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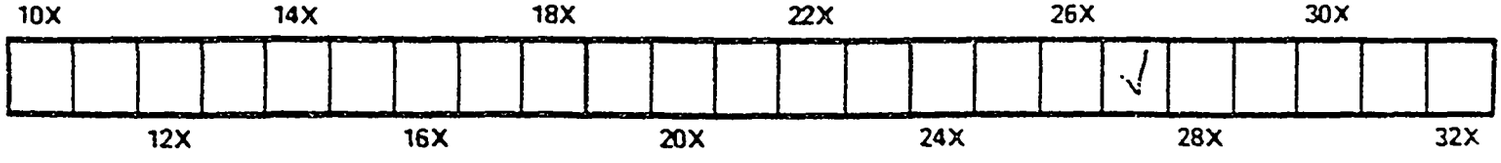

THE CANADIAN FARMER
AND MECHANIC.

TO PROMOTE THE COUNTRY'S WEALTH AND THE PEOPLE'S GOOD.

VOL. I. KINGSTON, OCTOBER 15, 1841. NO. 3.

The Farmer & Mechanic.

A CHAPTER ON GARDEN-VEGETABLES.

No part of husbandry, pays the husbandman better than that of tilling a vegetable garden. Those who are situated at a distance from a market cannot conveniently procure vegetables at all times, or if they can, it is attended with much trouble and unnecessary expense. It being well understood that a good living cannot be had without access to garden vegetables, public attention has of late been directed to the business of gardening, and much practical information has been given on the subject. As we write principally for the farming class, not one of whom should neglect the cultivation of the garden, we offer to them in this article a few hints on the kinds of vegetables which are thought to be the most profitable as well as useful for culinary purposes. We will begin with

ASPARAGUS.—*Asperge officiallis*—is a plant of several varieties, among which are the following, viz., Gravesend, Large White Reading, Large Battersea, Large German or Giant.

Season for sowing.—Asparagus plants can be raised by sowing the seeds in autumn, from the 1st of September till the 15th of October, or at any time after the seeds are fully ripe. It may also be sown in the spring, month of April or March. This plant requires the best ground the garden affords. The seeds should be sown in drills, ten or twelve inches apart; the covering should be slight, not more than half an inch of light rich soil being required to cover them. As soon as the plants appear they require a careful hoeing, and they should ever after be kept free from all or any kind of weeds. I would recommend the sowing of the seeds in the autumn, as they produce much the strongest plants, and will admit to be transplanted when they are one year old. A bed once thus transplanted and attended, will continue to produce good buds for twenty years. For new plantations of Asparagus the ground requires to be dry, rich, and spaded twenty-four inches deep. The manure should be fine, well roted, and buried in the trenches from eleven to fifteen inches below the surface, and the soil above thrown over it, and the manure thoroughly incorporated with it. The surface should be levelled, and divided into beds of four feet each, having alleys of two feet between them. These beds being sowed in rows, the outside row should not be nearer than six or eight inches to the edge. About the middle of November the stalks of the Asparagus sometimes grow yellow. This is a sign they have finished their growth for the season. Then cut them close to the ground, and clear them off carefully with all other rubbish and weeds on the bed. Then dress the beds with a coat of rich manure three or four inches deep. From the 25th of March to the 12th of April another dressing should be applied as before directed, care being taken to avoid injuring the crown of the plants with the fork. The buds will generally be fit for common use the fourth year from planting. But it is a luxury which well pays for the trouble of raising.

BEANS—*Vicia fabia.*—Of the Bean there is a great variety of kinds and quality, among which the following are counted the best, viz: the Maragan and the Lisbon are the earliest, but the White Blossom Bean boils much greener than any other crop, and is therefore better for a late sowing. The long podded Bean is a fine bearer, but the Sadwich, Windsor, Toker, & Broad Spanish kinds are preferred to any other. The Dwarf Cluster is a fine Bean, a good bearer, which never grows above twelve or fourteen inches high They should be planted in rows about six or eight inches apart in the row. Beans should be planted early in this country to insure a crop Some gardeners think it preferable to transplant Beans, and they assert that they will bear some days earlier than those planted in the hill. When Beans are four inches high they require a careful hoeing, but should be hoed in the morning, before the scorching rays of the sun have heated the surface of the soil. The dry hot earth should never be brought up close around the roots of any plants, particularly beans. A green bug is apt to infest the Broad Bean, but a strong decoction of tobacco, or strong salt water, will generally destroy them.

