.

At the heels of the severest winter since 1835–6, spring has opened up her balmy odors, and is resuscitating the dead grasses of the field and buds of the forest. Yet, with all her restoratives, she proves unable to force the fruit tree to exhibit the bloom. On examination, it is found in most places, that so severe was the freeze that the stock and branches of the fruit are partially dead, and refuse the passage of the sap. It is doubtless generally known that East Tennessee is proverbial for "*sweet-cider and dried apples*," and that her sons are known and called, west of the Mississippi, "*Yellow Legs*." It remains to be seen how long her land and hardy citizens may in truth be entitled to the honor implied by the appellation.

It has been said, I believe, that experience teaches a dear school; and those who will learn in no other, have been set down as "hard heads." Yet experience teaches an every-day lesson. "Who can but learn?" She has been one of my instructors in farming since 1836. Her lesson on *long food*, commonly called by farmers roughness, during the latter winter months, have, I trust, been of some advantage to me. Now it is the usual practice of our farmers here, to thresh out the wheat crop in the summer months, and haul out the straw and chaff and stack or rick it in the open field. There it stands exposed to the fall dews, early winter rains and snows, and by the time the cattle need it, it is at least 50 per cent. damaged. Well, this waste can be very well borne, with the quantity in ordinary winters, but I know my farming friends will agree with me, that it will not do for such a winter as we have just escaped from. I propose to change the practice, and I hope it may become general. The change proposed is to have *every* farmer build a good shed or out-barn, and in it to shelter the wheat-straw for winter cattle-food, which I suppose would save 50 per cent. in nutrition, and I apprehend would loose nothing in returning manure to the soil, where it may be fed. I was this last winter at the house of Mr. G., a practical farmer in Roane Co., who had adopted the plan here intimated. I looked at his shed and stock. He had raised from 110 acres of ground 2200 bushels of white (Bacon) wheat, housed the straw and chaff, and fully expected to winter one hundred mules on that straw without other food except salt. It is done. In the tour I made to friend G.'s, I had traveled through Grainger, Knox, Blount, McMim, Rhea, Hamilton, Bledsoe, Marion, White, Warren, Overton, Morgan, Anderson and Cumberland Counties. The improvement respectfully intimated, it is thought would apply generally; for I thought not enough of my farming friends paid sufficient attention to housing their long food for winter. I noticed in the Tennessee and Sequatcher valleys, most excellent crops of corn (in November) with evidences of abundance of other crops, whilst I thought the general practice of stacking prevailed. These valleys lie between the Cumberland mountain, north, and Tennessee River, south, and are wide, rich, and highly improved. Cumberland Co. lies on the wide apex of the mountain, spanning from base to base, here 47 miles, with about equal distance lengthwise. Here the forest growth is scrub hickory, black Jack chestnut, and mineral oak, clad on the surface of a light sandy loam, with an evergreen grass resembling much the prairie grass. The ascent on either side is not abrupt. The summit is attained by about three miles travel, when the top breaks off in a table, as described, with a general level land similar, now and then, to the Western prairies. This table lies, from the nearest guess I could make, three fourths of a mile above the valleys spoken of. And it would seem that once the floods were pent up south of this mountain, whilst for ages its heavy waves lashed the shallow surface named until, by its own industry, it succeeded in cutting a canal, 50 miles below, through the mountain, at what is called the "*Suck*," still lashing, still cutting, still throwing sediment on the table named, which, with the ebbing waters, lodged and remained, can give some idea in imagination, of the natural fertility, on the table, and still more in the valleys at the foot. These lands have laid long without cultivation, being the retreat of the wild game from the said valleys. Under the cheap entry system, in our State, they are now in the hands of efficient men, who are letting them out, or selling them for from fifty cents to one dollar the acre. I need hardly record what is so well and so generally known, that no country boasts more minerals, better water, pretty creeks and abundant water-power, than Cumberland County, Tennessee. Here on the very top is her County site, Crossville; and on the main stage-road from Nashville to Knoxville, via Sparta. A. L. B.

Mill Bend, Tenn., April, 1857.

SELECTION OF SEED CORN.

The following letter, published in the *New-England Farmer* twenty years ago, and lately re-published in the *Country Gentleman*, goes far to settle a point, which we have often urged, with regard to the selection of seed corn. It was written by Mr. Baden, then living, as the date shows, near Nottingham, Prince George's County; and was directed to Hon. H. L. Ellsworth, at that time Commissioner of Patents.

"Sir:—I received yours of the 14th, making inquiry respecting the 'Maryland Corn,' which you understood I had raised. I have the pleasure to say that I have brought this corn to its high state of perfection by carefully selecting the best seed in the field for a long course of years, having a special reference to those stalks which produced the most ears. When the corn was husked I then made a re-selection, taking only that which appeared sound and fully ripe, having regard to the deepest and best color, as well as to the size of the cob. In the spring, before shelling the corn, I examined it again, and selected that which was the best in all respects. In shelling the corn, I omitted to take the irregular kernels at both the large and small ends. I have carefully followed this mode of selecting seed corn for *twenty-two or twenty-three years*, and still continue so to do. When I first commenced, it was with a common kind of corn, for there was none other in this part of the country. At first I was troubled to find stalks with even *two good ears* on them, perhaps one good ear and one small one, or one good ear and 'a nubbin.' It was several years before I could discover much benefit resulting from my efforts; however, at length the quality and quantity began to improve, and the improvement was then very rapid. At present I do not pretend to lay up any seed without it comes from stalks which bear *four*, *five or six ears.* I have seen stalks bearing eight ears. One of my neighbors informed me that he had a single stalk with *ten* perfect ears on it, and that he intended to send it to the Museum at Baltimore. In addition to the number of ears, and of course the great increase in quantity unshelled, it may be mentioned that it yields much more than common corn when shelled. Some gentlemen, in whom I have full confidence, informed me they shelled a barrel (10 bushels of ears) of my kind of corn, which shelled corn measured a little more than six bushels. The common kind of corn will measure about five bushels only. I believe I raise double or nearly so to what I could with any other corn I have ever seen. I generally plant my corn about the first of May, and place the hills five feet apart each way, and have two stalks in a hill. I suppose I have now in my corn house, fifty, and perhaps more, stalks with the corn on them as it grew in the field, and none with less than four, and some six or seven ears on them.

"Early last spring, I let George Law, Esq., of Baltimore City, have some of this seed corn; he sent it to his friend in Illinois, with instructions how to manage it. A few weeks since he informed me that the yield was one hundred and twenty bushels on an acre; that there was no corn in Illinois like it, and that it produced more fodder than any other kind. * * * I believe I have answered most of your inquiries. I hope I have not exaggerated—I have no motive for doing so. I raise but little corn to sell, as tobacco is my principal crop. Thos. N. Baden."

FEEDING CALVES.

A calf should never be changed suddenly from all milk to all grass, but it should be brought about gradually; otherwise the growth may be injuriously affected. The food with which they are fed has a powerful influence on the milking properties of all cows; and the mode in which they are reared has a considerable effect on their capacity to give milk. In milk we have all that is necessary for the growth of the young animal, and it is the type and representative of all food; for, unless an aliment contains the principles of milk, it is not fitted for the promotion of the health and perfect development of the body.

It is a bad thing to feed calves on skim-milk, as both the butter and casein have been removed in the shape of cream. Earl Spencer, of England, who was very successful in weaning his calves, fed them first with new milk and then with skim-milk and meal—the latter supplying the necessary nitrogen and nitrogenized materials.

Exercise for a calf that is to be raised is a necessity, but for all fatting animals the reverse. Care also should be taken not to expose them to the cold, and particularly to sudden changes. Much exercise of milk cows decreases the production of butter, and increases the yield of casein. Poor pastures produce most cheese, and stall-feeding most butter.—*Patent Office Report.*

CUTTINGS.

In putting in cuttings, never leave but one bud above ground. Whether the cutting have two, three or four buds, all but one should be put under ground, and that one but just above the surface. If you put but one bud under ground and two or three above, the leaves formed from those above are out of proportion with the roots from that below; they evaporate water faster than the roots can supply it; and the cutting droops and dies, on much the same principle as when, in transplanting a tree, you deprive it of a large portion of its roots without equally diminishing the top. Whether a cutting should be placed horizontally and shallow, or thrust deeply into the ground, depends much upon the nature of the soil. If the soil is inclined to retain water, it may be shallow, but should approach a perpendicular direction, running deeply, in a soil that readily evaporates water.—Ed.

THE WEST.

Among what we regard as the most unmistakable evidences of Western prosperity, are its establishments for the manufacture of agricultural implements. This thought is suggested to us by a notice, in the *Freeport* (*Ill.*) *Journal*, of Sangor's Steam Plow Shop, at Belvidere, Ill. If the valley of the Mississippi were seven times more fertile than it is, it could not prosper permanently, by agriculture alone. Educational institutions, to develop mind, to lift the soul above groveling pleasures, to stimulate genius, to make *the man* and set him at work, are the first requisites of prosperity. This, our Western brethren understand, and are laying their foundations deeper and broader, we believe, than any people have ever done at so early a period of their history. The very next essential to permanent prosperity, is a just combination of the mechanic arts with agriculture. This also the West understands. As Eastern men, we might wish the West to send their sons here to be educated; to employ us to manufacture their reapers, ploughs, hats, shoes, coats, dresses, pots, kettles, hoes, spades, and all the rest—a course, sure to enrich us if our soil were ten times poorer than it is, and to impoverish them if theirs were ten times richer.

But looking, as our present position teaches us, at the whole country, we do not on the whole desire such a result. A nation that prosecutes agriculture in undue proportion with the other industrial arts, is doomed to poverty, no matter how fertile its soil, or how wide its domain. So long as it depends on foreign manufacturers, its destiny is to enrich the nations it trades with, and impoverish itself. It is much so with differernt potions of the same country. If we loved New-England only, we might wish the West to buy her reapers, and the South her cotton gins of the North; the one to send her wool and the other her cotton, to be spun in Eastern mills. It might be better so for the North-east, though we have doubts whether it would in the long run, since wealth is not the only thing to be sought; but quite certain are we that it will be far better for the West and the South to take care of themselves, as well in the matter of manufactures as of agriculture. Education, agriculture, and the mechanic arts, duly distributed, will make a nation or a section enterprising, energetic, prosperous, and nothing else will do it, in spite of a poor soil, as Massachusetts, with a soil but half fertilized, coarse as pumpkins, and hard enough to strike fire all over, is a living witness. What is more, they will do it, in spite of a good soil, as we have no doubt our Western States will testify by a long experience yet to come.—Ed.

CARE OF FRUIT AND ORNAMENTAL TREES.

There seems to be a great deal of practical good sense and good economy in the following suggestions from a writer in the *Germantown Telegraph*, which we copy, as the basis of a few remarks on the above subjects:

"It is not always necessary or indispensable, in order to have good fruit and enough of it, that a section of the farm be especially set apart appropriated to its cultivation. There are many corners and 'segments of soil,' unoccupied by any valuable crop, where a few trees can be grown; and as such 'out of the way' places are commonly rich in the elements of vegetable life, the growth of trees, when properly set, is there even more rapid and healthy than in the best cultivated soil. A homestead, where every nook and corner is occupied with thrifty and prolific trees, presents a truly rural and beautiful picture of industry and thrift, and can not fail to exert a most genial and elevating influence upon the owner's mind. Cherry, peach, plum and quince trees, together with apple and pear trees, grape vines, etc., may thus be scattered around your yards and enclosures at trifling expense, and having a rapid and vigorous growth, when properly nurtured, will soon reward you for your industry and forethought, with the grateful richness and abundance of their fruit. Set a tree, therefore, by all means, wherever you can find room.

Lower Dublin, April 13, 1857. Agricola."

Trees are more easily protected from the depredations of stock, if arranged in an orchard. If placed as near each other as may be without interfering, they mutually protect each other from cold winds; and if arranged in the orchard form, they better admit of being surrounded with rows of shrubs and forest trees—an excellent practice in peculiarly exposed situations. The setting of here and there a fruit tree, as the soil and selection favor, should hardly be adopted as a substitute for the well-fenced and carefully preserved orchard. But as an auxiliary means of securing fruit, of giving beauty to the landscape, and of appropriating each nook and corner to something useful, and for which it is best adapted, it deserves to be recommended. On the way-side even, the practiced eye will detect positions where a standard apple tree would be in no one's way, where it would grow and produce abundant fruit for a quarter of a century at least. There might be another advantage. We think it would sometimes happen, that when insects prey upon the orchard, isolated trees about the farm would escape their ravages.

Our object at this time is rather to speak of the care of trees. To set a tree, and then take no care of it, is labor lost. For the first summer at least, the young, newly transplanted tree can not well endure the changes of temperature and occasional drouths incident to our climate. The application of water in moderate quantities, at sunset, would remedy the evil, if done regularly and with great good judgment. But this would imply too much labor. It would be likely to be neglected. There is a surer way. It is cheaper and better. A *mulching* of straw, marsh-hay, leaves, or something of the kind, will keep the ground more even in temperature, more uniformly moist, in a state more genial to the healing and growth of the roots, than all the personal attention that could possibly be applied. It costs nothing, for the enriching properties of mulch are worth more than the labor of applying it. It is steadily there. It will never forget to do its offices both of keeping the soil moist and of nearly uniform temperature by day and by night and from week to week. It should be applied when a tree is transplanted, but may be applied long after advantageously. If your young trees are not mulched, now is the the time to mulch them. Do not let haying and harvest approah without having it attended to.—Ed.

GREAT CROP BY LIQUID MANURING.

It is stated in the English papers that J. Nelson, a farmer on the Earl of Derby's estate, about eight miles from Liverpool, raised one hundred tons of Italian rye-grass, last year, on one acre of land, by liquid manuring; that the soil was previously fertile and well drained, but never had yielded anything to compare with this crop:

About believing this! Let us see;—is it possible that 100 tons of that succulent grass should give off 85 tons of water in drying, leaving 15 tons of dried hay? As the seasons there are longer than here, may that prolific acre have been mowed five times? If so, it would imply three tons of dried hay at each cutting—a rather hard story to believe after making the best of it. Our readers can do as they please. We should beg to be excused, if we had not seen enormous crops of grass on irrigated land in that island only five weeks after an equal crop had been removed, and heard farmers there say that five such crops could be grown between January and December. After what we have seen we are prepared to swallow any thing in that line, that is not too tough. The power of liquid manuring on the grasses is certainly very great, whether his Lordship's farmer raised a hundred tons of grass on a single acre in one year or not.—Ed.

CAPACITIES OF CISTERNS.

We see it stated in an exchange that a cistern 5 feet in diameter will hold 5 2-3 barrels to each foot in depth, and 7 feet in diameter 9 1-3 barrels per foot; 8 feet nearly 12 barrels; 9 feet 12 7-8 barrels; 10 feet 14 2-3 barrels per foot.

If the above calculations are correct—we have not verified them—a cistern 8 feet in diameter and 8½ feet deep would hold just about a hundred barrels. This would be a convenient size for watering stock on a moderate-sized or a small farm.—Ed.

ECONOMY FOR THE FARMER.

A way to Save $50 a Year. Let the farmer who is in the habit of ploughing, manuring and hoeing five acres to produce 150 bushels of corn, or other crops to that amount,—use the manure usually applied to the five acres, on two acres, and get the 150 bushels of corn; then expend the money it would cost to work the other three acres in guano, superphosphate of lime, and plaster, and use the compound for top-dressing his grass lands. No one need send me a dollar for this recipe until he has saved $50 to himself by the change.

Another. Let those farmers who are in the habit of hauling muck in summer and autumn and spreading it over the whole surface of their cattle-yards—if they have not dry sheds to place it under and keep the cattle upon it,—stack it up and keep the water from it by a covering of boards; then keep their cattle in the barn at night instead of the yard, using enough of the dry muck to absorb all the liquid manure,—always taking care that the manure is sheltered from sun and rain when thrown out of the "tie-up," till wanted for use. This is the summer arrangement. In winter, instead of keeping their stock out of doors during the days, and throwing their coarse fodder to them there, let them be kept in warm barns, except the time necessary for them to drink, and let them do all their eating and dropping manure under cover, having a supply of the dry muck or or other absorbent, to take up the liquid portion of the droppings. No one need send the dollar for this until he has saved $100 by it.

Another. Let the man who has planted three or four acres of potatoes and got "small potatoes and few in the hill" in return—plant one half acre; if they do well it is enough for the family; if they fail, it is enough to lose. Then, instead of the other acres of potatoes, let him plant one acre of ruta baga turnips, and get 600 to 800 bushels. These turnips, with the coarse fodder, often thrown into the yard and trodden under foot, or used for bedding, will enable him to keep some six or eight additional growing cattle, and to keep them in growing condition, too—quite an item. There are not cattle enough in the country. Need n't send the dollar for this till you get ready.—N. Foster, *in Me. Farmer.*

Gardiner, April 20, 1857.

CURE FOR THE "STRETCHES."

SINCE we have had the care of a flock of Merino sheep, we have, during the winter season, lost some of the best specimens of the flock by this disease; and after using most of the medicines recommended, have thought the disorder incurable. This winter we were induced to make a trial of unground seed in connection with castor oil. We gave a tablespoonful of the seed, with a little more than that quantity of oil mixed together, and in an hour or two the animals were chewing their cud, and were soon well. I informed a skillful sheep-breeder in in this neighborhood, who had at the time two desperate cases on hand. The mustard-seed and oil was given with complete success. The disease should be attended to in its first stages; and in order to be able to do this, the person who feeds the flock should remain a while after feeding, to ascertain if any are off their feed, and showing signs of sickness. We communicate this matter to the "Cultivator," thinking it may be opportunely for another winter, if not this.—CHARLES COLAY, *in Country Gentleman.*

SHORT HORNS RISING.

THE recent Short Horn sale of Mr. Lorimer, of Banffshire, Scotland, resulted in ten animals calved in his herd within the last fifteen months, bringing a total price of 530 guineas, which shows an average of 53 guineas per head, adding to this large sum, 131 guineas for four heifers, all of them under two years. The average value of the heifers is thus very nearly £34 10*s.* a head. The bulls average about twelve guineas, and the heifers about four guineas a head more than last year.

In a cool climate, equable in temperature, rather damp and abounding in rich pasturage, there can be no doubt that the Durhams, or short horns, produce a large amount of beef in a short time, as in these circumstance they grow rapidly and come to maturity early. It is doubtful whether any other breed can be made to produce as much beef in as short a time or with as small amount of food. But as circumstances vary, a different economy will prevail. If you want cattle for the dairy, the Durhams are not the best. If you want them for work, they are not the best. If you are not willing to afford your cattle an abundance of food at all times and to take the best care of them, the Durhams are not the best. And if the climate is not mild and the pasturage rich, they will not long retain the valuable characteristics which they exhibit when first brought to this country.

We are confident that a herd of Durham cattle, sometimes well fed and at others starved, as ours have too often been; at one season scorched under our intense suns, at another chilled by our sharp frosts, without proper shelter; with little attention to judicious pairing, and less to the rearing of the best progeny; however fine they might have been at the outset, would be nothing to brag of after a ten years' experience, such as we have described, and such as is but too common in our country.—Ed.

PEAS WITH POTATOES.