POLE OR RUNNING BEANS.—*Varieties*—Large White Lima, Sieva or Carolina, the Scarlet Runners, White Dutch Runners, Dutch Case Knife or Princess, Asparagus or Yard Long, the London Horticulturral, the French Bicolour, Red Cranberry, and White Cranberry, are all choice varieties for running or Pole Beans.

BORECOLE.—*Brassica oleracea.*—*Varieties*—Green Curled or Scotch, Dwarf Brown or German, Purple Fringed, Jerusalem or Buda Cæsurian Kale, Thousand-headed of plants are much cultivated for table use in different parts of Europe. For the garden these several varieties may be treated precisely like winter Cabbages. Seeds should be sown about the middle of May, and the plants set in July. In this climate they require to be taken up before the hard frosts set in with severity, and placed in trenches up to the leaves, and covered over with straw or other light covering, whence the heads may be taken as required for use.

BEETA VULGARIS, &c.—*Varieties*—Early Blood Turnip Rooted, Early Long Blood, Early Dark Blood, Early Turnip, Early Scarcity, Mangel Wurtzel, French Sugar, and Sir John St. Clair's, are the richest, most productive, and most highly esteemed of all the varieties of the Beets. These, if planted in the latter part of March or first of April, will be fit for use in June. Make drills twelve inches distant from each other, one, two or three inches deep—two is preferable—and drop the seeds in them two inches apart, and cover them with the earth. When they are up and strong, thin them to five or six inches apart. Let the ground be hoed deep round the plants, and kept free from weeds. It should be remembered that Beets intended for fall and winter use should not be sown until the 20th of May or 10th of June. The roots will be larger, stronger, and will keep better. Besides, they will be much more palatable. Should the first planted crop fail, plant during the first week in July—they will probably be a good yield.

In selecting ground for Beets, if possible let it be that which has been well manured the preceding year for other crops. Fresh manuring is liable to cause the Beet to run too much to stalks, leaving the roots small. The ground should be well pulverized.

If the tops are intended for vegetables, they should be gathered while young and tender. Roots which are intended for winter use should be taken up in October or early in November. The Mangel Wurtzel, Scarcity, and Yellow Turnip Beet, are chiefly cultivated for domestic animals. They are excellent feed for swine and for milch cows, and with the latter it adds much to the flavor of the milk. The Sugar Beet is probably one of the most valuable crops raised on a farm or in a garden for the use of milch cows.

CABBAGE—*Brassica oleracea.*—Of this plant there are many varieties, the following seem to be preferred. Early May, Dwarf Dutch, Early York, Emperor, Wellington, Heart shaped, Large Late Drummond, Late Green Glazed, and Russian Savoy. Some sow their seeds in the fall,

this climate it will not do well, the winter being too severe. The Red Cabbage should be sown early in May. Savoys and late Cabbage generally may be sown from the 10th to the 25th of May, in rich ground, if *free from weeds.* Cabbage when young must be closely watched, or the bugs and other insects will destroy them. They should be placed in rich, deep, fresh soil, in rows about thirty inches asunder, and twenty-two from each other. The Savoys and smaller sorts may be nearer. After transplanting, they should, as soon as they are large enough, be well hoed, the dirt being hauled up to them, care being taken that the leaves and head be not covered. In the fall they should be gathered in before the severe frosts attack them, and should be stored in a dry, cool place, where they will keep well during the winter.

Rhubarb.—Rhubarb (*Rheum,*) is a genus of exotic plants, comprising seven species, of which the three following are the principal: 1. Rhaponticum, a native of Thrace and Syria, and has long been cultivated in European and particularly British gardens. 2. The Rheum Undulatum is cultivated for the foot-stalks of the leaves, which are used for pies and tarts. 3. The Palmatum, or True Officinale Rhubarb, is a native of China and the East Indies, whence its culture has been introduced into Europe, and thence to this country. It produces a thick, flushy root, externally yellowish brown, but internally is of a bright yellow color, streaked with red veins. It grows to perfection in latitudes as far north as (56 degrees) Perthshire, in Scotland, and also it flourishes in Turkey, and various parts of Europe and the United States.