Mr. Editor:—Peas should be rarely grown by themselves upon the farm, but sown with oats, wheat or barley, unless the crop is intended to be used green, and in this way they do much better, no doubt, than if occupying the soil wholly by themselves. When cultivated or grown with other grains, in the manner indicated, they can be separated by means of riddles, without much trouble, and there are some winnowing mills which perform this work very well. The pea is a vegetable much exposed to insects; the "pea-bug" being its most common foe; but when sown with grain it commonly escapes its attacks. But the cheapest way of securing a sound and perfectly clean crop of peas, is to plant them with potatoes. A few dropped in the hills with the seed, are no detriment to the potatoes, and generally grow rapidly and well, making a good crop, if not injured by the bug, and adding the full value of their price to the income of the soil, without any deduction for cultivation or any thing else except the seed, which is a mere trifle, and scarcely of sufficient importance to be taken into the account.

I have known eight or ten bushels raised in this way, and of as fine a quality as could reasonably be desired. It was thought, at the time, that the value of the peas fully discharged the expenses of the potatoes, after planting, as they were so fine and brought so high a price.

Where potatoes are planted in drills, if peas are to be cultivated with them, they should be dropped in clusters—not *sown* along the lines—at intervals of a foot or eighteen inches. A closer stand would expose them to the evil so common to them when sown broadcast by themselves, viz.: the "mildew."

Many farmers deem it advisable to plant beans with their Indian corn; why not, then, plant peas with their potatoes? The food of the pea is essentially different from that required to sustain the potato, as the food of the bean is from that of Indian corn. If, by adopting these practices, an actual and clear *gain* can be secured without detriment to the principal crop—ought it not for economy's sake to be done? Most farmers have a sufficiently hard time to make "both ends meet," under the best management, and any innovation likely to operate as an easement, is therefore especially desirable. In recommending this plan, I am recommending only what I have tried and *proved* to be practicable.—A Practical Farmer, *in Germantown Telegraph.*

The potato is a potash plant, requiring for its growth much potash and little lime; while the pea is a lime plant, requiring much lime and little potash. It is but reasonable, therefore, to conclude that they would grow together more harmoniously than two plants feeding heavily on the same food. This would be a little like the old man we have heard of, who said he and his wife agreed *exactly* about oysters, because he wanted all they could pay for, and she wanted none. We thought something might depend upon who carried the purse and did the marketing. But let that go. The potato might say to its co-tenant of the same soil, "You take the lime, and give me the potash; the pea might say, "Agreed!" and so they might get along pretty well together. But both would want ammonia. Several other ingredients would be wanted in common. With regard to some of these ingredients,—might not the two crops be somewhat in the position of two pigs eating out of one trough, into which food but for one was placed? In common farming (not in gardening) we have always inclined to the opinion that one good crop in a year was about enough; and although "A Practical Farmer's" idea of growing potatoes and peas together seems not unreasonable, yet it is one of those things about which we should want to see, in order to believe. It would be very little trouble to make the trial.—Ed.

METEOROLOGICAL REMARKS ON THE YEAR 1856.

The winter was the most severe that the oldest inhabitants ever experienced, the mercury ranging lower than ever before, with the snow, a majority of the time, over two feet deep, and remaining longer in April than before in twenty years. The month of May was uncommonly wet and cold. Many farmers did not plant corn until June, and a number planted over three times. The summer was so dry that many crops did not amount to one fourth a crop, especially buckwheat, and late sown oats and pastures were scorched brown by the 10th of August, and cows near dried up at the last of summer. Springs and wells, from the middle of July to the end of the year, dryer than ever known before. Grist-mills on creeks in this vicinity, stood still for want of water, more months than ever before, and winter commenced with streams, summer-low.

The price of grain and produce ranged much lower than in 1855; wheat, during the autumn and Dec., \$1.50; rye, 62½ cts.; corn, 62½ cts; buckwheat, 48 to 50 cts.; oats, from 37½ to 40 cts.; butter, from 20 to 23 cts. per pound; beef, per hundred, \$5 to \$6; pork, 7 to 8½ cts. per pound, in the hog. Robert Howell.

Nichols, Jan. 1, 1857.

To Kill Insects on Fruit Trees.—M. Tessler has sent a communication to the Imperial Horticultural Society of Paris, stating that the ammoniacal water of gas-works will destroy the insects which are so destructive to our fruits. In the neighborhood of cities this is worth trial. The water of the gas-works should be diluted with three fourths its own quantity, and sprinkled over the leaves and branches. Trenches should be dug in proper directions to receive the water as it falls, and this will destroy the insects below the surface of the ground.—*Culturist.*

WHO WOULD NOT BE A FARMER?

THE *Louisville Courier* pays the following tribute to the occupation of the farmer:—"If a young man wants to engage in business that will insure him, in middle life, the greatest amount of leisure time, there is nothing more sure than farming. If he has an independent turn of mind, let him be a farmer. If he wants to engage in a healthy occupation let him till the soil. In short, if he would be independent, let him get a spot of earth, keep within his means, to shun the lawyer; be temperate, to avoid the doctor; be honest, that he may have a clear conscience; improve the soil, so as to leave the world better than he found it; and then, if he can not live happily and die content, there is no hope for him."

BE CAREFUL WITH GUANO.

IT may not be as generally known as it should be (says the *Philadelphia North American*) that great danger may be incurred by the reckless handling of guano. We understand that cases have occured of persons having cuts upon their fingers who, in handling this manure, have received a deadly poison into the system. The guano contains an organic element which is just as certain to operate against life if it once reaches the blood, as the corruption of a body that gets into a wound upon the person of the dissector. Farmers should be aware of this fact and be cautious. We heard of a death from this cause occurring within a few days in a neighboring county.

A HINT FOR THE SEASON.

NEVER was a time when farm work was more behind, or drove harder than it is likely to, if this present north-easter, already of ten days' continuance in this region, shall not cease. Planting, haying, harvesting, will come as thick as Job's afflictions. One will not be gone before another arrives.

Remember, in the press, which will most certainly be felt, that it hurts no man to work; but to work unreasonable hours and beyond our strength is unfavorable to health and destructive to that clear-headedness which none more than the farmer needs. We would say, do what you can by team labor; use labor-saving implements, where it will transfer the toil from human to brute muscles; and above all lay out the work if possible, so that all will go on without disappointment and fretting. Much depends upon doing the head work well—keeping hands and teams all employed advantageously.

We know from experience that it is easier to preach this doctrine than to practice it; but we only remind you in a spirit of fraternal kindness; and we want you to remember what we have often said, if it is true, and of that you must judge, that ten times more American farmers injure themselves in body and mind, by over-exertions at pressing seasons, than by accomplishing too much in the whole year.—Ed.

SPIRIT OF THE AGRICULTURAL PRESS.

"In transplanting trees, the aim should be to secure enough branchy roots to give the tree a secure foothold in the soil, and enough cut ends, and these stout enough to re-supply the spongioles with as little of time as possible," (*Louisville Journal*,) and then the top should be reduced about in the same proportion as the roots have been.—Ed.

"Manures.—Manure is the basis of all good husbandry. *Manure feeds the crops; crops feed the cattle; cattle make manure.* This is the endless chain."—(*Prairie City Chronicle*). It is an endless chain which all farmers use, whether they think it or not; but, alas, the links are too small. Manure is the first link, cattle wintered is the second, next year's crops is the third. The first link governs the size of the others. The manure on our farms should be nearly doubled in quantity, and quite doubled in value; and it can be, if the directions we are giving from time to time are followed.—Ed.

"Plant all you can.—There is a great scarcity in the land. It is quite certain that good prices will rule for a year to come. Let every man plant every acre possible. Sow all the wheat you can. Sow all the oats you can, and plant all the corn and potatoes you can. There will be a good demand for every bushel of them. Lose not an hour until every available acre is in use."—*Freeport* (*Ill.*) *Journal.* It seems rather late in the day to re-publish this; but we suspect that it is true, and that farmers who have facilities for getting in late crops—as buckwheat, turnips, etc.—would do well to heed it. Present appearances are, certainly, that the great cereal crops, as a whole, will be this year below an average.—Ed.

"Orchard.—Attack the caterpillars by burning them with the camphene lamp, described in a former volume"—(*Mapes' Working Farmer*,)—or, as we lately recommended, with the hand in a coarse glove; just as you think best—only *kill 'em.* Don't let a brood live two days after they make their appearance. It is a pity to have your orchard a scene of swingling-tow desolation. Take our advice; kill them, any way you please; we know you will be pleased with the result this year, and especially the next.—Ed.

"Advice to young Farmers.—Allow me to say to young farmers especially, let us be studious and inquisitive, as well as laborious; let us be simple and frugal in our habits; avoid needless expenditures; leave fine dress, and fast horses, and showy dwellings to those who really need such things to recommend them. Let us remember that for health and substantial wealth, for rare opportunities for self-improvement, for long life and real independence, the farmer's is the best business in the world."—*Goldthwaite.* It is so.—Ed.

"Other countries are pressing forward for supplies of Peruvian Guano, to which quality we are now exclusively restricted. The continent takes some 40,000 or 50,000 tons; the United States import 70,000 to 80,000 tons; (the port of Baltimore alone taking half that quantity), the sugar and coffee growing colonies are also liberal customers; and therefore, while the aggregate annual exports from the Chinchas are larger, we do not receive as much now as we did ten or eleven years ago."—(*English paper.*)—If the article obtained at Baker's and Jarvis' Islands, in the Pacific Ocean, which we understand are already taken possession of by our government, should turn out as good as Mr. Benson, President of the American Guano Company anticipates—a question on which we can not yet speak, for the want of accurate knowledge—our tribute to the Peruvian Government will cease. The above named islands unquestionably contain an immense amount of guano. Samples of it have been brought to this city, and are being distributed over the country to farmers, who will test its value for different purposes, by careful experiment. We have a quantity of it, and will give a few pounds to any farmer who will call on us, as long as it lasts, that its value may be known among farmers, and that they may have the best possible means (that of actual trial by the farmer himself) of deciding whether, and at what price, they can afford to purchase it, when our market shall be supplied with it, which we understand will be soon.—Ed.

"Farm-yard manure, except on the farms of the best agriculturists, is very much what it was a century ago, and there are few who could not introduce improvements."—(*London Farmers' Magazine.*) One would think this writer meant our country, instead of Scotland. Our observation in both countries is, that to one farmer there who lets half the value of his manure wash and steam away, a hundred do it here; and although we believe in Peruvian guano, at a *decent* price, and in Baker's and Jarvis' Island guano, if it shall prove about as good as Peruvian, and but two thirds as high; but we believe in farm-yard guano first, and to the utmost extent it can, by a just husbandry, be made to answer the purpose of foreign fertilizers.—Ed.

"Ventilating Haystacks.—The British farmers have a method of ventilating their hay, oat, and barley stacks, which we may frequently adopt with advantage; and in stacking corn-stalks, it would be always beneficial, They fill a large bag, say 3 1-2 feet high and 20 inches in diameter, with straw, and place it vertically in the center of the stack, putting the barley, oats, or hay—whichever it may happen to be—around it. As the stack rises, they lift the sack; and so on to the top. In this way, there is a chimney formed in the center of the rick or hay, into which the steam or gases generated find their way and escape readily."—*Wool Grower and Stock Register.* This may be a good measure. We doubt it. It would be better to dry the hay well and put into a solid stack, if this can be done.—Ed.

Guano is sold by the agent of the Peruvian Government in New-York, at $60 per ton for No. 1, in bags of about 160 or 170 lbs., and 500 tons or upward at once, on 60 days' credit. In smaller lots, it is $65 cash. We believe that it is not sold in less parcels than 25 lbs. by the agent. It is a mystery to many persons how retailers sell guano at less than these prices. They may do so and be honest; because they buy long tons and sell short ones; and as it costs about two and two third cents a pound, if sold at three cents, which is the usual price, it affords a fair profit—say $7 a ton.

Way of using Guano for Corn.—Mix good guano, thoroughly, with six times its weight of dry, rich loam, several days before using it. Drop half a pint of the mixture into each hill, before planting the corn. You may sow guano broadcast, also, on the same field on which you practice the above method. If the soil is heavy, harrow it in; if light, it may be ploughed in with a light plough. This should be done before planting, of course.—*Farm Journal.*

CATERPILLARS—(KILL THEM)—TREES—VINES.

As caterpillars leave their nest at about 8 o'clock A.M., and return to them at 5 P.M., they should be attacked before or after those hours. Boiling water poured into the haunts of ants will destroy them.

If your trees were properly washed in early spring they will not be hide-bound now. Treat sluggish grape-vines as recommended in Mr. Galbraith's paper in a former volume. Sow a very slight quantity of fine salt around plum and some other fruit trees as recommended; trim off shoots from the trees.—*Working Farmer.*

SHEEP.

It is thought by many, and we think correctly, that the grazing of pastures by several species of animals is better for the land, and gives more profit, than grazing by any one species. The following statements will throw some light on the question, whether it is well for the small farmer, who does not make wool-growing a business, to keep a few sheep. They are from the Transactions of the Hampden Co. Agricultural Society, Mass., for 1856.—Ed.

Samuel Bebee's Statement.—The amount of income realized by me on the sheep which I offer for prémium, is enumerated in the following statement:

The quantity of wool sold from six of these sheep, for the year ending in

September, 1853, was 26½ pounds at 52 cents, $13 78; six lambs, 462 pounds, at 4 cents, $18 48; one ewe reserved for stock, $3 08—total, $35 34, or $5 89 per head, the six sheep being at that time but two years old.

Income from the same six sheep for the year ending September, 1854, they being then three years old: 25½ pounds wool at 42 cents, $10 71; six lambs, 345 pounds, at 5¼ cents, $18 11; four ewes reserved for stock, estimating their weight as equivalent to that of the four best sold, $13 28—total, $42 10, less the value of the yearling fleece included above, shows the product of the six old sheep to be $40 57, or $6 75 per head.

Income from seven old sheep (six of them four, and one two years old,) with four yearlings—eleven in all—for the year ending September, 1855: The seven old sheep produced fifteen lambs, four of which were lost during the extreme cold weather in which they were dropped. The remaining eleven lambs, weighing 576 pounds, were sold at 6 cents, amounting to $34 56; and of the whole clipping from the eleven sheep—39 pounds—24 pounds 13 ounces comprised the product of the seven old sheep, which was sold at 40 cents, amounting to $9 92, and making a total of $44 48, or a fraction over $6 35 per head.

Income of ten sheep for the year ending September, 1856, (one old ewe of the original stock having been slaughtered during the last autumn,) the ten including five five years old, one three years old, and four two years old: Whole number of lambs, sixteen, of which three were lost, two of them by being poisoned when their weight was 35 pounds; received for the thirteen sold, $47 55; one black lamb reserved for use, $5; 31 pounds wool sold at 42 cents, $13 02—total, $65 57, or $6 55 per head.

My sheep are South Down—the same which I have had on my farm for eight or ten years—and originated from the flock owned by Paoli Lathrop of South Hadley. The ewe marked with three stripes of red, (one of the number exhibited by me this year,) is five years old, and has brought me nine good lambs, one of which was lost, but the remaining eight netted the sum of $55.

South Wilbraham, Oct., 1856. SAMUEL BEBEE.

HORACE CLARK'S STATEMENT.—The flock of sheep exhibited by me, ten in number, was appraised at $50, or $5 per head, April 1, 1856, and I submit the following statement of their product for present year:

52 pounds wool sold at 40 cents, - - - - -	$20 80	
12 lambs " " $3 per head, - -	36 00—	$56 80
Cost of keeping one year, $1 50 per head, - -	$15 00	
Washing and shearing, 8 cents per head, -	80—	$15 80
Net profit,		$41 00

As these sheep are young, they will probably be worth as much in April, 1857, as they were in April last, for which reason I have made no deduction in their estimated value, in the presentment of the foregoing items.

Wilbraham, Oct., 1856. HORACE CLARK.

J. L. S. WESSON'S STATEMENT.—The flock of sheep which I offer for premium consists of ten, and their product for the current year is as follows:

35 pounds wool sold at 40 cents, - - - -	$14 00	
11 lambs sold, - - - - - - - - - -	38 93	
1 " reserved, - - - - - - - - -	2 00—	$54 93
Expenses for keeping, etc., - - . - - -		15 00
Net profit,		$39 93

Wilbraham, Oct., 1856. J. L. S. WESSON.

C. L. BUELL'S STATEMENT.—The flock of sheep which I offer for the Society's premium, consists of nine ewes and one buck, the former of native stock, the latter a mixture of South Down and native. The buck is two years, and the ewes from four to eight years of age. About the first of January last, seven of these ewes dropped one lamb each; in April following the remaining two dropped each a pair of twins; and about the first of July the seven first named again dropped one lamb each—making eighteen lambs from the nine ewes within seven months. Eight of the lambs were sold, in June, at $4 per head. Three of the twins being ewes, were reserved to increase the flock, and these, with the seven last dropped, are the ones now on exhibition. The ewes will drop lambs again about the first of January, 1857. The average weight of fleece of the entire flock, was 4½ pounds. The keeping of these sheep has been plenty of good hay in winter, and ordinary pasturage in summer.

Ludlow, Oct., 1856. C. L. Buell.

Samuel Warner's Statement.—The product of the sheep offered by me for exhibition and premium, has been for the present year as follows:

5 lambs sold at Brighton, - - - - - - -	$22 50
9 " " at home, - - - - - - - -	27 00
3½ pounds wool per head, at 40 cents, - - -	19 00
	$69 10

Samuel Warner.

Horticultural.

HORTICULTURAL HINTS.

In copying the following from the *Country Gentleman*, we are aware that we commend that Journal to our readers, a thing which we are willing to do, because it deserves commendation:

Crops of garden vegetables will soon come forward rapidly, and nothing will contribute more to their vigorous and successful growth than preserving a clean and perfectly mellow soil about them.

Transplanting Cabbages, may be successfully performed even in dry weather, by dipping the roots into thick mud before setting out. Wrapping a roll of stiff paper, (previously oiled would be better and more durable) around each stem, so as to cover it an inch or two below and above the surface of the earth will effectually exclude the grub.

Irrigation with liquid manure, or even simply with water will greatly accelerate the growth of many vegetables. Radishes are much improved by watering. Strawberries have been doubled in size, and raspberries much increased.

Young budded and grafted trees, will require early attention in rubbing off the shoots that spring up from the stocks; and young transplanted fruit trees for gardens and orchards, should have useless shoots taken off and long ones pinched back, so as to form regular symmetrical heads.

Thinning fruit on trees, may seem like a very unnecessary operation, after the past two or three intensely severe winters, which in many places left little for thinning. But they should not be permitted to overbear. We are not sure that the unfavorable seasons which have lately occurred, have not on the whole proved a benefit to orchardists, by allowing their trees to recover from the effects of hard cropping. One of the easiest ways of thinning the fruit, is to thin out the bearing shoots, and this is especially the case with peaches; it should be done in spring, but is not too late even after the trees are in leaf.

Mulching should not be forgotten. It should be performed as soon as the hot dry weather approaches. It is especially useful to such fruit trees as can not be kept well and constantly cultivated, such for instance, as stand in grass land, or along boundaries. As often performed, it is not complete and thorough enough. The litter which forms the mulch, should be at least four or five inches thick after packing down, and should form a circle around the tree, at least equal to its height. Cherry trees, set out in the spring, and which commence with a promising growth, often wither and die about mid-summer—a disaster which is effectually prevented by timely mulching.

Dishwater and *soapsuds*, instead of being appropriated to the formation of an interesting puddle at the kitchen door should be poured at the roots of young fruit trees, raspberry and currant bushes, and will accelerate their growth and augment the size of the fruit.

Trimming Grape Vines.—For many years we have raised grapes by the bushel from a single vine, and our trimming is done in the following manner: The first week in July we commence and cut back to the second leaf or bud of the present season's growth. Have a sharp knife and trim a portion every day (a little at a time) until the whole vine has been gone over. Autumn, winter and spring pruning are avoided; but we have large, nice, smooth grapes in abundance.—C. G. L., *North Bloomfield, N. Y.*

An Ancient Oak.—One of the oldest trees in Europe was struck by lightning in the month of July last. This tree, an oak, had been planted near Chatillion-sur-Seine (Cote d'Or,) in 1070, by a Count of Champagne. The oak, which had therefore existed 786 years, measured seven and a half metres in circumference, and had produced acorns up to 1830.

To Prevent Bugs on Vines.—Plant beans among your cucumber vines, and others, and let them grow among them till the vines get strong enough to resist the bugs, then pull up the bean plants, and throw them away. This has been tried, and found effective.

So says an exchange.—Ed.

Yellow Birds.—A farmer near Binghampton, N. Y., last year, in order to convince a neighbor of the usefulness of birds, shot a yellow bird in his wheat field, opened its crop, and found in it two hundred wevils, and but four grains of wheat, and in these four grains the wevils had burrowed.

To preserve Flowers in Water.—Mix a little carbonate of soda with the water, and it will preserve flowers for a fortnight, but the water in flower-pots should be changed every day in summer or it will become offensive and unhealthy, even if there is salt in them.

Black Pepper, dusted on cucumber, melon and other vines, when the dew is on, is said to drive away the striped bug, and will do no harm to the plants.

Powdered charcoal placed around rose bushes and other flowers, has the effect of adding greatly to the richness of the flowers.

Birds.—Spare the birds in your orchards and gardens—they are your best friends—they "pay their rent," not only in music and in the delight which they afford the eye and the heart, but also in the destruction of myriads of rapacious insects. As a further protection against predatory insects, hang up a number of wide-mouthed bottles, half filled with molasses water, in your trees—you will catch a great number of them.—*Ex.*

Manufactures, Mechanics, etc.

Recent American Inventions.

AMERICAN ARTS—A SPLENDID CLOCK.

Our ingenious and skillful mechanics are getting great honor to themselves and to our country, by the character of their workmanship and their original inventions. Among the more noticeable examples of this is a splendid clock, by H. Sperry & Co., for St. George's church in this city, which is one of the finest and one of the largest ever constructed. It is designed to carry two hands for each of the three dials, on each of the two towers of that beautiful church. Some of these dials will be 70 feet from the clock. In describing it, the *Scientific American* says:

"The clock is not nearly as large in frame as the mammoth clock by Mr. Dent, in the new Houses of Parliament, London, but several of its principal parts are larger, and the mechanism, which is of the simplest possible kind, is far superior in both material and workmanship. The works of the London clock are of iron, cast with the teeth; those in this are of the best composition metal, *cut* by machinery in the most scientific form. The powerful first motion wheels of the former are 27 inches in diameter—of the latter 28 inches. The pendulum of the former is 15 feet in length—of the latter, 21 feet.

The escapement of this clock is of the form known as the pin-wheel, one of the dead beat styles. The pallets are mounted with agate. This is the same general style with which this firm have been so successful in their clocks for depots, and other situations requiring very accurate indications of time. Several new features, however, have been introduced, specially adapting the mechanism to its increased size; and much admiration is elicited by the skill and exquisite beauty of the whole. All the work is mounted and finished in the highest style known."

The largest wheel is nearly three feet in diameter. The weights are suspended by wire ropes, apparently half an inch in diameter. A very novel arrangement of the machinery gives a "retaining motive power" of about twenty minutes, so that no time will be lost in winding it up. It attracts quite a concourse of those interested in such matters.

ELECTRICITY AS A WATCHMAN.

We long ago gave a description of an electrical fire-alarm, in operation in Boston, which was commenced some five years since. It operates, we believe, quite to the satisfaction of the people. But we now find elecricity applied to the use of private residences, as a security against burglars and fire.

It consists of a spring concealed in every door, window-shutter, or desk, to which it may be desired to apply it, which is so arranged that when any attempt at burglarious entry, or even at tampering with a lock is made, the electric circuit is completed, which causes an alarm-bell to ring. The circuit can be shut off at any time by turning a handle. This contrivance for giving an alarm of fire is constructed on the principle of Breguet's thermometer; when the temperature of a room rises from any cause beyond a given limit—say one hundred and twenty degrees—the electric circuit will be completed and the alarm-bell will give instant notice.

PATENT BABY WALKER.

The accompanying engraving presents a view, and the mode of application and arrangement of an improved baby walker, the invention of Joseph Thomas, of Brooklyn, N.Y., and patented March 17, 1857.

The apparatus consists of an iron frame supported on four standards having castors on their bottom ends, by which it may be moved in any direction at the will of the occupant, and having set screws—by which the height of the top of the frame may be adjusted to suit the height of the child using it. To the iron frame is attached a soft, easy cushion, in the form of an annular ring, within which the child is placed, and to which it is secured by a belt or strap buckled around its waist to support or keep it from falling. The height of this cushion is regulated by the set screws in the standards, so as to bring it to the height of the child's waist, and also to bring the proper degree of weight upon the child's feet; and as the circular cushion is made soft and yielding, it will not inconvenience the child when brought in contact with it.

The design of the invention is to keep children quiet, assist them in learning to walk, keep their clothes clean, and keep them out of mischief generally, by attaching them (at an age when most troublesome) to an apparatus which is amusing, and at the same time assists them in a proper exercise of their limbs, and contributes to their health and strength.

The child being supported by the strap around its waist, and the apparatus being adjustable, it can be set so as to allow the child to bear more or less weight upon its limbs, thereby avoiding all danger of making it bow-legged or otherwise injuring it. And as they are neat, cheap and useful, they will undoubtedly meet with an extensive sale. For any information or territorial rights, address C. A. Durgin, 335 Broadway, New-York city.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FENN'S SELF-REGULATING WIND POWER.

Hartford, Trumbull Co., O., May 15, 1857.

Gentlemen:—Being one of those interested, in all that tends to lighten the burden of the Farmer, and who believes that every invention calculated to benefit him should be made public, in order that its merits may become generally known, I would take the liberty of calling your attention to the Rev. B. Fenn's self-regulating Wind Power, patented Jan. 1, 1856.

This power has been tested here, and has far exceeded the most sanguine expectations of its friends. It grinds corn as well as any mill, and for cheapness and durability, I think it can not be exceeded. It is completely self-regulating, easily stopped, no matter what the power of the wind may be; it is easily started, and regulates its own motion when in operation. It can be built at a very small cost, for grinding, and can be applied to pumping water, sawing fire-wood, and, in fact, to all purposes for which steam or water power could be used. All who have seen it in operation, without a single exception, have spoken out in favor of the invention, so far as I have heard.

After June 1st, 1857, Mr. Fenn will be prepared to make sale, to companies or individuals, of territorial and individual rights, to all who may be in want of one of the cheapest powers that can be had, and at a cost far below either steam or water power. For further information on this subject, please address James H. C. Johnson, Postmaster, Hartford, Trumbull Co., Ohio, who will promptly respond, giving every information as to Fenn's prices.

PERPETUAL MOTION.

Another exhibition of mechanical genius, the product of the skill of Mr. Willis, of New-Haven, Ct., is to be seen at the American Museum. There are four ingenious machines, apparently self-moving, and claimed to be also a perpetual motion. We have not personally examined them as yet, but our friend and neighbor, the *Scientific American*, says that they are well worthy of notice, as curious and ingenious mechanisms. At any rate, the visitor will see the museum, with its "happy family" and strange animals, and will not lose aught of the full value of his quarter.

Mr. Cyrus Putnam, of Hallowell, Me., has also invented what he considers to be a perpetual motion, with power enough to drive any amount of machinery. We hope his expectations are not too strong to bear a disappointment with safety.

Ouachita Coal.—We have been favored with a pamphlet containing some interesting papers relating to the coal field on the upper Ouachita River, submitted to the Academy of Sciences of New-Orleans. Amongst the papers are reports of analyses made by Prof. Riddell, and Ed. W. Kent, chemist, of the constituent elements of this coal, which shows a proportion of fixed carbon and combustible matters equal to the best of foreign and domestic coals. Should its supply prove as extensive as represented it will have the effect of liberating us from dependence for coal on the Ohio—which is noted for not consulting the convenience of either coal dealers or consumers—and go far towards creating a new era in the commerce and navigation of the lower Mississippi and Gulf of Mexico.—*N. O. Delta.*

THE ARTIFICIAL BREEDING OF FISH.

THIS valuable discovery of our French neighbors, in relation to the artificial production of fish, ought to receive general attention. It may be made an important item in our annual productions, and whether the profit and loss be included in manufactures or the arts, we being only a *junior*, have not quite settled. They are not "the product of the seas," where our fisheries are technically classed, for every man may have them in an artificial pond in his own garden or even in his cellar. But our object now is only to introduce a statement, found in the *Hartford Times*, of the entire success of an experiment in fish-breeding by a gentleman of that city. It is as follows:

"During the past winter Mr. E. C. Kellogg has succeeded, without much trouble, in breeding trout in his cellar. He placed a box, with proper partitions, in the cellar, and put some sand, gravel and stones in the bottom. He then procured two trout, a male and female, and went through the process, which has proved successful in France, of pressing the spawn from the female and placing it in his box. He then filled the box with Connecticut river water, and kept a small stream constantly running through it. This was about seven weeks ago. He has now seventeen fine, lively young trout, from half an inch to an inch in length, and more in the process of hatching. By holding the eggs to the light, little fish can be seen in them distinctly. The old ones are kept in a tub, and are not allowed to range among the small fry. The little ones of a week old have all the characteristics of the old fish, and they will dart under a stone with great rapidity when the water is stirred up a little.

NEW-YORK CENTRAL RAILROAD.

THE master mechanic of the western division of this road, Mr. David Upton, has published a statement of the running expenses and cost of repairs on that important road for March, which presents the following facts: Fifty-eight engines, of which 51 are outside, and 7 inside connected, have run 115,646 miles with 8008 pints of oil, 990 lbs. of tallow, and 2433 lbs. of waste. The average mileage to a pint of oil was $14\frac{3}{8}$; the highest was 37·27, by the engine *Reliance*, which ran 2087 miles on freight at a cost of 52 cents a mile; the lowest was 4·57, by the engine *Stranger*, which ran 402 miles on freight, at a cost of 4 47-100 cents per mile. The total cost for repairs was $4683·50 for labor, and $5854·18 for stock; total, $105,37·68, which speaks well for *good tools.* The average cost of repairs per mile was about 10 cents; the highest was $84·98, on the engine *New-York*, which ran 500 miles on freight; the lowest was ·59 on the engine *North Star*, which ran 4004 miles on passenger trains. The highest mileage was 3780 miles by the engine No. 187. The total cost of service of engineers, firemen and wipers, of oil, tallow and waste, and of repairs, was $187,37 40. The lowest total cost per mile run was 5·42 cents, on the engine *Orleans*, inside connected, which ran 4004 miles on freight and passenger trains; the highest was 104·54 cents, on the engine *New-York*.

MANUFACTURE OF LIQUORS.

The public have been often told of the adulterations of alcoholic liquors, but the knowledge of the facts does not seem to prevent their use. A new piece of testimony is recently brought out, by Dr. Hiram Cox, inspector of liquors at Cincinnati. Of 240 inspections, nine tenths of them were imitations, and a great proportion of them poisonous. Of brandies, not one gallon in a hundred is pure. Of wines, not one in a thousand. Whisky is adulterated with sulphuric acid, (oil of vitriol,) and contains not more than half its proper proportion of alcohol.

A NOVEL HORSE EXHIBITION.

Our Western friends are discussing the expediency of a great Iron Horse Show. It is proposed to construct a track of five miles in extent, with all the necessary buildings and fixtures, for the show of all the operations of a railroad, with its divers modes and apparatus. The idea is almost poetic, but it may prove quite a reality, and if real, a grand reality. The railway capital of this country now amounts to $800,000,000, and its interests are intimately connected with almost every variety and form of industry, to a greater or less degree dependent on the railroad for their success.

As a facility for affording military defense, the iron cavalry would hold a very prominent position, and their movements would present a grand spectacle.

COMPARATIVE VALUE OF AMERICAN IRON.

The importance of sound and tough axles for passenger cars and locomotives can not be overrated. The breaking of axles has caused some of the most serious and fatal accidents on record. The late very fatal occurrence on the Great Western Railway, was, in all probability, as shown in another column, due to this cause. Scrap iron is decidedly inferior to good native iron. Ames' very extensive works in Connecticut, devoted to the manufacture of locomotive tires and car axles, uses no metal but that direct from the Salisbury ore beds, smelted by charcoal fuel with a cold blast, and subsequently many times drawn out under the heaviest hammers and repiled. Such processes with our best American ores produce work far superior in strength and toughness to the best foreign brands, and absolutely free from the flaws and weak spots incident to the scrap iron blooms. The manufacture of such important forgings as car axles from the very finest iron, in the best known manner, is a point that should merit far more attention than it does; and we mention these works, and the processes therein, as the best with which we are personally familiar, but presume there are others in our country which conduct the work in the same way, and with the like superior results.—*Scientific American*.

Anthracite Coal Coke.—Experiments have been recently made in France, which appear to have resulted in the preparation of an excellent coke for railroad purposes. It is prepared by admixture with pulverized bituminous coal, in the proportion four fifths anthracite to one fifth bituminous.

Recent Patents,

[ISSUED FROM THE U. S. PATENT OFFICE, FROM MARCH 24 TO APRIL 28, 1857.]

AGRICULTURAL.

Harvester, Samuel C. Allen, Bristol, Pa.—Cutting Apparatus for Harvesters, Samuel Comfort, jr., Morrisville, Pa.—Reaping Machines, Geo. Esterly, Heart Prairie, Wis.—Harvester, Pells Many, Wadam's Grove, Ill.: Two patents, one a combination of the smooth elastic cap or sheath, connecting the divider with the main wing, with the reversed hook or bent projecting end of an automatic rake; and the other, the raising or lowering the finger bar of harvesters by means of the adjusting stanchion, in combination with the elastic shoe, &c.—Corn and Cob Mill, R. F. Maynard, Baltimore, Md.: two patents, one, covering the mode of securing the legs and the parts of the concave together; the other, the arrangement of the grinding teeth, so as break points and to form a series of interrupted screw threads, &c.—Gate-post attachment to field fences, J. G. Hunt, Cincinnati, O. A portable or permanent post, attached to a fence for hanging a gate.—Field fence, Samuel Rains, Lancaster Co., Va.; a fence without posts, &c.—Raking Device for Harvesters, Isaac H. Conklin, Rockford, Ill.; delivers the grain in sheaves.—Do., D. W. & H. A. Lafetra, Eatontown, N. J.—Threshing grain in the field, J. C. & T. G. Wilson, Cedar Hill, Tex.—Button for panel of fences, Wm. B. Burnett, Lyons, N. Y.—Hand Seed-planter, Thos. Crane, Fort Atkinson, Wis.—Same, John Decker, Sparta, N. J. Has two hoppers, and plants two kinds of seed at once.—Automatic Rakes, for Harvesters, Jona P. Green, and Israel Dodenhoff, Bloomington, Ill.—Hand Seed-planter, Plymour B. Green, Chicago, Ill.—Cotton Cultivator, John M. Hall, Warrenton, Ga., combination of wheel and adjustible hoes.—Securing the doors of Hay-presses, &c., Cornelius Martratt, New-Baltimore, N. Y.—Harrow, G. W. Tolhurst, Cleveland, O.—Harvester, J. C. & T. G. Wilson, Cedar Hill, Tex., mode of operating the reel.—Potato Digger, John Taggart, Roxbury, Ms.—Harvesting Machine, J. F. Barrett, North Granville, N. Y., combination of straight forward and back moving knife with oscillating or swivelling knife.—Binding grain, J. F. Barrett, North Granville, N. Y.—Seed Drill, Ezra Emmert, Franklin Grove, Ill.—Seed Planter, George M. Evans, Pittsburgh, Pa.—Harvester Frame, M. G. Hubbard, Penn Yan, N. Y.—Harvester, Isaiah Knauer, Valley Forge, Pa.—Churn, H. N. Mackey, Morgantown, Va., combination of oblique wings and double headed self acting pistons, passing through them.—Excavator, Samuel W. Soule, St. Louis, Mo.

METALLURGY.

Clinching Spikes, Horatio Bates, New-York.—Road Scraper, C. Blakeslee, Ashtabula, O.—Making Rivets, Richard H. Cole, St. Louis, Mo.—Forming Spiral Springs for chairs, sofas, &c., John T. Foster and Jacob Banta, Jersey City, N. J.; James H. Banta, Piermont, N. Y.—Road Scraper, G. W. Thomas, Wickford, R. I. Adjustable side scraper, in combination with the front release scraper, when so arranged as to throw the dirt inwardly towards the center of the road and in a crowning form, &c.—Wrench, E. Repley, Troy, N. Y.—Arranging and Operating Window Shutters, D. Rohan, Cincinnati, O. Designed as a substitute for the usual arrangements of the moveable large windows of stores, &c.—Gold Separator, E. L. Seymour, New-York.—Machine for cutting Fringes, Wm. J. Horstman, Philadelphia.—Printer's Composing Sticks, Daniel Winder, Cincinnati, O.—Iron Fences, Wm. S. Fuller, Millbury, Ms. The manner of connecting the pieces and rods together by means of the lugs and collars.—Cleaning castings, Henry R. Remsen, assignor to himself and W. J. Noyes, Albany, N. Y.—Folding Window Blinds, Sylvanus S. Clark, Manchester, N. H. A combination of the Venetian corded blind and the common frame blind.—Lifting Jack, John S. Chesnut, Philadelphia, Pa.—Do., Robert W. and Daniel Davis, Yellow-Springs, O.—Expansive Bit, Alex. Hall, New-York.—Door Spring, Gilbert L. Barley, Portland, Me.—Combined Square, Metre and Bevel, Alex. McKenzie, Boston, Ms.—Molds for casting, Mortimer Nelson, New-York, casting Britannia and other metals, by backing up a thin metallic face with plaster.—Grinding Saws, Albert S. Nipps, Lower Merion, Pa.—Blacksmith's Butteris, Robert Kilmer, Newton, Pa.—Lock, Leger Diss, Ilion, N. Y.—Chronometric Lock, Amos Holbrook, Milford, Ms., and H. D. Fish. Hardwick, Ms.—Tempering Steel Plates, Henry A. Seymour, Bristol, Ct.

Manufacture of Textiles, etc.