The indispensable points to the production of good roots of the Palmatum are depth and richness of soil, which must be well pulverized before the roots are set out. Beds of fine mould eighteen inches deep should be prepared; in these the young plants should be placed, ten or twelve inches apart. This should be done when the plants are from three to five inches high, at which time they will have four or five leaves. If the weather is very warm they should be shaded, and if very dry they should be watered. To the young plant water is indispensable. The beds should be kept free from weeds, and as cold weather approaches they should be covered with litter. In the spring the litter should be removed, and the plant transplanted in a freshly prepared bed, prepared like the Asparagus bed. Rhubarb makes an excellent preserve, by cutting it into small pieces, say half an inch long, and par-boiled with sugar. It is a valuable plant used in many ways.

Scorronera—*Hispanaca.*—This plant has long been raised in England for culinary purposes, particularly as an ingredient in soups. Its roots are palatable and quite nourishing. In some places they boil them and eat them like carrots; in this case the rind is to be pulled off, and the root immersed in cold water for half an hour, or they will be bitter. It sows in April they main good during the winter. They will last from three to four years, according to the quality of the soil they grow in.

TURNIPS.

Much has been said and written on the subject of Turnips, both by farmers and writers of late, and different kinds are recommended as the best. We have received several communications on the subject of Turnips, Rutabagas, Mangel Wurtzel, &c., but however highly recommended or extensively cultivated the other varieties may be, for a culinary vegetable, a turnip for table use, there are none that can compare with the *Yellow Swedish Turnip.* This Turnip grows luxuriantly in favorable situations, having a blue leaf, tinged with purple, of a glossy, velvet-like texture, the root or bulb growing to a great size, but its texture is firm, close and fine. It will yield nearly as much as any other variety, and what constitutes its peculiar quality is, its remaining firm, sound and sweet during the whole season. As a proof of this statement, Mr. Shirley, a gentleman of known veracity, offered us yesterday a turnip of the above description, raised, we believe, in the garden of R. F. Hope, Esq., of Camden, as perfectly sound and as good as on the day when it was extracted from the earth. Were it not for the prevalent desire of something new, no doubt this variety would take the place of all others in this country, as it is productive, nutricious, and durable above all other varieties of the Turnip. We would recommend this variety to our farmers.

AUTUMNAL FLOWERS.

Among the varieties of autumnal flowers we find the following, which we recommend to our readers to cultivate. Annual plants are much more cheaply procured than any other exotic ornamental plants, and many of them are exquisitely beautiful.

Every person who has any taste for flowers should procure some of the following varieties, as they come cheaply. One hundred papers of the finest varieties can be had for five dollars, or singly for six cents.

The *tri-colored* Amaranthus (*A. tricolor,*) is a beautiful and novel plant. The colored leaves appear beautiful in their variety; standing out in prominent view. This variety requires a very rich soil, and to be well cultivated.

The long rayed American Centaurea (*C. Americano,*) makes a fine display, and is of a rich appearance.

Anagallis (indica,) called Pimpernell, spreads on the ground, and for a long time produces fine blue flowers half an inch or more in diameter, with a beautiful red eye. This is a very desirable plant for a border.

An East India plant called the Scarlet Cacolia (*C. Coccinea,*) is very pretty, and should never fail to have a place in the border. Though this is a tropical plant, it does well in this climate, and matures its seed in good season.

The Purple Sultan (*C. moschata*) is a hardy plant, and when it comes up late in four or five years without any culture or attention. The flower is purple, but sometimes runs into a white variety.

The Crimson Velvet Coxcomb (*Celosia Cristata*) is a plant combining rare beauty and singularity. Its beauty and excellence are in proportion to the cultivation it receives. The Cypress Vine (*I. quamoclit,*) is an uncommonly beautiful variety, and requires a liberal supply of stable manure. It should be well attended.