Felting Hat Bodies, William Fuzzard, Cambridgeport, Ms. This machine is designed to raise the nap by machinery.—Making Rope, Milton Wallwork, Hoosick Falls, N. Y. A new mode of construction of the stationary circle or ring, with which the rollers on the flyers run into contact, to produce the rotary motion, that gives the twist. The speed of the strandflyers can be varied at pleasure.—Paper ruling machines, C. L. Pond, Buffalo, N. Y.—Hemp Brakes, James Barkley, St. Louis, Mo.—Crossing the fibres of felt cloth, Thos. B. Butler, Norwalk, Ct.—Forming the brims of felt hats, W. A. Fenn, New-Milford, Ct.—Sewing Machine, W. H. Nettleton and Chas. Raymond, Bristol, Ct.—Drying and Pressing Paper, John North, Middletown, Ct., apparatus for cleaning the pressing cylinders, and heated plates or chests, for drying.—Bustles, Alexander Douglass, assignor to Douglass Sherwood, New-York, adjustible in size, to suit the wearer's pleasure.—Blocking hat bodies, Wm. A. Fenn, New-Milford, Ct.—Rope Machines, Harvey W. Fowler, Hoosick Falls, N. Y.—Hemp Brakes, Wade W. Hampton, Winchester, Va.—Carding Machine, Hiram Houghton, Somers, Ct.—Curling hair, Mark M. Lewis, Albany, N. Y.—Smoothing Iron, Galen B. McClain, Bath, Me.—Felting Hat bodies, H. L. Randall, Roxbury, Ct., movement of felting board, &c.—Winding conical bobbins, Clark Tompkins, Troy, N. Y.—Blank-book Index Cutter, George Hodgkinson, and T. F. Randolph, Cincinnati, O.—Brushes of Saw Cotton Gins, Edwin Keith, Bridgewater, Ms.—Cop Tubes, John Marland and Earlsworth Crockett, Lawrence, Ms., made of Gutta Percha.—Self-adjusting Sack-holder, Augustus Stoner, Mt. Joy, Pa.—Winding Wadding, Thomas Thompson, Niverville, N. Y.—Making paper bags, Benjamin F. Rice, assignor to Benjamin R. Smith, and Chas. H. Morgan, Clinton, Ms.

Chemical Processes.

Construction of a retort, Alfred Monnier, Camden, N. J.—India Rubber Hose for making tubes from strips of rubber, wound round a mandril, uniting the edges by pressure.—Treating Gutta Percha, Robert Haering, N. Y., by the use of pipe clay and sulphur, as set forth.—Coating metals with silver, Levi L. Hudson, New-York, by use of combination of cyanide of silver, grape sugar, essence of sassafras, clay and Paris white, or equivalents.—Improved Lubricator, Hiram Strait, Covington, Ky.—Purifying Oils, Halvor Halvorson, Cambridge, Mass., assignor to himself, Edward H. Baker, J. F. Atheara and W. Tracy Eustis, Boston, Mass.

Calorifics, Gas Lights, Lamps, etc.

Lamp Burners, A. H. Knapp, Medford, Mass.—Hot Air Furnace, John H. Cahill, Philadelphia.—Gas Burner, E. P. Gleason, Providence, R. I.—Feeding fuel to Furnaces, James Hemington, Richmond, Ind.—Lime Kiln, Wm. Robinson, Baltimore, Md.—Closing Gas Retorts, N. Aubin, Albany, N. Y.—Cask Heaters, Simeon Burgess, Wayne, Pa.—Chimney Dampers, Augustine Campbell, Philadelphia.—Gas Regulator, Robert Cornelius, Philadelphia.—Lime Kiln, Aaron Jeffries, Alleghany Co., Pa.—Burner of Burning-fluid Lamps, Chas. A. Green, Philadelphia, Pa.—Tea Kettle, Jas. Greenhalgh, Waterford, Ms. A wire from cover to handle, controls the position of the cover.—Portable apparatus for gas, S. O. Halsey, Essex Co., N. Y.—Cooking Stove, Thomas King, West Chester, N. Y., a circular stove surrounded by hot air flues, with registers and dampers for regulating the fire.—Argand Gas Burner, C. H. Johnson, assignor to himself and J. G. Hamblin, Boston, Ms.

Steam Engines, etc.

Steam Boiler, Smith Baldwin of St. Louis, Mo. An inside and outside cylinder, with water pipes so arranged as to give a large heating surface, covered with a thin stratum of water, &c.—Steam Boiler, Nelson Johnson, Jasper, N. Y.—To prevent incrustations on boilers, Robert McCafferty, Lancaster, Pa.—Traps for relieving steampipes of water, John Avery, jr., Lowell, Ms.—Ports in Steam Cylinders, Bowen Eaton, Roanoke, Ind.

Navigation and Maritime Implements.

Reefing Sails, Washington F. Davis, Winthrop, Mass.—Hawse holes for vessels, &c., J. C. Osgood, Troy, N. Y.—Ships' steering apparatus, S. N. Smith, New-York, a new mode of applying the brake, and dispensing with a swivel.—Propeller, Robert Griffiths, London, Eng.—Reefing Ships' Sails, James Emerson, Worcester, Ms.—Reefing Sails, Francis C. La Croix, and Chauncey Barnes, New-York, by means of tackles, both ends of the falls being secured to the yard.—Cable Springs, Wm. Wilcox, E. Hartford, Ct.—Sails and Rigging of Vessels, Geo. T. May, Tompkinsville, N. Y.—Anchor Tripper, John B. Holmes, assignor to himself and John R. Pratt, New-York.—Submerged propelling wheels, Thos. Kendall, jr., San Francisco, Cal.

Civil Engineering and Architecture.

Hoisting Winches, Joel Bryant, Brooklyn, N. Y. A new combination of windlass and pulleys, &c.—Level, or Inclinometer, Thos. A. Chandler, Rockford, Ill.—Hoisting Bucket for coal, &c., Geo. Focht, Reading, Pa.—Vault covers, Geo. R. Jackson, Rye, N. Y., glasses of pyramidal or polygonal form for producing a wider diffusion of light.—Ventillating Vaults, Geo. R. Jackson, Rye, N. Y., connecting the aforesaid elevated recesses in the ceilings of subterranean apartments, with ventillating lamp posts, or with the flues of a building—Attaching bolting cloths to reels, John Woodville, Chillicothe, O.

Land Conveyance.

Arrangement of Carriage Springs, R. P. March, Jeffersonville, Pa.—Railroad Car Brake, R. M. Wade, Wadesville, Va.—Car Lock, Henry Ritchie, assignor to himself, Samuel C. Thompson, and Geo. W. Westerfield, Newark, N. J.—A lock designed for baggage and freight cars, self locking, with spring jaws, tumblers and a sliding plate.—Railroad Car Brake, R. R. Smith, Philadelphia.—Attaching Hubs to axles, Lorenzo Winslow, Rochester, N. Y., attaching the box by means of a ring and pin.—Dumping Railroad Cars, Wm. Peirce and John Lowrie, Piedmont, Va., by a rocking track and other appropriate arrangements.—Railroad chair machine, Corydon Winch, Jersey City, N. J.

Hydraulics and Pneumatics, Water and Windwheels, &c.

Current and Paddle Wheels, James H. Hunchett, Beloit, Wis.—Attaching buckets to water wheels, J. R. Howell, Alexandria, Va.—Current Water Wheel, Thos. Stamp, Wetumpka, Ala. So as to raise and lower it.—Street Sprinkler, C. O. Luce, Brandon, Vt. The water is thrown from horizontal wheels, by centrifugal force.—Windmill, Rubus Nutting, Randolph, Vt.—Rotary Pump, Richard Gilbert, Rochester, N. Y.—Liquid Metre, Otto G. Leopold, Cincinnati, O.—Working Pumps, Wm. Wright, Hartford, Ct.—Filtering Liquids, Benjamin N. De Buffon, Paris, France.—Waste way in Faucets, James E. Boyle, Richmond, Va.—Hydrant, Abraham Hoagland, Jersey City, N. J.—Fluid Metre, S. J. Burr, assignor to himself and H. F. Read, Brooklyn, N. Y.—Atmospheric Pump, Levi Keller, Catawissa, Pa.

Lumber and Machines for Working it.

Shingle Machine, John L. Brown, Indianapolis, Ind. A self-feeding machine.—Baskets, Joel A. N. Ellis, Springfield, Vt.— Cylindrical Boxes, H. S. Smith, E. Hanson, and M. S. Richardson, Rutland, Vt. An invention for cutting out the boxes directly from the bolt or plank, and, sawing it off, the exterior and interior surfaces and the rim being finished at one operation.—Splitting Hoop-poles, Joseph and Sylvester Sawyer, assignors to American Hoop Machine Co., Fitchburg, Ms.—Boring Machine, Jonas Bosenburg, Cherryville, N. Y.—Sawing Shingles, Jonathan Creager, Cincinnati, O.—Machine for Splitting Wood, Wm.

L. Williams, New-York.—Ox Yoke, Isaac K. Bennett, Narrows, Pa.—Cutting Veneers, Gilbert Bishop, New-York. A knife in sections, each having alternate smooth and toothed cutting edges, attached together.—Awl Haft, Nathan S. Clement, Worcester, Ms. A chamber for spare awls, in the same end with the griping jaws.—Saw Set, Oliver B. Judd, Little Falls, N. Y.—Shingle Machine, G. H. Mallory, New-York.—Spoke Shave, Manly Packard, W. Bridgewater, Ms.—Sawing Machine, H. F. Parmort, Saginaw City, Mich.—Stave Machine, Henry L. McNish, assignor to himself and D. C. Butler, Lowell, Ms. Guides and connections for adjusting the side cutters, &c.—Morticing Stiles for Blind Slats, E. T. Drake, Leominster, Ms.—Saw Gummer, Oliver B. Judd, Little Falls, N. Y.—Revolving Last Holder, Benjamin Marshall, Philadelphia.—Tenoning Blind Slats, Lafayette Stevens, Elmira, N. Y.—Setting Head Blocks of Sawmills, Ira Robbins, Unityville, Pa.—Planing Hoops, Thaddeus S. Scoville, Elmira, N. Y.—Reversing the Chisels of Mortising Machines, Moses Marshall, assignor to himself and Russell Dyar, Lowell, Mass.—Guage for Casks, John W. Cochran, New-York.—Splitting Wood, Waterman L. Ormsby, Jersey City, N. J.

Leather, Tanning, etc.

Tanning Hides, D. H. Kennedy, New-Alexandria, Pa. A new mixture for tanning liquor.—Boot and Shoe Heels, Stephen Oliver, jr., Lynn, Ms., by a mould, with a gutta percha body, a tenon, concave upper surface and a bottom of leather or its equivalent.—Boot trees. Wm. R. Willmott, assignor to himself and Henry F. Gardner, Boston, Ms.—Harness Saddles, Palmer Shaw, Syracuse, N. Y. Mode of making the tree, chiefly of the leather cantle piece, etc.—Raw Hide Whip, Chas. Baeder, Brooklyn, constructed without a core of filler and giving the wrappers a slight twist.

Household Implements.

Window Curtain Fixtures, Ransom Ballou, jr., and Benjamin F. Hooper, Albany, N. Y.—Treating Moss, Samuel Barker, New-York. A mode of preparing moss as a substitute for curled hair, in mattresses, &c.—Window curtain fixtures, Purches Miles, Hartford, Ct.—Paring Apples, J. J. Parker, Marietta, O.—Fixtures for curtain rollers, C. H. Wheeler, Boston, Ms.—Invalid Chair, Ransom Wetherell, Huntington, Ms.—Washing machine, Thos. A. Dugdale, Richmond, Ind.—Wardrobe or Bureau Bedstead, J. S. McCurdy, New-York.—Curtain Fixtures, C. H. Wheeler, Boston, Ms., fastening the curtain to the roller, by a rod, placed in a groove.—Washing Machine, J. F. Pond, Cleveland, O., and C. L. Pond, Buffalo, N. Y.—Washing Machine, Josiah Mayes, Cohoes, N. Y.—Same, Henry D. Young, Junius, N. Y.

Arts, Ornamental, etc.

Exhibiting Stereoscopic Pictures, Alexander Beckers, New-York. A mode of arranging photographic pictures in an endless belt, at right angles to it, thereby exhibiting a large number within a small space.—Photographic Tray, D. J. Kellogg, Rochester, N. Y.—Soundboards for Pianofortes, Joseph Newman, Baltimore, Md.—Strings for Musical Instruments, Wm. Randle, Florida, N. Y. Springs attached to each string.—Engraved-plate Printing Press, M. C. Gritzner, assignor to M. J. Gritzner, Washington, D. C.—Flutes, John Pfaff, Philadelphia, placing the mouthpiece at right angles or thereabouts, to the stem or body.—Watches, G. P. Reed, Waltham, Ms.—Portemonnaies, D. C. Smith, Tecumseh.—Shirt Studs, Dute Wilcox, Providence, R. I.—Photographic Bath, John H. Morrow, assignor to himself and Edward Bennett, Baltimore, Md.—Constructing Lockets, etc., C. G. Bloomer, Wickford, R. I.—Gilding and Ornamenting Steel and other Metals, A. H. Dufresne, Paris, France.—Action for Grand Pianofortes, D. F. Haasz, Philadelphia.—Engraving Watch Cases, &c. C. H. Field, Providence, R. I.—Photographic Pictures, Engravings, etc., G. D. Humphrey, New-York.—Photographic Baths and Pans, George Mathiot, Washington, D. C.—Constructing letters for Signs, &c., Thos. Motley, Brooklyn, N. Y.

Fire-Arms.

Chambered Breech Fire-arms, James Kerr, London, Eng.—Revolving Fire-arms, Josiah Ells, Pittsburgh, Pa. Fire-arms. G. A. Blitkowski, New-York.—Bomb Lance, Rufus Sibley, Greenville, Ct.

MEDICAL INSTRUMENTS, ETC.

Veterinary Syringes, Wm. Somerville, Buffalo, N. Y. A syringe, provided with a spring and catch.—Inhaling medicinal agents, Alonzo G. Hull, New-York.—Dental Forceps, J. A. McLelland, Louisville, Ky.

MISCELLANEOUS.

Arrangement of Staging Brackets, Jos. B. Latham, Phenixville, Ct.—Smut Machine, Israel Kepler, Milton, Pa.—Trimming Jack, G. J. Olendorf, E. R. Tripp, Middlefield, N. Y., and Samuel Harper, Cooperstown, N. Y.—Cooler for Wine, Beer, etc., in barrels, John F. Burgin, Northumberland, Pa.—School Slates, Samuel R. Burnell, New-York.—Table Manna, Merano Butterfield, Indianapolis, Ind. A substitute for honey, made from white sugar treated with sulphate of alumina and potassa.—Molasses Cups, D. W. Messer, Boston, Mass. Ice-breaking Boats, Zachariah Oram, Camden, N. J. A series of pointed plungers, operating vertically and in a line with each other.—Releasing doors of cotton presses, G. W. Penniston, North Vernon, Ind.—Artesian Wells, Jesse N. Bolles, assignor to M. W. Bolles, Philadelphia, mode of discharging the detritus, at the surface, at every stroke of the drill.—Winding Machinery for mines, Edmund M. Ivens, assignor to himself and Lucien H. Allen, Tamiqua, Pa.—Excluding air from liquors on tap, Absolom F. Boyd, Muskingum, O. A bag attached to a cask or barrel.—Messenger Shackle Blocks, Geo. Gilmour, Chelsea, Mass.—Bathing Apparatus, Lewis H. Lefebore, New-Orleans.—Forming Clay Pipes, C. P. S. Wardwell, Lake Village, N. H.—Grinding Mill, Ezra Ripley, Troy, N. Y.—Oil Can, Hiram Wells, Florence, Ms.—Brick Machine, G. J. Washburn, and E. H. Bellows, assignors to themselves and C. Washburn, Worcester, Mass.—Sidewalk Pavement, J. B. Cornell, New-York.—Inkstand, Kingston Goddard, Philadelphia. Application of a bent tube to a common ink bottle.—Oil Press Boxes, Wm. W. Marsh, Jacksonville, Ill.—Paint Canisters, J. W. Masury, Brooklyn, N. Y.—Skates, John A. Winslow, Roxbury, Ms. A second metal runner.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ANSWER TO MECHANICAL PROBLEM.

NEW-YORK, May 25, 1857.

MESSRS. PLOUGH, LOOM AND ANVIL:—Your correspondent P. W. F. C., says: "The resistance to each boat being the same, and the *forces* applied to overcome that resistance *being equal*, both boats will reach the shore at the same time." If I understand the problem as presented by W., that is taking for granted the very point at issue, whether one man *is equal* to two. It might be stated thus, In bringing two objects together by means of a line, can power be successfully applied to each end of the line? In other words, with a proper apparatus to transmit or apply the power, would it make any difference in point of time, in bringing two objects together, whether the power was at one end of the line, or divided, and placed at each end of the line? The question of *convenience* does not come in; only the question of *fact*. It is very easily demonstrated with a proper apparatus that there would be no difference. If either of your correspondents are mechanics, I think they can easily devise many ways by which that result can be proved. If not, I promise to devise one for them. In the meantime let us view the same idea in another light. Two boats are on opposite shores, with a man in each boat, having a line to a post standing in the middle of a pond. Both men are pulling to bring their respective boats up to the post

—or to the middle of the pond. The boats have a certain velocity imparted to them. Would that velocity be changed were the two lines detached from the post and fastened to each other? I need not add that in all suppositions of this kind we must suppose the *power* and its *action*, and everything connected with it, *perfect*. So that it would be no answer to say that the two men had a better *chance*, or could expend their strength to better advantage when pulling against the *post* than when pulling against *each other*. The simple idea is this, with the lines attached to the post the boats were approaching each other by the power of *two* men, and with the velocity two men were able to give them. When the lines are detached from the post and fastened to each other, is the power reduced to *one* man, and is the velocity of the boat no greater than if one of the men was a post? G. W.

VENERABLE.—The famous Stuyvesant pear tree, more than 200 years old, was in full blossom last week, or say about the 16th inst.

Recent Foreign Inventions.

IRON AND STEEL MANUFACTURE.

MR. BESSEMER seems resolved to make the best possible use of his process for keeping iron melted without fuel. He last month filed specifications of other two new patents for further improvements. He states that by the ordinary puddling process of reverberating flame and gaseous matter from mineral coal on to the molten or semi-molten metal, the iron is injured, at great cost; and the object of his first patent is to sustain, without ordinary fuel, the heat requisite during a process producing the effect of puddling, or during puddling itself, by forcing into and amongst the iron particles, through jet pipes of fire-clay, or iron, jets of air or other gaseous or gaseous with pulverulent matter, containing sufficient oxygen to keep up the heat of the metal, so as to admit of the puddling or other processes producing the same effect. The second patent claims the obtainment of crude or gray pig-iron, hard white iron, or steel, and malleable iron, direct from carbonaceous iron ores, or from any mixtures of carbonaceous ores with oxides or other ores of iron by the application thereto of a blast of hot or cold air, or steam, or of any other gaseous matter containing oxygen or hydrogen, and without requiring any fuel except such as is evolved from the said ores of iron, and from the gaseous matter forced in. It is rather a curious circumstance in reference to the essential principle of all Mr. Bessemer's processes, namely, the dispensing with ordinary fuel in his melting processes, that an old author, who wrote before Mr. Bessemer, could have ever dreamt of his new processes, in a work treating of the Japanese and their inventions, is said to have stated that they had one "for melting iron without using any fire, casting it into a ton, done about on the inside with about a half foot of earth, where they keep it with continual blowing, and take it out by ladles full, to give it what form they please, much better, and more artificially than the inhabitants of Leige are able to do. So that it may be said Japan may live without its neighbors, as being well furnished with all things requisite to life." There is scarcely any *new* invention of mark or moment, of which traces have not existed in the East from time immemorial. Such was the case with the screw propeller, with gas, with the compass, and many other inventions and discoveries; and new instances are ever and anon turning up, as was lately the case with the screw auger and the Bramah lock. If the Japanese (a sort of insular Chinese) do really practice this new process of Mr. Bessemer's, depend on it "there is something in it," however much it may as yet be involved in difficulties.—*London Builder.*

HARDENING AND COLORING SOFT STONE.