Euphorbia Variegata is a plant of extraordinary aspect and beauty. It is from beyond the Mississippi; though it seldom produces good seeds in a northern garden.

The Red and Golden Hawkweed, called *Tulpis,* are very desirable plants. They require much care to be preserved.

The Purple Candytuft (*I. umbullata,*) is a beautiful thing indeed. There is also a white variety of the same genus.

The Marvel of Peru (*Mirabilis Jalapa,*) is a perennial and very beautiful plant; still it may be treated as an annual. Red and white, and red and yellow in great freshness commonly constitute the colors of its blossoms. The *M. Tongiflora* is very sweet scented, and remarkable for the length of the tube.

WANT OF SYSTEM.

One of the greatest evils which attend farming in this country is a *want of system.* For the most part the work of the farm is done without bestowing a thought on the system he is pursuing—the consequence is that at particular seasons of the year, the farmer finds himself surrounded by a multitude of work that must be done and requires to be done immediately, when he finds he has not the number of workmen employ which the business requires, and cannot obtain them either from scarcity or want of means—thus he strives to do twice as much with his present help as he is able; he labours diligently and hurriedly—if it is in the Spring, several crops are required to be sown at the same time; the season advances, the crops are not in, or if in at all, not in time; the early sown are up while they are preparing to sow, others neglecting to furnish soil and fencing timber in the winter, and to lay them up when the snow disappear, waiting for a more convenient season, the cattle break in, overrun the meadows and trample down the newly appearing oats, wheat or barley. The loss of time occasioned by repairing the fences,—the damage done to the field and the crops, besides the mischievous habits which his cattle and horses are forming are no small drawbacks and inconveniences to the farmer, and yet hundreds put up with it contentedly, or at least cheerfully year after year.

When Harvest time comes, this man finds that he has not a sufficient number of tools, or if he has they are worn out and unfit for the purposes intended. On a beautiful sunny day in the middle of June he is forced to quit the field and leave a half-a-dozen men to work or play as it see good to them, and takes his horses and wag and travels to some village or town from 3 to 18 miles perhaps to obtain a sythe, a fork, a rake or cradle, or some implement of husbandry, thus spending the time of a man, worth in the field with his workmen two dollars a day, and his horses worth one dollar more, saying nothing of the

ing, one crop following another in succession ripens, and he is unprepared to harvest it in season, much of it shells and falls to the ground.

In Autumn the corn is standing out late, the birds, pigs, and vermin, destroy it, till finally to save a little of the fruit of his toil he turns out in the last of October or the first of November and takes in his corn crop, and while he is doing this his potatoes freeze in the ground! Thus, while the farmer who works without system, is busily employed and daily toils hard from morning till night to raise crops, which he allows to be destroyed, is daily growing poorer, and at the same time is occupying a large farm, he wonders that the man of small farm and small capital should be daily growing richer and improving his farm, he is growing poorer and his farm is going to decay.

Now, we think if this man will sit down and talk with us a few minutes, exercising his reason and better judgment, we can, little as we know, tell him the reason of his bad luck and the other's good fortune. The fundamental lies here, he has *no system*, the very first thing he should do is to sit down, make a careful and as judicious an estimate as possible of the amount of available funds, either in cash or otherwise he can appropriate to his farm, and its cultivation. Then add to this, the sum of credits which it may be safe for him to incur. Graduated to this should be the help employed. Now, no matter what may be the extent of his farm, he should in no case attempt to till more land than he finds he possesses the means to do effectually and profitably. This should be ascertained if possible in the Winter; by this means he will know the amount of fences he will have to make, and can provide accordingly. When Spring begins to open, his wood for summer is cut and piled in the woodshed, which no farmer should be without, and he is prepared while the frost is escaping from the earth and before he can plough, to right up old fences that have fallen or decayed during the past winter, or build new ones. These being completed, as the spring advances he begins to plough and sow, and as the time for doing a particular thing arrives, he is prepared to do it. His crops are in season, being sown at different intervals; in ordinary seasons, they ripen at seasons sufficiently distant from each other to admit of being gathered before others arrive at maturity, thus his lands being well manured and properly tilled and his harvest gathered in in due time, all is saved and every day is turned to profitable account. Providing himself with good fences he is not troubled with breechy cattle, and suffers no loss by means of them. When the year rolls round he finds he has more grain, more stock, more money and in time, effectually and profitably. These plans should be laid, these calculations made in the Winter, in all cases that will admit of it. But let it always be remembered, till no more than you can till *well*. If you possess a farm of two hundred acres and find that you can till only fifty and do it well, then rent out the one hundred and fifty and till the remaining fifty yourself.