Gypsum and other soft stones, it is discovered in England, may be hardened so as to be suited for architectural purposes. The following process is secured by a recent patent. The process is thus described:

"Alabaster and other kinds of gypsum and calcarous stones and earths are exposed to a heat of about 212° Fah., in order to expel and drive off therefrom the watery particles contained in it. The time during which the gypsum must be exposed will vary with the nature of the material, but experience will soon dictate the precise time to the operator. When sufficiently dried, or when the aqueous particles have been driven off, the gypsum is plunged several times in succession in clear water at the temperature of the atmosphere, or in any other suitable hardening liquid, or substance, or composition, reduced to a liquid state, and when the operator finds, by experience, that the plunging has been continued for a sufficient length of time, the gypsum is withdrawn, and exposed to the atmosphere to complete the hardening process, which requires from five to thirty days, more or less, after which the gypsum is in a fit state to be polished and treated, in all respects, in a manner similar to marble, which it will be found very much to resemble. In fact, by operating upon gypsum in the manner described, an artificial marble is produced. In order to color the gypsum, any suitable coloring material may be mixed with the water in which it is plunged, after the drying process, but the colors most preferred are those produced from minerals reduced to a state of solution, some of which (as, for example, sulphates of iron and copper) not only impart color to the material, but also harden it additionally. The method of hardening and coloring, hereinbefore described with reference to gypsum, may also be applied to all calcarous stones and earths."

MANUFACTURE OF BEET-ROOT SPIRIT.

The following is the description of the process used on the beet-root farm of Messrs. Dray & Co., at Farmingham, near Dartford, Kent. It is taken from Chamber's Journal. To three quarters of a ton of beets, which are sliced lengthwise by machinery, in an hour, 300 gallons of wort prepared by maceration of beets to start with, are poured on, a quart of sulphuric acid is added, and at the end of twenty-four hours, the slices are ready for distillation. Placed in iron cylinders, divided into compartments, each compartment is drawn upon successively, so that there is a continuous flow of spirit until the end of the process. The spirit is said to resemble small-still whiskey, and under proper treatment becomes a neutral spirit, useful for many industrial purposes.

Gasworks.—A return has been published of all gasworks established by Act of Parliament in England and Wales, with various particulars, such as the charge per foot, the average quantity of gas evolved from a ton of coal, the illuminating power, and the cost. The London Gaslight and Coke Company charges from 4s. to 4s. 6d. per 1,000 cubic feet (Newcastle coals), and 6s. for cannel gas. The average quantity evolved is 9,000 cubic feet from Newcastle, and 10,000 feet from cannel coals. Five feet of Newcastle gas is equal to twelve candles, and five feet of cannel gas equal to twenty-six candles. The Imperial Gaslight and Coke Company charges 4s. 6d. per 1,000 feet, and produces 9,518 feet of gas from one ton of coal. The quantity of gas evolved in London varies from 8,500 to 10,000 feet from one ton of coal, and the illuminating power from 12 to 14.2 candles. The Phœnix Company uses Newcastle and cannel coals mixed.—*Ex.*

Cleaning Flax.—Macbride's scutching machine cleans more than 500 lbs. of fibre in ten hours, and when driven to the utmost will turn out more than 900 lbs.

Wood Fire Proof.—A patent has been secured for accomplishing this, by steeping the planks in a solution of phosphate of ammonia, and subjecting them afterwards to heat.

Hardening Candles.—Mr. F. Capiecian of London, has effected the following improved process of hardening candles, when the tallow is melted in the kettle, about one seven-thousandth of its quantity by weight of the acetate of lead is added, and well stirred among the whole for fifteen minutes. The heat is then lowered, but the tallow is still retained in a liquid state, about one thousandth part by weight of turpentine and a little of any of the perfumed resins are then thrown in, and well stirred until the whole are thoroughly incorporated together; this requires about two hours, one hour for stirring and one hour of rest for the uncombined impurities to settle to the bottom. The acetate of lead is supposed to have a tendency to harden the tallow, and the composition is much superior for candles than when treated in the ordinary way.

SANITARY IMPROVEMENT—SEWERAGE OF LARGE CITIES.

The methods in general use for disposing of this matter are objectionable in several respects, as they are injurious to health and comfort, as they pollute our rivers, and as large quantities of fertilizing matter are thereby wasted. To obviate more or less of these objections to the methods in common use, is a problem which has occupied the ingenuity of many minds, and which has led to the proposal of several methods.

At length one of the various plans proposed has been adopted and put into operation in the city of Leicester, England—a town of 65,000 inhabitants, and full of manufactories. The works for purifying and utilizing the sewage of this city, have been in operation since May, 1855. Since that period the works have been in constant operation night and day, and in the course of 19 months have separated about 6,000 tons of solid matter from 7,500,000 tons of sewage water, discharging only pure water into the adjoining river, which would otherwise have been contaminated by so many tons of impurity. The sewage is conveyed to a spot less than a mile distant from the town of L., and there as rapidly as it arrives, and scarcely allowing time for incipient putrefaction, it is intimately mixed with a body of lime and water, which produces an instantaneous and perfect deodorization. It is then filtered, and both, the fluid passing off, and the solid matter retained, are perfectly scentless. The filter system admits of no communication whatever with the atmosphere at any stage of the operation, until the deposit is withdrawn from it in the form of flat, firm slabs, forty inches square and three inches thick. Several thousand tons of this half-dry deposit heaped up in the yard of the Leicester works at one time, emitted no smell whatever. They are said to be as unobjectionable as unburnt bricks.

The fact that a plan of this kind has been found to work satisfactorily, is one of much importance, not so much on account of the fertilizing matter which may thus be saved from utter loss and waste, as on account of the improvement which may be thereby effected in the health and comfort of the inhabitants of cities, in which that or some similar plan may be adopted. This consideration —that the health and lives of the population of cities are dependent in a great degree on the mode in which the sewage is disposed of—is of a higher order than the financial one. Still the saving of the nitrogenous matter of a large city is of no small importance, as at present prices of guano, there is a waste of such matter alone, saying nothing of phosphatic and saline materials, equal to about, or a little over one dollar a year for each inhabitant.

That the plan of rapidly removing, deodorizing and purifying the sewage of Leicester, has been accompanied with a decrease of disease and death, is a fact which is established by the tables of mortality,—the decrease in the number of deaths amounting to 275 yearly, in a population of 65,000.

To aid in bringing about a similar result in any of our large cities, seems to be an object worthy of any man's ambition; and to have accomplished such a result, must be to any city government or population, a just source of pride and gratifying reflections.—*Country Gentleman.*

THE ARITHMOMETER.

The attention of the learned world is now engrossed says the *Independence Belge*, by a new invention, which promises to be of universal usefulness. Mr. Thomas, of Colmar, after thirty years of hard study and assiduous labor, has at last solved the problem of calculation by mechanism. His machine, which he has called "Arithmometer," is applicable to the mechanical solution of all arithmetical operations, from the simplest to the most complicated ones. His instrument solves, with infallible correctness, not only the four rules—addition, subtraction, multiplication, and division—but also ascertains the powers of quantities, extracts the roots of numbers, resolves triangles, reduces ordinary and decimal fractions, and defines the rules of proportion, etc. Its rapidity of execution is such as to defy the ablest calculators. A multiplication of eight numbers with eight numbers is executed in eight seconds; a division of sixteen cyphers through eight cyphers in twenty-four seconds. The machinery is so simple that after the expiration of five minutes of instruction, anybody can calculate with rapidity and correctness. The "Arithmometer" is placed in a small, light box, which can be easily carried in a pocket, and is so constructed that its mechanism can scarcely ever be deranged.

COLORING HORN.

Good imitations of tortoise-shell are obtained, in France, by the following process. The horn is prepared by being soaked in dilute nitric acid, consisting of one part acid and three parts water, at a temperature of 88 to 100 degrees. It is then treated with a mixture of one part of fresh burnt lime, two parts of carbonate of soda, and one part of white lead, from ten to fifteen minutes only, so that the spots may assume a yellowish brown tint, and not a dark brown.

The horn is then washed in water and wiped dry with a cloth and introduced into a cold bath, made of Brazil wood and caustic soda. As soon as the color is properly developed, it is removed, washed with water, carefully pressed between cloths, laid aside for twelve to sixteen hours, and then polished.

The decoction of dye wood may be made by boiling one pound of Brazil wood in two or three quarts of water; caustic soda may be obtained of any soap boilers. By adding a little oxide of zinc to the white lead employed as a mordant, blueish-red shades will be obtained. Salts of tin give scarlet tints. Still finer tints are given by the use of cochineal.

Maple Sugar in Vermont.—The crop of sugar this year is estimated as high as 16,000,000 lbs., or about half the entire crop of the country in 1850. One school district in Pomfret reports (eight farms chiefly) 13,000 lbs. Edward Crane, of Westfield, made 216 lbs. from 57 trees, or 5 3-4 lbs. per tree. Jasy makes 18,000 lbs. Danby 75,000 lbs.

Scientific.

CHEMISTRY FOR THE MILLION.

We desire our young readers and others who will join them in the perusal and study of these articles, to consider, that a few of the first in the series, must of necessity be employed mainly in dry definitions and in the explanation of principles uninteresting, except so far as they aid in comprehending what is to follow. Do not be discouraged by this fact. The A B C must come first; and it is a dry study, we confess; but the spelling, the reading, the discoursing on matters of intense interest and of grave importance shall follow soon.

Oxygen exists in a gaseous state in the atmosphere, of which it constitutes about 21 parts in a hundred. Combined with hydrogen it becomes liquid, constituting 8 parts in 9 of water, which is equal to 88 8-9 per cent. of oxygen to 11 1-9 per cent. of hydrogen. As a solid, oxygen enters into almost all substances with which we are familiar. With few exceptions, it constitutes a part, either as a gas, a liquid, or a solid, of all known matter; as for example, 21 per cent. of pure air; 88 8-9 per cent. of pure water; and a large per cent. of rocks, soils, fruits, crops, everything that we eat, drink, wear, or see around us. It is supposed to constitute not far from one half of all known matter. Its weight is a trifle greater than that of common air. Its appearance, so far as the eye can detect, is precisely the same.

Put a handful of green leaves in a tumbler, fill it with water, and expose it, inverted over a bowl of water, to the sun;- and shortly a few bubbles escape from the leaves and fill the upper part of the tumbler with air, as one would judge by its appearance, but really with pure oxygen gas. If you were to put a burning taper into it, it would burn with increased brilliancy. If you put into it the heated end of an iron wire, it will burn, as readily as a candlewick in the air. If one were to breathe it in large quantities, it would first exhilerate, then exhaust, and finally destroy life. Oxygen not only pervades all things, constituting, as before said, about one half of the globe and all things on it; but it is an exceedingly active element, inclined to meddle with nearly every thing else, and to work changes in other things.

Thus, if you heat a piece of wood above a certain temperature, oxygen will enter into it and set it on fire; *it is the great supporter of combustion.* If you leave a tumbler of cider exposed to the air, oxygen will enter into it, and turn it to vinegar; *it is the great ascidifying (souring) principle in nature.* Leave a piece of flesh, or vegetable matter, long exposed, and the one will putrify and the other decay; *oxygen is the cause of all putrefaction and decay.* A copper penny turns gray; oxygen has been busy with it, has combined with its surface and formed an oxid (rust) of copper, and this compound is always of a different color from the copper itself; or if you leave a piece of polished iron exposed, oxygen will enter into it and form a brown rust, oxid of iron; *it is the oxidiser of the metals,* that is, it attacks and oxidises, or rusts, all metals, except, it may be, gold and platinum. No fuel would burn, no liquid would turn to vinegar, no meat would putrify, no vegetable would decay, no metal would rust, if it were not for oxygen. It seems to be the great, universally-active, everywhere-busy agent in nature, always working good, and working mischief, whenever there is an opportunity.

Let us look at some of the good. *It is the supporter of respiration;* none of us could draw a breath without it, nor live more than a few minutes. As the supporter of combustion, it enables us to kindle our fires for warming, for culinary purposes and for manufacturing. As the oxcidifying principle, it affords us pleasant tarts, whether in the form of agreeable fruits or of manufactured articles, pies, tarts, &c. As the cause of putrefaction and decay, it enables us to turn animal and vegetable matters, when useless for other purpose, into fertilizers, and thus into vegetables and flesh suitable for food.

But full of good works as it is, it is mischievous also;—though it preserves life, it would destroy it, if we breathe too much of it. Though it kindles our fires, it burns down our houses, if we let it get the advantage of us. A burning city would extinguish itself in an instant if you could get the oxygen away from it. While oxygen helps to transform all decaying matters into fertilizers and then into new and useful products, it is always at work upon those which we already have. For instance, your meat spoils; it was the oxygen, either in the meat or in the air, or in both, that did the mischief. If you cut or bruise your flesh, oxygen instantly attacks the wound; attempts putrifaction; effects it, in a small degree, that is, it causes if the air is not excluded, a dead scab, something that will not live again, but is to be sloughed off, leaving the flesh less disposed to heal than before it was formed. The best way to prevent oxygen from attacking a fresh wound and working mischief, is to wash it with water at a temperature most agreeable to the feeling, and then to cover it with many thicknesses of linen or cotton cloth saturated with tepid water, applying more water from time to time so as to keep it moist. If the water is cold, no matter, for it will soon become warm, and will raise a perspiration which is the best possible preventive of taking cold in the wound. The philosophy of this cure, is, that the wet cloths exclude the air and with it the oxygen, while the perspiration caused by the tepid water (it will soon become tepid, if applied cold) throws off all impurities of the wounded tissure, thus leaving no obstacle to the healing process, which nature, so to speak, always carries on rapidly, if unhindered by the admission of air, by a drenching with rum, or some other foolish application. Rum, by the way, is not a bad application, provided it consists mostly of water, and is not drugged with sulphuric acid, as too often happens these days. We would say, the more water the better for this purpose, and perhaps for some other purposes, certainly for that of making money by selling it per glass. The reason of so many thinking well of rum for a fresh wound, is, that they ascribe to the alcohol what is due to the water in it. The water cures in spite of the alcohol. But it must be conceded, that even pure alcohol would not be quite as bad for a fresh wound, as hot embers; and so we will return to our appropriate subject.

The facts which we would like to have retained by those who follow our off-hand, but, we hope, useful instructions are these;—oxygen in its pure, uncombined state, is a limped, colorless, inodorous gas; it is a sort of omnipresent, ever-working agent, seeking combinations with almost everything, either to build up and preserve or to tear down and destroy; in combination with some substances, it is still a gas, going at large and unseen in the air; in combination with others, it is a liquid, as in water; with others still, it is a solid, as in iron rust and copper rust, or the oxids of copper and iron; it is the supporter of respiration, as no animal can breathe without it; it is the supporter of combustion, all fires living only so long as fed by it; it is the great acidifying principle, vinegar, sour fruits, nearly all acids owing their acidity to it; is the active agent in all cases of putrifaction and decay; with the exception of the precious metals and a very few other substances, it enters into and forms a part of all known bodies; and to the student of nature's laws it is more important to be understood than any other one element, since it pervades all things and is ever effecting changes in nearly all.—Ed.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ELECTRICAL RODS.

The following theory from a friend at Westport, Mobile, for accounting for the strange phenomenon to which it relates, is certainly ingenious. Whether it is founded on truth, we leave others to decide.

Dear Editor:—I became satisfied by many experiments, that the attraction between the underground streams and these rods was electrical, and shall run the risk of being thought "to know the least about it," and attempt an explanation, nevertheless.

The electricity necessary to carry on the vast amount of evaporation from the surface of water when compared with that from the earth, causes all water-courses and the ocean to be what is called negatively charged, that is, to contain less than the average or equilibriation portion of electric fluid. All water-courses, underground as well as open, are continuous conductors from the ocean, and are all negatively charged as in the ocean, as a matter of course. So underground streams are, or may be said to be, all negatives.

The earth above these streams, are as the Leyden jar, the stream below as the inner coating, the surface of the ground and the things near it, are as the outer coating. Between this outer coating and the inner, electric attraction takes place so strong in some instances in the Leyden jar, as to perforate the glass! It may hence be easily seen how an attraction of very sensible results might be established at the top of a rod, upon a leverage of say two or three hundred to one in favor of the attraction.

If it be established that some people *can not* feel such an influence as to apprise them of their proximity to such a stream of water or underground negative substance, then we may perhaps find in their constitutions the lack of such temperaments or nervous excitability as makes them good conductors from the upper surface of the earth, positively charged, to the rod in their hands, which still remaining in the neutral or equilibrium state, would have very little power, by reason of its discordant state, which is necessary to establish attraction, and of course would be as much repelled by the positively charged earth beneath the operator's feet, as attracted by the negatively charged stream. Thus such a person would fail. J. S. W.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ON THE GEOLOGY AND PALEONTOLOGY OF NICHOLS, TIOGA CO., NEW-YORK.

By R. Howell.

The geological formation of this vicinity is the upper part of the Ithaca and Chemung group, and is exposed to view only in a few places along the banks of streams, where it crops out, and, as far as I can ascertain, at least five hundred feet thick—in all probability twice that thickness. The strata alternates with grayish drab grit rock and drab shale. The grit rock is quite firm and durable, when not fossiliferous, but decomposes when fossils abound. The drab shale readily crumbles to small fragments, and contains no fossils. In a few localities there is found a dark-colored shale, more tough, and quite full of fossils. Among the fossils is a very small Orthoceras, remains of one or two Encronites, two species of Delthyris, and as many as four other fossils, not very common in the harder rock. I suppose the hills to rise in this town to between five and six hundred feet, and on the tops of the highest hills the rock, in some localities, comes within two or three feet of the top of the ground. In digging a well on the side of a hill that is about five hundred feet high, after penetrating about eighteen inches, the hard pan was reached, which soon passed into the drab shale. After reaching ten or twelve feet, the dark shale was reached—quite full of fossils. After reaching eighteen or twenty feet, the hard gray rock was found, and the well finished twenty-four feet deep in the hard rock—water quite cold, but considerably impregnated with sulphur. The well is within one mile of the Susquehanna River, and about three hundred feet above the river.

I would notice in this place that the old red sandstone is not found in this town of any amount. On the tops of our highest hills are found not a few masses of what I suppose to be the lower strata of the old red sandstone. They appear in masses from four feet square to twenty and thirty, and generally project above the top of the ground from a few inches to three or four feet, and in layers generally about one fourth of an inch thick. The rock always appears as if it laid on the top of the ground, and has a singular appearance, being in so very thin layers, and wholly destitute of fossils. The color of this rock is dark drab. According to the State geological map, the old red sandstone is represented as covering a large portion of the town; but if all the rocks in this town were placed side by side of the old red, I think it would not cover five acres. The fossils of the Ithaca and Chemung group, as far as I have been able to collect, are as follows:

Triuostata Avacula, Chemung Cypricardite, Prolata Delthyrus, Membronacons Strophomena, Globuliform Atrypa, Chemung Avacula, Chemung Atrypa, Avacula Pectomfermos, Avacula Spinigera, Avacula Damonsis, Pterinea Suborbicularis, Pecten Duplicatis, Strophomena Thervora, Strophomena Bifereata, Strophomena Arctoztriato, Strophomena Pectinacea, Strophomena Interstralis, Orthis Instertralis, Septena Interstralis, Orthis Carinata, Orthis Impressa, Orthis Interlineata, Orthis Unguiculios, Delthyris Mesastralis, Delthyris Mesacostralis, Delthyris Disjuncta, Delthyris Cuspidata, Delthyris Acanothata, Delthyris Mucronata, Delthyris Inermis, Delthyris Acuminata, Atrypa Trybulis, Atrypa Dumora, Atrypa Tennilineate, Atrypa Laticostata, Atrypa Laticostata, var, Atrypa Contracta, Atrypa Eximia, Atrypa Polata, Atrypa Mesacostalis, Atrapa Duplicata, Sigillaria Chemuugenis, Miprepion of Grammysia, Penmotomania, Pleurotomania. singular var, Avacula, singular var, Lixonema, Bucamia and Orthaceras, Chactites and Cyroppellin.*

The above fossils are the only ones that I have seen named in any work. Besides the above fossils, I have found perhaps as many more, not figured in any work that I have yet seen. The Grammysia are of three or four kinds or more, and will undoubtedly in time receive additional names. I have found as many as five species of the univalve spiral shell under the name of Pleurotomania, with from one to five whirls; and undoubtedly new names of the Orthoceras will be received. I have found parts of four or five different species. So of Tricircle Encronites and of the Chaetis different size and shape limbs; and also the case with two or three other species of Correls. The fossils of this formation are found in loose, detached stones, along streams, and from the lowest flats to the tops of the highest hills; but generally a few on the tops of the the highest hills, and them generally of but three or four species. The best localities are along streams, where they have been torn from the ledge, also diluvial formations and certain hill sides scattered in every direction, along with drift from other formations. Nearly all the fossils that I have discovered I found within two miles of my house, and a majority of them within half a mile. The Susquehanna River bounds this town on the north, running the whole length of the town. The lower flats adjoining the river is from a few rods wide to half a mile, and the diluvial formation about the same width.

* These names are as given by Prof. Hall in his State Geology in 1843.

DRIFT.

A large amount of boulders are found in this vicinity from northern formations, and boulders from the primary rocks of the north-east. Among the primary boulders found in this town are several kinds of granite and gneiss, Hyportene, Horneblend, Basalt, Porphary, Amygdaloid, green stone, several kinds of quartz, etc. Among the sedimentary boulders found in this vicinity are boulders from the Potsdam sandstone, including all the harder sedimentary rocks down to the Ithaca and Chemung groups; that is all rocks that are not slate or shale.

The theory that the drift current was from the North-east to the South-west is strongly substantiated by the fact of finding so much drift from the North-east from primary rocks and lower secondary. For proof of boulders from the Potsdam sandstone, I will state that I have noticed a number of the fossil plant of that formation, called Scolithus Linearis, also Stromatocerum Bugaseum from the Birds-eye limestone, also coral and Orthaceres Rectilamulatum from the Chazy limestone, also Tavistella Favocidea from the Clinton group, also Lingula Cuneata from the Medina sandstone, and Porites from the Niagara group, also from the Clinton and Niagara a large variety of Favocites, and from the Orizcany sandstone the following fossils, viz.: Delthyrus Arenara-Atrypa, Elonongata-Atrypa, Peculiacis-Atrypa, Unguiliformis, besides five or six other varieties of the Orizcany sandstone, which prove beyond a doubt the locality of the drift or boulders. The diluvial formations along the Susquehanna River are quite full of small boulders from the Northern limestones. All the first frame buildings of this town were plastered from limestone collected along the streams. In neighboring towns a considerable amount of cemented gravel is found in the banks of streams. The soil of this vicinity is hardly surpassed by any other portion of the State for all kinds of grain, grass, the different roots, etc.

FISH CULTURE.

It was manifestly the design of divine Providence, that plants and animals should be prolific about in proportion to the perils which await the seed of the one and the progeny of the other. Thus the lion and the lioness are very able to protect their young, and their young are few. The progeny of the Guinea-pig fail of any such powerful protection, and they are numerous.

It is so with most kinds of fish. Trout of one year's growth feed on those in their first year. Those of two years feed on those of one, and so on, the older feeding on their juniors. They are *cannibals*, feeding on their fellows; and what renders it still more improbable that a troutling will run the gantlet so successfully as ever to reach his teens is, that other species of fish, occupying the same waters, especially the pickerel, will breakfast on a trout as keenly as on one of their own race, so that between their own cannibalism, and the war of races, and the craft of the angler, probably not one in a hundred ever come to maturity.

The trout should, therefore, according to the general rule, be prolific. It is a fact, we believe, that they are so. Inasmuch as they produce many eggs, but bring but few offspring to maturity, it has been asked, Can not the young be protected from the perils that ordinarily beset them, and so the prolific nature of the parents be turned to account in being made to produce a great amount of excellent food? The female trout, it is said, produces 600 eggs in one season. If each of these should produce a trout of half a pound weight, it would give 300 lbs. in a year, or in five years, 1500 lbs., equal to the weight of a large Durham cow, or a pretty good sized ox of any other breed—all the product of a single pair of a united weight, it may be, of but one or two pounds.

Although such an estimate might possibly turn out like the milk and the eggs, and the new gown, and the lovers rejected with disdain, in the old spelling book, still the question, Whether the trout and other useful fish, if protected during their early exposures, may not be made to produce a great amount of valuable food, is a reasonable one. By investigations, made within the present decade, in France, Scotland, and this country, it is now answered in the affirmative. The parent fish can be made to deposit the spawn and the milt, in situations safer to the resulting young, than their own instincts would have chosen. From a book on this subject, by Dr. Garlick, of Cleveland, Ohio, mentioned among our book notices, we copy for the gratification of our readers, the following, *on the natural and artificial reproduction of the trout.* It is taken from different parts of the work, and may be regarded as a detail in part of the observations and experiments made by Dr. Garlick and Prof. Ackley, in fish-ponds, constructed by the latter, on his farm near Cleveland, and previously stocked with trout. The stream spoken of, we understand to be an artificial stream, conveying the water from one of these ponds to another.

"Several male trout had proceeded up the stream, and commenced preparing the beds in which the eggs were to be deposited. This was done by removing all the sediment and sand from certain gravelly locations. These beds were about one foot in diameter, consisting of coarse and fine pebbles, the spaces or interstices between which were to be the future depository for the eggs. This peculiar construction of their beds, or nests, is highly essential to their preservation, as it protects them from being washed away by freshets, also from being devoured by small fish which are always prowling about seeking them for food.

"The male trout at this time was very beautiful, being decked out in the most gaudy colors imaginable, and his actions showed clearly enough that he was quite vain of his personal appearance. In the course of five days, the females made their appearance. They were not near so gaudy in their dress, but had a most staid and matronly look.

"The next step was choosing their mates. After the usual amount of flattering attentions to the females, with which they seemed highly delighted, and some battles among the males, this important matter was apparently settled to the satisfaction of all parties. By what principles they were governed in making their selections I was unable to determine, but presume in this respect they are like men, governed more by fancy than judgment.

"Our trout were from four to six weeks later than their usual time in depositing their eggs, owing, no doubt, to the vicissitudes incident to transportation, change of water, etc. On the 20th November they had fairly commenced operations, one pair of fish occupying each bed: the male manifesting the utmost jealousy, and if any suspicious interloper approached, he was instantaneously attacked and driven off. On the 21st, I captured a pair by means of a landing net, and placed them in a bucket of water, and being provided with an earthen vessel, I made my first attempt at artificially spawning and impregnating the eggs. This was accomplished as follows:

"I partially filled the earthen vessel with water, and taking the female in my left hand, and making gentle pressure on her abdomen with my right, the eggs were forced into the earthen vessel containing the water; the male was treated in precisely the same manner, forcing the spermatic fluid into the same vessel; the appearance of the eggs was almost instantly changed from their bright golden orange color, to a pale transparent yellow; they were then placed in running water with the vessel containing them."

We do not feel at liberty to copy further from this very interesting report, but will add that the experiment was completely successful. The same experiments have been made by others, and with complete success. It is now shown, beyond a doubt, that fish culture may afford not only a pleasing amusement, but a profitable business. wherever a farm is suitable for it. The book from which we quote affords the instruction requisite to a successful prosecution of this branch of business. Dr. Garlick and Prof. Ackley are the only persons in this country, so far as we know, who have experimented largely, or are capable of giving instruction. The following, we feel assured, will be read with interest:

"The Brook Trout inhabits none but the purest waters, such as mountain streams, spring brooks, and lakelets, in which the water is pure and cold. Their growth depends much upon the size of the stream they occupy; if in a small spring brook, they would rarely exceed from four to six ounces in weight; but if placed in a large river, or lakelet, they may attain to as many pounds, or even more. Their food consists of aquatic insects, and small fishes. They are remarkably shy and wary, but when domesticated, will become so tame and gentle, as to take food from the hand. Of all fish, this is the most desirable for fish culture, and should be selected in preference to any other, provided the quality of the water will be congenial to its wants.

"Spawning.—The spawning season commences about the first of October, and continues nearly two months, but a majority are through by the 15th or 20th of the month. They invariably seek very shoal, gravelly rapids for depositing their eggs, and prepare their beds by digging a cavity of from one to two feet in diameter, and two or three inches in depth; by agitating the water in these beds, the fine sand and earthy matter is got clear of, leaving the bottom of the bed covered with clean, coarse gravel. In this the eggs are deposited, together with the milt, one pair of fish always occupying one bed; several pairs of trout may, however, occupy the same rapids or ripple. You will rarely find them occupying a rapid, unless there is a deep hole or hiding place close at hand and above the ripple. When frightened, they immediately run to their hiding place; but if not further disturbed, will in a few moments return to their bed.

"Artificial Breeding.—In order to procure eggs for artificial breeding, the parent fish must always be taken on the spawning beds, and *after* they have *commenced* depositing their eggs, or they will be premature and useless, as they can not be impregnated. If the eggs are mature, they will flow from the female trout, with a very slight pressure, as the cellular tissue will have been absorbed, and the eggs lie loosely in the oviduct.

"How to Catch them.—The parent fish must be taken by means of nets, as they will not touch any kind of bait while engaged in spawning. A common landing net does well for this purpose, where they are in a very small stream. A very excellent net, is one that is made after the fashion of a seine. It should be three or four feet long, by two and a half feet wide; the lower, or lead line, mounted with sinkers, and the ends mounted with a couple of sticks, or handles, (termed by fishermen brails). These handles should be about four feet long. Each end of the lead line is fastened to the lower end of the handles; the upper, or cork line, is to be fastened the width of the net above where the lead line is fastened. By taking hold of the two handles, you can spread the net out before you; standing between the handles, in this way, it can be slipped under banks, where they hide, or in holes, and not unfrequently they can be dipped up while running from their beds, if you are standing in the stream above them.

"Incubation.—Their term of incubation will depend somewhat upon the temperature of the water in which they are placed. With us the young trout begin to make their appearance in eight weeks, the water being 42° Fahrenheit; but some will not make their appearance until two or three weeks later.

"Treatment of the young Fish.—After the young fry leave their eggs, they may be suffered to remain for a few days, in the hatching boxes, or they may be removed at once into small tanks, or boxes, having fresh water running through them; the place where the water enters, and where it makes its exit, being guarded by wire cloth, to prevent the escape of the fish. A box three feet long, by two feet broad, and one foot deep, would be sufficiently large to hold one or two thousand. When about two months old, they should be placed in larger tanks, or what would be still better, a pool of water, fed by a good spring. It would be well to have a nice, clean, gravelly bottom, with some large stones thrown in, which would afford them hiding places. If the pool could be shaded from the rays of the sun, it would be much better, as the water would be cooler, during the hot days of summer.

"Food.—The young fish need no feeding, for about one month after they leave the egg. As they draw, or receive their nutriment from the umbilical vesicle, or bladder, which is shown in the cut; when this is absorbed, they will need feeding, but only in small quantities, as the surplus falls to the bottom, and decomposes, contaminating the water, and rendering the fish unhealthy. It has been ascertained that the lean flesh of animals, when boiled, is an excellent ariticle of food for young fish, or even old ones. As the young fish are very small, it is necessary to hash it up into very small particles, or they will not be able to swallow it; in fact, it should be pounded or grated very fine, but as they increase in size, it may be given in coarser particles. The flesh of other kinds of fishes, where they are plenty, would be an excellent substitute for the flesh of animals, either cooked or uncooked; I think this kind of food preferable to any other.

"PONDS.—It would be well to keep the young fry in small pools, or tanks, until they are a year old, before removing them into the pond or stream, as you can have them under your immediate observation and inspection, which is of a good deal of importance, at this tender age. After they are of a suitable age to be turned into the pond or stream, as the case may be, if very numerous, they will still need to be fed, occasionally, once per week at least, but if fed all they will eat, it would be still better and far more profitable.

"MORE ABOUT FEEDING.—It is perfectly astonishing how rapidly they grow after the first year, particularly if well fed; and as a lean and poor conditioned fish, though a trout, is one of the most miserable of dishes ever set upon the table, the fish intended for use, should be taken from the pond, selecting the largest ones, and put into a tank or pool, three weeks or more before killing, and fed all they can eat; in a word, they should be *stall fed.*"

GUANO.

THE following correspondence sufficiently explains itself; and though somewhat old is not too old to be good. We place it under the head of Scientific, as it illustrates the science of spunging, and that is certainly a great science.

———, N.H., April 28, 1854.

HENRY F. FRENCH, ESQ.: My Dear Sir:—I have bought some guano; what shall I do with it, and how shall I do it? I want to try the experiment up here in the country, as I suppose its principal use is as a sort of genteel city fertilizer, and not adapted to the rural regions. I want to try it, on some corn, potatoes, squashes, cucumbers, etc., and I know no more about it than I do of the Sancrit language, and as you are *au fait* in the matter, just develop your resources for the benefit of your race, and tell me how to make two ears of corn grow where three would grow without it. * * * * * * *

Yours truly, R. M.

EXETER, N.H., May, 1, 1854.

MY DEAR SIR:—I am much at loss how to reply to yours of the 28th ultimo. My last conversation with you on the subject of Agriculture, was, I think, in 1852, when you were a member of the New-Hampshire Legislature, and I, as a private individual, was urging the propriety of some action by your august body, in aid of the cause, either by the appointment of a Commissioner, the creation of a Board of Agriculture, or by pecuniary assistance to the Societies.

Your views, at that time, coincided with those which have prevailed for some years among the farmers, who constitute a majority in the Legislature of this agricultural State. You verily believed, that scientific farming is a humbug; that while in all other pursuits, advances have been constantly made, aud men have been greatly benefitted by diligent research, by comparing results, by making known the success and failure of their experiments, by meetings for discussion, by exhibitions of their products, by understanding accurately the nature of substances upon which they labor—you verily believed that a farmer's father and grandfather are the only valuable authorities, and that "the tradition of the elders" are of no more weight, than all the laws of nature, and all the attainments of science. In short, you seemed to believe, with Dogberry, "that to be a well-favored man is the gift of fortune," but that *to farm*, as well as "to read and write comes by nature."

And thus by the countenance, which educated men like yourself, who ought to know better, have given to the prejudices of ignorant men, against the value of accurate knowledge in this most important department, our good old Granite State, which stood foremost in the day of battle for the defense of the soil, and which has done gloriously for the cause of education in her common schools, has fallen far behind her sister States in her zeal for the promotion of this branch of knowledge; and while Massachusetts, and New-York and Maine, and nearly all the other States are appropriating money liberally for this object, we have neither a Commissioner nor Board of Agriculture; and not one cent is contributed to aid the County Societies in their desperate struggle with poverty, for existence.

But now you begin to inquire, What you shall do with guano? Adam and Cain knew nothing about the Chincha Islands, and our great-grandfathers consequently left no traditions on that subject, and you really feel as if something may be *learnt*, even about farming. I remember an anecdote about a farmer who had a lawsuit, and was told by his lawyer that he had filed a demurrer in his case. "A demurrer!" said the farmer, "pray tell me, Squire, what sort of a thing that is?" It was hopeless to attempt an explanation of a matter so abstruse, and the lawyer would not undertake it. "Go home," said he, "my good fellow, and hoe your corn and potatoes, and feed your cattle; the Almighty never intended you should understand what a demurrer is."

Now, my dear sir, I have no doubt that you know exactly what a demurrer is, but I have serious doubts whether it was ever designed that you should know anything about *guano*, or anything else connected with agriculture. If it had been, you would not in this last half of this enlightened nineteenth century, be left in such heathenish darkness as to imagine that anybody could, in a single letter, give yon the information you desire.

Not long ago, I received a letter requesting me just to take the trouble to inform the writer of the best mode in planting, rearing, pruning and cultivating an orchard; and another from a stranger, who said he had accepted an invitation to deliver an address before an agricultural society, and as I was in the way of writing on such topics, requested me to suggest to him a subject and a plan for his discourse, and such remarks as might be proper. I have not had time to answer these letters yet, and it would be a still harder task to undertake the education of a grown up pupil, on the subject of guano. My advice to you is, however, to commence with the last five volumes of the *New-England Farmer*, and read all the articles therein contained, on the subject. You will find no less than ten in the volume for 1853. Then read what you find in the *Granite Farmer and Visitor* for the past two years.

But you ought to be more thorough than this, and make yourself acquainted, not only with the constituent elements of guano, but of the plants into the constitution of which you intend it shall enter: Johnston's Elements of Agricultural Chemistry and Geology is a capital work for you, and Browne's American Muck Book contains a chapter of twelve pages on Guano—which you ought to read and understand before you use an ounce. You would do well also to review Stockhardt's Principles of Chemistry, which you probably studied in college without understanding what it meant.

You will also find in the appendix to the American edition of Johnston's Agricultural Chemistry, some very interesting experiments with guano on the various kinds of crops.

Were you one of that class of community, who believe that there is some advantage in *knowing how* to conduct farming operations, who read agricultural papers regularly, who are members of an Agricultural Society, and a Farmer's Club, and so learn what the rest of the world discovered long ago, it would hardly be necessary to refer you to so many books; but your inquiries make it quite certain that, like the good lady who visited the White Mountains and forgot to look at the scenery, you have spent your life in a country full of this kind of knowledge without thinking to acquire it.

Allow me, my friend, a word more in conclusion. Should you pursue your present idea of experimenting with guano, and find that from your ignorance of its properties and the true modes of using it, your corn never sprouts, and your potatoes do not come up till dog days, I pray you, do not publish your testimony that guano and scientific agriculture have both proved humbugs, just as you expected. I read of a man once, who was advised to try salt as a manure, and he did try it, and wrote his opinion for publication in an agricultural paper. He said he was satisfied that salt did more hurt than good: that he put a *half pint* into each hill of potatoes, and half of them never grew at all, and those that did grow came to nothing.

Another man, who tried guano on his cucumbers said, that on applying it one morning to some hills already up, the vines grew so fast that he was obliged to run to get out of their way, but they kept up with him and twined round his legs so as to stop him. He then put his hand into his pockets for his jack knife, with which to cut loose from them, and found there a cucumber gone to seed!

Now, if you expect your cucumbers and squashes to grow at that rate, you will *probably* be disappointed.

Excuse me if I have herein addressed you as a person somewhat unlearned in the mysteries of agriculture. It is manifest from the fact that you do not state in your letter what *kind* of guano you have procured, that you do not know the difference between the Peruvian and Saldander Bay guano, although the first contains about 17 per cent. of ammonia, and the latter about 1½ per cent., while the latter contains more than twice as much of the phosphates as the former, so that they are about as much alike as salt and saltpetre.

I am glad to see that you are beginning to take an interest in this subject. If at any time I can be of *further* service to you in the "pursuit of knowledge under difficulties," I hope you will not hesitate to command my services.

With sentiments of the highest consideration, Yours truly,
R. M., Esq. H. F. French, *in N.E. Farmer.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE WEATHER.

Appearance of Birds, Flowers, etc., in Nichols, Tioga Co., N. Y., in April, 1857.

By R. Howell.

Place of Observation, 42 *degrees North, on a Diluvial Formation, about* 40 *feet above the Susquehanna River.*

April.	6 A.M.	1 P.M.	9 P.M.			Remarks.
1	35	44	20	South	Cloudy	Rain set in at 8 A.M.; continued till 5, and turned to snow. Some began ploughing.
2	10	20	12	North	"	Snow squalls.
3	10	42	33	South	"	Hallow around the moon, and rain.
4	29	61	40	"	"	
5	44	56	54	"	"	A light drizzling rain nearly all day.
6	56	34	20	S.&N.	"	A hard rain commenced at 10 A.M., and turned
7	15	45	22	"	"	to snow at 1 P.M.
8	30	51	40	South	"	
9	36	44	37	North	"	
10	34	40	36	"	"	A light drizzling rain commenced at 2 o'clock.
11	35	41	38	"	"	A light rain all day.
12	36	49	34	South	"	Lowery, and hard rain in evening.
13	29	49	34	"	"	A rain in evening and turned to snow.
14	32	40	36	North	"	About one inch of snow fell.
15	34	41	27	West	"	Snow squalls all day.
16	28	38	28	South	"	
17	29	36	25	North	"	
18	20	52	41	"	"	A few farmers first sowed oats.
19	37	42	34	South	"	A hard rain commenced 3 P.M.; snow at 6 P.M.
20	34	32	31	North	"	Snow all day—eight inches.
21	33	52	35	"	"	Stopped snowing at 10.8; rain all day; two and a-half feet of snow on hill.
22	25	50	31	"	"	Susquehanna River over the bank.
23	25	49	31	N. W.	"	Hallow around the sun.
24	27	46	31	"	"	
25	32	48	30	North	"	
26	26	51	42	South	"	A light rain in evening.
27	40	54	40	S. W.	"	A light rain in morning.
28	38	52	32	West	"	A number of fields sown with oats.
29	24	53	31	"	"	Few gardens first ploughed; potatoes planted.
30	25	61	41	South	Clear	

Observations of the weather, as connected with farm labor, kept with such accuracy as we believe the foregoing to have been, are of greet value, and we congratulate our readers and ourselves on the prospect of having them regularly from Mr. Howell hereafter. Mr. H.'s remarks on the year 1856, in another part of this number, embrace more facts than we often find in so few words.—Ed.

GROWTH OF MACHINERY.

The ancients were not so ignorant of philosophy or of art, as they are sometimes supposed to have been. Modern inventions, it is well known, scarcely equal some of those of ancient times, and many of the ideas involved in recent inventions were suggested centuries ago, though the working model was never produced. The subject of progress is so well set forth in a few paragraphs by the eminent writer and lecturer, R. W. Emerson, in his "English Traits," that we give it an insertion below.

"'Tis a curious chapter in modern history, the growth of the machine shop. Six hundred years ago, Roger Bacon explained the precession of the equinoxes, the consequent necessity of the reform in the calendar, measured the length of the year, invented gunpowder, and announced (as if looking from his lofty cell over five centuries into ours,) 'that machines can be constructed to drive ships more rapidly than a whole galley of rowers could do; nor would they need anything but a pilot to steer them. Carriages might be made to move at an incredible speed, without the aid of an animal. Finally, it would not be impossible to make machines which, by means of a suit of wings, should fly in the air in the manner of birds.' But the secret slept with Bacon. The six hundred years have not yet fulfilled his words. Two centuries ago, the sawing of timber was done by hand, the carriage wheels ran on wooden axles, the land was tilled by wooden ploughs. And it was to little purpose that they had pit coal, or that looms were improved, unless Watt and Stephenson had taught them to work force pumps and power looms by steam. The great strides were all taken within two hundred years. The 'Life of Sir Robert Peel,' who died the other day, the model Englishman, very properly has for a frontispiece a drawing of the spinning-jenny which wove the web of his fortunes. Hargreaves invented the spinning-jenny, and died in a workhouse. Arkwright improved the invention, and the machine dispensed with the work of ninety-nine men—that is, one spinner could do as much work as one hundred had done before.

"The loom was improved further. But the men would sometimes strike for wages, and combine against their masters, and, about 1829–30, much fear was felt, lest the trade would be drawn away by these interruptions, and the emigration of the spinners to Belgium and the United States. Iron and steel are very obedient. Whether it were not possible to make a spinner that would not rebel, nor mutter, nor scowl, nor strike for higher wages, nor emigrate. At the solicitation of the masters, after a mob and riot at Staleybridge, Mr. Roberts, of Manchester, undertook to create this peacable fellow, instead of the quarrelsome fellow God had made. After a few trials, he succeeded, and in a creation, the delight of mill owners, and destined, they said, 'to restore order among the industrial classes'—a machine requiring only a child's hand to piece the broken yarns. As Arkwright had destroyed domestic spinning, so Roberts destroyed the factory spinner. The power of machinery in Great Britain, in mills, has been computed to be equal to six hundred millions of men; one man being able, by the aid of steam, to do the work which required two hundred and fifty men to accomplish fifty years ago. The production has been commensurate.

"England already had this laborious race, rich soil, water, wood, coal, iron, and favorable climate. Eight hundred years ago, commerce had made it rich, and it was recorded, 'England is the richest of all the northern nations.' The Norman historians recite, that 'in 1067, William carried with him into Normandy, from England, more gold and silver than had ever before been seen in Gaul.' But, when to this labor, and trade, and these native resources, was added this goblin of steam, with his myriad arms, never tired, working night and day, everlastingly, the amassing of property has run out of all figures. It makes the motor of the last ninety years. The steampipe has added to her population and wealth the equivalent of four or five Englands. Forty thousand ships are entered on Lloyd's lists. The yield of wheat has gone on from two million quarters at the time of the Stuarts, to thirteen million in 1854. A thousand million of pounds sterling are said to compose the floating money of commerce. In 1848 Lord John Russell stated that 'the people of this country have laid out three hundred million pounds sterling of capital in railways, in the last four years.'"

Domestic.

"DON'T TELL FATHER."

There is many a good mother who plans the ruin of the child she dearly loves—teaches it the first lesson in wrong doing, by simply saying, "*Now don't tell your father.*" Surely mothers do it thoughtlessly, ignorantly, not considering that it is a first lesson in deception.

Not at all strange that gamblers and liars and thieves and hypocrites, and distrustful, evil-minded people so abound, when weak, loving mothers with honeyed words and caresses, sweeten the little teachings that so soon ripen into all kinds of meanness and unprincipled rascality.

I heard a kind, well-meaning mother say to the puny baby in her arms, "Well, birdie shall have its good candy every day; bad papa shan't know it; see how it loves it!" and the little things whose reach of life had not a whole winter in it yet snatched at the bright red and blue colored poison, and made as many glad motions, as though it took its whole body to suck it with. The poor little thing had been fed on candy, almost, and fretted for more whenever its mouth was'nt filled. Even the nourishment nature provided, did'nt wholly satisfy it, for it was'nt as sweet as candy.

I thought it was no wonder, if children were taught even in babyhood that papa was bad and ugly and unkind, that in youth they should call him a "snob" and the "old man," and the mother, whom they learned by experience had no stability of character, and was capable of deception, not strange they should so little respect her as to call her the "old woman."

I shudder when I hear the frequent words drop from young lips, "Oh, I must not let father know that!"

The father may be a stern man, rigid in his way of bringing up his children, but he has a heart somewhere, and surely truthful, honest, loving words from his own child, will find that warm place. So it is best never to deceive him in anything, but keep his confidence whole and unshaken, and the whiteness of the soul unsustained by that loathsome sin, deception.

"Father don't allow me to read novels," said a young lady to me lately, "but mother does, and so we two read all we can get, and he never knows it;" and she giggled as though they were very cunning and worthy of praise, for so completely deceiving poor, good father.

My soul sickened at the idea of a wife daring to teach her children to disobey their father; of the daughter, vain and unprincipled, with such a mother to teach and guide her. Better for the world she had never been born.

Dear Cultivator mothers, you who read this, look to-night upon your God-given children, as they lie in slumber in all the natural grace and beauty of childhood, and ask His guidance, as you resolve that never by any teachings of yours shall a blot rest upon the white pages of their souls; that never in the future shall they look back away through crime-stained years, and find that the first blemishing touch fell from a poor erring mother's lips, when she thoughtlessly taught them the first lessons in deception.—Rosella, *in Ohio Cultivator.*

COLD WATER OR ICE IN CONGESTION.

Friend Harris:—I want to say that the application of cold water to the head of patients laboring under Congestion of the Brain, increases the difficulty it is intended to remove. When I enter the chamber of the sick, where the patient is laboring under a disease of the brain, and the anxious mother or nurse is employed diligently in applying cold water to the head, to prevent the accumulating of blood, (the patient already delirious,) I remove the application, and wrap the head in a dry warm woolen cloth of several thicknesses. By the time the astonished attendants begin to collect themselves, reason has resumed its seat in the mind of the patient, and in a very short time his system is under the composing influence of sleep.

The philosophy of this is easily understood. When cold water or ice is applied to the head, the blood, through sympathy, rushes there to expel the intruder, or, in other words, to restore the equilibrium of heat that has been destroyed by the cold application, and, if continued long, the whole vital force of the system is turned in that direction. By this time the brain becomes overcharged, and reason takes its flight, while the extremities, for the want of the vital stream, are contracting and assuming the appearance of death, which will soon terminate the sufferings of the patient, unless an equalized circulation can be restored.

It is unwise to continue cold applications to any part of the system; they always increase the difficulty they are intended to remove. If nothing else, they would finally absorb the heat, and leave the man as cold throughout as the water applied. In all cases of congestion, relaxation is the only reliable remedy, combined with external protection, and stimulation of a general character.

Thy friend, MICAJAH T. JOHNSON, *in Ohio Cultivator.*

ADVANTAGE OF USING TOBACCO.

SOME few years ago the following was communicated to Commodore Wilkes, of the exploring expedition, by a savage of the Fejee Islands. He stated that a vessel, the hull of which was still lying on the beach, had come ashore in a storm, and that all the crew had fallen into the hands of the Islanders.

"What did you do with them?" inquired Wilkes. "Killed 'm all," answered the savage.

"What did you do with them after you had killed them?" "Eat 'em good," returned the cannibal.

"Did you eat them all?" asked the half-sick Commodore. "Yes, we eat all but one!"

"And why did you spare one?" "Because he tasted too much like tobacco. Couldn't eat him, no how!"

If a tobacco chewer should happen to fall into the hands of the New-Zealand savages, or get shipwrecked somewhere in the Fejee group, he will have the consolation of knowing that he will not be cut into steaks and buried in the unconsecrated stomach of a cannibal.

MAN WILL INDULGE IN POISONS.

It is stated that there are 600,000,000 of human beings who use tobacco, and that the world produces annually 1,480,000,000 lbs. of this fascinating and poisonous weed. Opium eaters number about 100,000,000. Indian hemp eaters about 150,000. Butternut eaters, 100,000,000. Cocoa eaters, 10,000,000. The value of these articles consumed, to say nothing of coffee and tea, is computed at $300,000,000 per annum. Suppose we add strong drink, what a frightful aggregate of expense we would show. Hard times would cease, if man would cease to poison himself.—*Cleveland Gazette.*

IS IT SO?

EGGS, which are now so abundant, can, it is said, be better preserved in *corn meal* than in any other preparation yet known. Lay them with the small end down, and if undisturbed, they will be as good at the end of a year, as when packed.

Doubtful, we fancy; though if the meal were fine enough to exclude the air, and so dry as not to heat, it might answer.—ED.

A CURE.

IT is said that inflammatory rheumatism can be cured by the following simple method which we extract from a medical publication:—Half an ounce of pulverized saltpetre put in half a pint of sweet oil. Bathe the parts affected, and a sound cure will immediately follow.

BE A TRUE MAN.

Let virtue and truth be your guide, and not pleasure and interest. With a false heart you may prosper for a short time, but eventually it will prove your ruin. It is the nature of sin to grow more rank and show itself to the ruin of him who is under its dominion. The only way to live a peaceful and happy life is to be honest and just—true to yourself and to your God.

CURE FOR BOTS IN HORSES.

Drew's *Rural Intelligencer* says, an intelligent gentleman of our acquaintance, who has for years been largely concerned in the management of horses, called at the *Rural* office a few weeks ago, to say that he knew, by experience, of a remedy for bots in horses, which is sure to expel them from any one of the race afflicted with those dangerous insects. The medicine is nothing more or less than common fish pickle,—that from mackerel is perhaps best;—one common junk bottle full will generally dislodge the "varmints"—sometimes a second one may be necessary. To use his own words, "this is a perfect cure—no mistake." Some persons mistake the bellyache for bots. The latter may be known by the horse drawing down his tail, and giving it a peculiar motion. There is no such appearance in cases of mere bellyache.

TO GET RID OF HOUSE ANTS.

The best way to get rid of ants is to set a quantity of cracked walnuts, or shell-barks, on plates, and put them in a closet where the ants congregate. They are very fond of these, and will collect in them in myriads. When they have collected in them make a general *auto-da-fe,* by turning nuts and ants together into the fire, and then replace the plates with fresh nuts. After they have become so thinned off as to cease collecting on plates, powder some gum camphor and put it in the holes and crevices; whereupon the remainder will speedily vamose. It may help the process of getting them to assemble on the shellbarks, to remove all edibles out of their way for a time.

SALERATUS IN BREAD.

Why will housewives persist in using saleratus, soda, cream of tartar, and such "deleterious drugs" in the manufacture of their bread? Much better bread can be made without any of them. The lightest and sweetest bread ever made was with simple emptyings alone. Much of the ill health of many families we would name is caused by eating hot soda or saleratus bread. We once knew a man who lost the use of one of his hands by constantly eating bread in which a large quantity of saleratus was used to sweeten the "sourings" by which it was made to rise.—*Portland Transcript.*

CLEANING STOVES.

Stove lustre when mixed with turpentine and applied in the usual manner, is blacker, more glossy and durable than if put on with any other liquid. The turpentine prevents rust—and when put on an old rusty stove will make it look as well as new.

DOUBLE TROUBLE AND SINGLE.

A city editor says that a man in New-York got himself into trouble by marrying two wives. A western editor assures his cotemporary that a good many men in Michigan have done the same thing by marrying only one!

FOR POLISHING FURNITURE.

Take two ounces of beeswax, and half an ounce of alkanet root; melt them together in an earthen pot; when melted, take it off the fire, and add two ounces spirits of wine, and half a pint of spirits of turpentine. Rub it on with a woolen cloth, and polish it with a clean silk cloth.

BE CHEERFUL.

Cheerfulness keeps up a kind of daylight in the mind, and fills it with a steady and perpetual serenity.

Fast men, like fast rivers, are generally the shallowest.

Children's Page.

WHO WEARS THE RING?

A VERY interesting entertainment for an evening party of young people, illustrating the use of figures and the three first principles of arithmetic, may be shown to a circle of friends by any young gentleman or lady who will learn the following simple rule. We should premise that the problems to be solved are these:—Who wears a certain ring? On what finger is it? Which joint of that finger does it encircle? All that are in the game are to be seated in a row, and each individual is to pass by the name of a number; beginning at the top with *one*, *two*, *three*, and so on. The person who is to tell where the ring is, must now leave the company, and, on his return, to the cry of "ready!" a number is given to him, say 982, and from it he is to calculate the exact position of the ring. The number given must be found thus:—Suppose the number of the person who has the ring is 7; double it; that will be 14; add 5; it will then be 19; multiply this by 5, and you will have 95; to this add the number of the finger that the ring is on, say the third; 95 and 3 is 98. To these figures put the last figure, or number of the joint the ring is round, say the second joint; 98 and the figure 2 put in front will make the sum equal to 982. You must now make the call "ready!" and when the "clever man" appears, the supposed number 982 is given to him as the position of the ring. It's exact place he finds by being "in the secret," that from whatever number thus obtained, he is to subtract 250. Now this number being taken from 982 leaves 732, indicative of the ring's position, viz.: on No. 7, 3d finger, 2d joint.

PLEASURE FOR A CHILD.

BLESSED be the hand that prepares pleasure for a child, for there is no saying when and where it may bloom forth. Does not almost everybody remember some kind-hearted man who showed him a kindness in the days of his childhood? The writer of this, recollects himself at this moment as a barefooted lad, standing by the fence of a poor little garden in his native village; with longing eyes he looked on the flowers which were blooming there quietly in the brightness of a Sunday morning. The possessor came forth from his little cottage; he was a wood-cutter by trade, and spent the whole week at work in the woods. He had come into the garden to gather flowers to stick in his coat when he went to church. He saw the boy, and breaking off the most beautiful of his carnations, which was streaked with red and white, he gave it to him. Neither the giver nor the receiver spoke a word, and with bounding steps the boy ran home; and now, here at a distance from that home, after so many events of so many years, the feeling of gratitude which agitated the breast of that boy expresses itself on paper. The carnation has long since withered, but now it blooms afresh.—*Douglas Jerrold.*

OLD CONUNDRUM.

WHY was St. Paul like a horse? Because he loved Timothy. Rather bad.

ANOTHER.

WHY is a pretty young woman like corn in time of scarity? Because she ought to be husbanded. Pretty good, we think.

NEW CONUNDRUMS.

WHY is a grainfield like a group of children? Because when the heads bend and nod, they should be cradled.

Why are the sheaves of grain like rude boys? Because they must be thrashed before they are fit for use.

IS IT SO?

DR. VALENTINE MOTT once said to a graduating class, "Young gentlemen, you should have two pockets made—a large one to hold the insults, a small one for fees.

IRISH BULL.

Two emeralders recently traveling towards the Iron City, came upon a mile board standing by the wayside, with this inscription upon it:—"43 miles from

Pittsburg." Supposing it to be a tombstone, one of them gently tapped the other upon the shoulder, and in a low tone he said—"Tread lightly, Jimmy; here lies the dead; 43 years ould, an' his name is Miles, from Pittsburg."

It is conceded on all hands that ladies are *fair*, and that chickens are *fowl*—that the money market and men that drink too much are *tight*—that morals are *loose*, and morning gowns too. Not a word about ladies lacing.

"A penny for your thoughts," said a gentleman to a pert beauty.
"They are not worth a farthing, sir," she replied, "I was thinking of you."

Why is a watch dog larger at night than he is in the morning?
Because he is let out at night and taken in in the morning.

"I have no dependence on you," as the sailor said when he let go his hold of a rope and tumbled into the sea.

WIT BUT FOR ITS IMPUDENCE.

A little wretch who had for the first time in his life heard the scripture story of Elijah and the bears, sat down on the door step until an old man went by, when he called out, of course, "go up, old bald head!" Then dodging as quickly as he could within the door, he called out, "Now bring on your bears!"

CAPITAL.

The best capital that a young man can start with in life is industry, with good sense, courage and the love of God. They are better than cash, credit or friends.

A GREAT MAN'S GREATEST THOUGHTS.

Mr. Webster was once asked, in the presence of a company of gentlemen, what was the greatest thought which ever occupied his attention. With a serious and solemn air, he replied, "My individual responsibility to God." It was a great thought, worthy the mind of that great statesman, and yet no less demanding the attention of every child. It should be ever present with us as a preventive to sin, and an inducement to lead a life of holiness, that each one must give an account of himself to God.—*Sunday-School Visitor.*

Book Notices, etc.

The Family Circle Glee Book; containing Two Hundred Songs, Glees, Choruses, etc.; including many of the most popular pieces of the day; arranged and harmonized for four voices, with full accompaniments for the piano, seraphine and melodion, for the use of glee clubs, singing classes, and the home circle. Compiled by Elias Howe. Published and sold by Mason & Bros., New-York: Russell & Richardson, Boston: J. B. Lippincott & Co., Philadelphia. 240 pages. Price $1 25.

Two hundred songs! Old songs and new songs! Songs for the young folks and songs for the old—songs for all. What a world of sweet, beautiful, loving thought; and told too, in strains that stir the soul to its very depths. If there was more good singing in the world, there would be less sin. We verily believe that such music as this book contains is adapted to make the sober cheerful, and the thoughtless considerate, to chasten eccentricities, to curb evil passions, and to stimulate a well-balanced exercise of the reason and the affections. Here is "Auld Lang Syne!" Who could hear it for the nine hundredth time and not feel sentiments of exalted friendship rising higher than ever within? There is "Blue-eyed Mary." Bless us! how it brings into play all the better feelings of the youthful heart! There are the "Marriage Bell," (not Belle,) and "Oft in the Stilly Night," and "Oh, for the Wings of a Dove," and "Uncle Sam's Farm," and "Woman's Heart," and too many more to mention. Buy them; sing them; teach your children to sing them; they will be the better for it

A Treatise on the Artificial Propagation of certain kinds of Fish; with the description and habits of such kinds as are most suitable for Pisciculture. By Theodatus Garlick, M.D., Vice-President of the Cleveland Academy of Natural Sciences.

This is a timely and well-prepared work of 142 pages, octavo, on a subject that is much talked of, and is of much real importance. Thos. Brown, of the *Ohio Farmer*, is the publisher. It treats of the habits, modes of reproduction, and general characteristics of the more useful fish,—as the trout, the black bass, and others; also of the best modes for reproducing them in abundance, and at small expense—for our lakes, rivers, small streams, and private fish-ponds. Every person, possessing the least particle of rational curiosity, will be paid for a perusal in the gratification it will afford; and all farmers, who have grounds so watered as to be suitable for the fish culture, may derive from it something more than the satisfying of a curiosity, however reasonable and elevated.

POULTRY AND EGGS.

It is said that the poultry value of the United States is about $25,000,000; that of New-York State $3,000,000; and that the city of New-York pays $2,000,000 a year for eggs. This last would not seem to be an extravagant consumption, for it would allow but 7 mills per day for each resident, or about 5 cents per week, amounting to but $2 50 a year.

One million's worth of eggs, it is said, are sold annually in Boston at the Quincy market alone; and a single dealer in Philadelphia ships a hundred barrels of eggs daily to the New-York market. At the rate of consumption in Boston, even if no eggs are sold in that city, except at Quincy market, New-York should consume five instead of two million's worth.

We should be sorry to have it believed that the people of New-York consume many million's worth of tobacco and of bad liquors a year and only two million's worth of eggs, lest it should be suspected that the tastes of the people are getting perverted.

According to Professor Johnston, the carbonate of lime in the shell of an egg constitutes one tenth of its weight, the yolk three tenths, and the white six tenths. About three fourths of the whole is water.—Ed.

WATER CURE.

We perceive that J. H. North, M.D., has opened a water cure establishment at Binghamptom, Broome County, New-York. This is a delightful village, to our certain knowledge; and if this Dr. North is the same as we suppose, he was once a pupil of ours, was a first-rate-boy—just one of those boys that we *calculated* would make a first rate man.

As to the water cure, we believe it to be one of the best renovators of health known, provided there be no organic disease in the system, and provided further that the physician understands his business and attends to it personally. But woe to the patient, if these provisions are neglected. Indiscriminately administered, it kills as well as cures. Our own experience with it is rather dubious. We once went to a water cure, but not having faith to be cured, turned up missing after the second day, and subsequently gained more health, as we thought, by the application of a choice article of London porter inside, than we had seemed likely to gain by so many shower-baths, cataract baths, slap-dash, drown-'em-out-baths applied to the outside. The facts were: the attendants were Canadian French; they talked about their vocation in

French, thinking us entirely innocent of that language; but we understood them; we perceived that they were souzing us, ducking us, splashing it on, more at their own discretion than at the doctor's directions; and conscious that we neither deserved so harsh a punishment, nor had (at that time) the physical power to endure it, we thought it best to "step up to the captain's office and pay our bill."

CALIFORNIA FARMER.

THIS is one of the very best Agricultural weeklies in the country. The last number, we perceive, is on paper manufactured in California, as we understand all future numbers are to be; and if there is a journal in the older States, on better paper, with fairer type, or containing more valuable matter, we have not seen it. If we were a native, or a citizen by choice, of that new State, we should be prouder of that paper than of the gold mines; we believe there is more gold in the agricultural slopes and plains of that State, than in the ravines and gulches; and that the *California Farmer*, under the direction of Messrs. Warren & Co., is contributing largely to bring the soil to give up its golden harvests.

Is is of the quarto form, about the size of the *N.Y. Tribune*, and is sold at $5 00 a year, in advance. Agency at C. M. Saxton & Co's., 140 Fulton-st., N.Y.

SUCCESS DESIRABLE, BUT NOT ALWAYS A MEASURE OF REAL GREATNESS.

THOSE men who fail of success in the pursuits of life, will find some comfort in the following, from the pen of George S. Hilliard. We have seldom found a more eloquent passage. Success, in the ordinary sense of the term, is not always the true measure of real greatness. More than one man has failed to be rich, because he could not be mean; and thousands have missed the positions they deserved, because others were unscrupulous.

"I confess," says Mr. Hilliard, "that increasing years bring with them an increasing respect for men who do not succeed in life, as these words are commonly used. Heaven has been said to be a place for those who have not succeeded upon earth; and it is surely true that celestial graces do not best thrive and bloom in the hot blaze of human prosperity. Ill-success sometimes arises from a superabundance of qualities in themselves good; from a conscience too sensitive, a taste too fastidious, a self-forgetfulness too romantic, a modesty too retiring. I do not go so far as to say, with a living poet, that 'the world knows nothing of its greatest men,' but there are forms of greatness, or at least of excellence, which 'die and make no sign.' These are martyrs that miss the palm, but not the stake; heroes without the laurel, and conquerers without the triumph."

WESTCHESTER FARM SCHOOL.

MESSRS. OLCOTT & VAIL, in a circular issued by them, as principals of this school, say:

Our purpose is to make the pursuit of Agriculture an intelligent, attractive and profitable one, and our previous success encourages a continuance in our plan of study.

The course of instruction embraces so much of *Chemistry* as will give a clear idea of the composition and mutual relation of soils, plants, animals, and atmosphere; *Botany* sufficient to know the characteristics of farm crops; *Geology* so far as relates to the formation of soils, and *Mechanical Philosophy*, so far as treats of tools, farm-machinery, and the physical treatment of soils.

Daily recitations are made, and the minutiæ of the various subjects discussed. Occasional lectures are given, with appropriate Chemical and Philosophical illustrations.

A copious library of agricultural and other books is always accessible to the pupils for reference.

Practice in the Field is required of young pupils, and those who are not familiar with the labors of the farm, and open to all others who desire it.

The whole aim of the Institution is to condense into a brief term of study as much valuable information as is consistent with profitable farming, and a *thorough* understanding of the important branches of Scientific Agriculture.

This Institution is seventeen miles from New-York, on the New-York and New-Haven Railroad, near Mt. Vernon, Westchester Co., N.Y.

We will add that we have had a not very long, but a very pleasant acquaintance with these gentlemen, and we believe them qualified, by education, and, what is almost as important—by a hearty, soul-ful enthusiasm for the work—for the position they occupy. The young man, who is to be a farmer can not fail to receive a life benefit by spending a summer with them; and if the slender, pale-faced youth of our cities would take a six-months' course on their farm, they would be the healthier for it life-long, and we do not believe that their knowledge of farming would hurt them a whit, for that or any other employment —Ed.

UNITED STATES AGRICULTURAL SOCIETY.

Great National Trial of Machinery and Implements of every description pertaining to Agriculture, and Household Manufactures, at the Fifth Annual fair, *to be held at Louisville, Ky., during the fall of* 1857.

The undersigned, a Committee of the United States Agricultural Society, appointed at the Fifth Annual meeting held at the Smithsonian Institution, in the city of Washington, on the 14th day of January, 1857, "to make all the necessary arrangements for a *National Trial in the field of Agricultural Implements and Machinery*," respectfully invite the Inventors and Manufacturers of such articles, both in the United States and Foreign Countries, to participate in a public trial to be made at the Society's Annual Exhibition, to be held at Louisville, Kentucky, during the fall of 1857.

This new arrangement for the exhibition of Agricultural Implements and Machinery of all kinds in actual operation, results from a conviction on the part of the Society that no just awards can be made except upon a practical working trial before competent judges; and the fullest opportunity will be afforded to test the comparative merits of the various machines that may be entered as competitors for the awards, both as regards land for field implements, and steam power for stationary machinery.

A separate trial of Reapers and Mowers, will be made at the appropriate season, special arrangements for which as to time, place, etc., will be announced at an early date.

It is intended that these exhibitions shall be on the most extensive scale, for the purpose of testing the working qualities of these important implements more thorougly than has yet been done on any previous occasion, either in the United States or in Europe.

All articles from foreign countries intended for exhibition may be consigned to the "Agent of the U. S. Agricultural Society, Louisville, Ky.," by whom they will be received and stored free of charge.

This brief announcement of the proposed trial is made at this early date to afford the most ample time for the preparation and transmission of machinery. A circular containing full particulars as to regulations will be issued as soon as practicable, and, with the premium list, will be forwarded to persons who may apply to the Secretary of the Committee, Henry S. Olcott, *American Institute*, N.Y., where all business letters should be addressed.

To enable the Society to make arrangements on a sufficiently liberal scale, it is absolutely necessary that the Committee should know what articles will be offered for competition; and they therefore request that all inventors or manufacturers who may be disposed to unite in the proposed Trial will communicate their intentions to the Secretary at their earliest convenience.

Tench Tilghman, Chairman, Oxford, Md.
Jno. D. Lang, Vassalboro, Me.

J. Thompson Warder, Springfield, Ohio.
Geo. E. Waring, Jr., Am. Institute, N.Y.
Henry S. Olcott, Sec., W.C. Farm School, New-York.
Committee on Implements and Machinery of U. S. Agricultural Society.

Editors of Journals of every description, who are desirous to promote the interests of Agriculture and mechanics, will confer a particular favor by an insertion of the above circular.

SOUTHERN ENTERPRISE.

The *New-Orleans Crescent* contains quite an interesting account of a factory for the manufacture of cotton-seed oil, that has just been established in that city, at a cost of sixty-five thousand dollars. The seed is hulled by a machine—the hulls are used for fuel—and the kernels, which descend upon a heated iron table, are cut into fine pieces and placed in bags, which are subjected to a pressure of two thousand tons in a press worked by steam admitted from below. The oil runs into a vat, from whence it is pumped into the clarifying house, where it is clarified and barrelled, ready for transportation. It is sold readily for one dollar a gallon, while the cake commands thirty dollars per ton, for feeding cattle. The present capacity of the mill, which runs night and day, is 900 gallons per day. There is room in the building, however, for machinery sufficient to turn out 2500 or 3000 gallons per day. We are glad to see this movement in the South. It is the first attempt of the kind in that section of the Union. A mill of a similar class is in successful operation at Providence, Rhode Island, and last year consumed no less than fourteen million pounds of seed.

Harlem Railroad.—The affairs of this road have obtained a very healthy and prosperous condition under its present officers. Philo Hurd, Esq, the President, brought with him the experience of many years in the management of railroads, when he assumed the duties of his office; while Mr. Campbell, the Superintendent, had been connected with it for a long period of time. Under the control of these experienced officers, the road is beginning to fulfil the expectations that were cherished respecting it, by its founders. As a means of inland communication with Albany, especially, it has no rival in point of speed, cheap fare, and safety. The trains have run through the severity of the past winter with regularity, and at rates of fare lower than the Hudson River route. The road passess through the rich agricultural river counties, and is unrivalled in the beauty of inland scenery along its line.

TRANSACTIONS OF THE BRADFORD COUNTY, (PA.) AGRICULTURAL SOCIETY.

Thanks to *somebody* for this report. It is well arranged, and contains much valuable information. Among the best is the substance of an address, at the annual fair, by Hon. Horace Greeley.

Better believe in the Comet.—A French journalist advises that belief in the coming end of the world should be encouraged. He thinks we shall become better men. With death so near, every one will wish to put his conscience at ease, to repair wrongs, to do good, to abstain from evil. Ambition will be checked, avarice be abated, and liberality be universal. The many masks of society will fall, and sincerity prevail. It were better, at least, that we should try the experiment, and see the change that it would work in man, to believe the world near its end.

A Great People.—According to the last census of the United States we have two millions and a half of farmers, one hundred thousand merchants, sixty-four thousand masons, and nearly two hundred thousand carpenters. We have fourteen thousand bakers to bake our bread; twenty-four thousand lawyers to set us by the ears; forty thousand doctors to "kill or cure," and fifteen hundred editors to keep this motley mass in order by the potent power of public opinion controlled and manufactured through the press.

The peach crop in Egypt (Southern Illinois) has just been thinned sufficiently by the cold weather in April, to make it good. We have examined many trees, and find that none but the very earliest varieties have been injured to any great extent. There will be enough of this delicious fruit in Egypt to give our Northern friends a taste all round, and still enough to give those who like to imbibe, a taste all round of peach and honey.—*Jonesboro Gazettee.*

So far as we can learn, in all the Eastern counties of Iowa, the fall wheat crops are all destroyed: we doubt whether there will be as much produced as to return the seed sown. In middle Iowa, it is partially destroyed. In the western counties where there was much snow all winter, we think there will be an average crop, but we presume there was little sown. About Dubuque, the papers there say that in consequence of the protection of the snow the winter wheat is doing very well.—*Iowa Farmer.*

Wheat and Oats.—In a recent conversation with Paoli Lathrop, Esq., of South Hadley Falls, he stated to us that he had derived great advantage from sowing spring wheat and oats together—the crop to be used for horse feed, whole or ground. He stated that the wheat kept the oats from falling, by which means they filled better, and that the mixed crop gave as many bushels as would have been obtained of oats, while the value was considerably greater. The proportion of seed is one third wheat and two thirds oats—three bushels of the mixture to the acre.—*Boston Cultivator.*

To be Thought About.—Can a farmer find any better investment for his money above what is required for the support and education of his family, than to *expend it upon his farm*, in the improvement of his stock, in planting trees, in draining, enriching, improving and ornamenting the place he has chosen as the scene of his labors and the center of his comforts?—*Rural New-Yorker.*

In the middle ages, in France, a person convicted of being a calumniator was condemned to place himself on all fours, and bark like a dog for a quarter of an hour. If this custom were adopted at the present day, there would be some bow-wowing.

An old bachelor geologist was boasting that every rock was as familiar to him as the alphabet. A lady who was present declared she knew a rock of which he was wholly ignorant. "Name it, madam," cried Cœlebs, in a rage. "It is rock the cradle, sir," replied the lady. Cœlebs evaporated.

A chap reading that Mexican files had been received in New-York City, went into a hardware store and asked to look at some of them. He is a brother of the man who inquired for a pound of Liverpool dates received by one of the steamships.

Pat was hungry, and got out of the cars for his refreshment. The cars very thoughtlessly went on without him. Pat's ire was up. "Ye spalpeen!" he cried starting on a run, and shaking his fist, as he flew after the train, "stop there, ye auld stame wagon—ye've got a passenger *aboard* that's left *behind.*"

Pompey said he once worked for a man who raised his wages so high that he could only reach them once in two years.

Pride, though it can not prevent the holy affections from being felt, may prevent them from being shown.

When you see a small waist, think how great a waste of health it represents.

Punch teaches book-keeping in three words—"Never lend them."

"Matrimonial fruit basket" is now the polite name for cradles.

INDUCEMENTS TO NEW SUBSCRIBERS.

New subscribers who will advance before the 1st of July, for this work, from that time onward, (see second page, cover,) shall receive the May and June number gratis. The first of these numbers contains a most important article on *Wool and Wool Growing*. The second has an article on the *Artificial Propagation of Fish*, which, as well as several others in these numbers, we are quite sure will be found interesting. Our principal reason for wishing them to be in the hands of our future readers is, that in the May number we commenced a series of articles on Chemistry and its applications to agriculture, general industry, health, economy, etc., which we believe will be eminently instructive and useful; and we wish the numbers already published to be in the hands of our readers for reference.

Book Premiums.—To any person who will forward us the names of a club, we will send by return mail, post-paid, as follows: For a club of four, the *Progressive Farmer*, worth 75cts.; for a club of five, six, or seven, a bound volume of *The Farmer*, published at Amherst, Mass., in 1855, worth $1; for a club of eight or more, an elegantly bound volume of the *Plough, Loom, and Anvil;* and for the names of eight new subscribers, at single rates, with the money, ($16,) we will send a copy of *Sears' People's Pictorial Domestic Bible*, with 1000 engravings, worth $6.

Old subscribers, who will act for us in their respective localities, are at liberty to join a club, thereby reducing their own pay, and entitling themselves to a premium; and any old subscriber, who will send us seven new names with his own at single rates, ($16 for the eight,) shall receive the last above-mentioned premium, or Webster's large Dictionary, if he prefers that.

The Market.

NEW-YORK CATTLE MARKET.

TOTAL RECEIPTS FOR THE WEEK ENDING MAY 20.

	Beeves.	Cows.	Veals.	Lambs.	Swine.
This week	2,428	52	806	512	4,234
Last week	2,908	410	1,040	3,302	5,000
Average last year	3,597	247	328	8,898	6,650

PRICES.

Premium cattle, (beeves,) 15*a*15½; first quality, 13½*a*14; medium, 12½*a*13; poor, 11½*a*12; general selling price, 12*a*14; average, 13*a*13½. Prices last week: Premium, 13*a*14; first quality, 12*a*12½; medium, 11*a*11½; poor, 10*a*10½; general selling price, 10*a*12. Rise 1½, or a little more.

Milch Cows, $30*a*60; *sheep*, 11*a*13, sheared, 14*a*15 with wool on; *veals*, scarce and light, sales, 6*a*7½; *lambs*, few, and selling at $5*a*7 per head; *swine*, plentiful and lower, few sales at 6½*a*6⅝.

Macassar Oil.—Common oil, three qts.; spirit of wine, half a pint; cinnamon powder, three ounces; bergamot, two ounces. Heat them together in a large pipkin; then remove it from the fire and add four small pieces of alkanot root, keeping it closely covered for several hours. Let it then be filtered through a tunnel lined with filtering paper.

The newspaper is a sermon for the thoughtful, a library for the poor, a blessing to everybody. Lord Brougham calls it the best public instructor.

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