To the Editor of the Farmer & Mechanic:

SIR—I have received the first number of your Agricultural Journal, and am glad to find that such a paper is in circulation, feeling confident it will have, and ought to have, the greatest circulation of any journal ever published in Canada.

We had an agricultural exhibition of cattle is astonishing the progress they experienced in the cultivation of the soil and improvement of stock since the formation of an Agricultural Society in this county.

The Provincial Act for establishing Agricultural Societies in this Province has expired, and it would appear that the Legislature has not as yet taken any notice of this most important measure; but I rest confident that it will not escape the notice of so intelligent a body as the present Legislature is composed of; and they will not only continue the Act, but see the propriety of extending its provisions.

It is my intention when the premiums are paid, to cause every member of the Society to take the Farmer and Mechanic.

I notice your suggestions recommending a Provincial Agricultural Society in the Province, which would embrace the entire interest of the Province. I think that it requires but little consideration to illustrate many of the beneficial results that might be derived from such an institution. In the first place, it would afford ample information to the Legislature of the use that was made of their liberality, and how far it was appreciated. It would be the means of opening a train of information to the Legislature and the country, as to the resources of the Province, if established upon a proper basis, the value of which would be incalculable.

I hope, however, that an abler hand than mine will treat upon the subject, and that we will see it established.

I am, Sir, with respect,
Yours, &c.,
ARCH. McDONALD,
President Agricultural Society,
Co. Russel, Ottawa District.

LEWISVILLE, Oct. 12.

The Annual Fair and Cattle Show of the District of Johnstown Agricultural Society, was held this day, at this place, agreeable to appointment, which was respectively attended by the Farmers in the vicinity and some few from other parts of the District. The President of the Society being absent, the Vice President was called to the Chair.

The Committee appointsd to select and lay out the ground for the Ploughing Match reported that owing to the drouth they had come to the conclusion on examination of the ground with the advice of some of the Plowmen to recommend the adjournment of the Ploughing Match to a future day.

The meeting then proceeded to appoint Committees to judge of the comparative merits of Farm Stock presented by members. Messrs. Biddle, Rutherford and Romenus of the Smiths Falls Society were appointed Judges of Bulls and Cows.

Messrs. Boyce, Henderson and Lee, Judges of Swine.

Messrs. Sabine, Purvis and Bates, Judges of Sheep.

Messrs. Deming, Lehigh, and Beattie, Judges of Steers and Heifers.

After examination the several Committees made their reports. Joseph Wilise, Esq. on the behalf of the viewing Committee for Farms and Crops reported that in consequence of want of notices for competitors no premium was awarded on Farms, and not sufficient competitors on crops to take all the premiums offered.

After which it was Resolved, That the Ploughing Match be adjourned to Tuesday the 26th inst. at 11 o'clock, A. M., and that persons paying a subscription of five shillings be permitted to compete on Plowing.

Resolved, That a premium of £5 shall be awarded the best original address delivered by a member of the Society at our Annual meeting on the first Thursday in March next, if in the judgment of the managing Committee any are delivered meriting a premium.

Resolved, That the Committee for purchasing for obtaining subscriptions shall stand as at present constituted until the next Annual meeting.

J. G. BOOTH, *Secretary.*

AGRICULTURAL CAPITAL.

WHAT, in the hands of the farmer, constitutes capital, is an important query. With the merchant, cash is the capital, with the land owner, land is the capital, and with the farmer, cash, land and stock, is usually considered the capital. But there are many other items that enter into the capital of the farmer generally overlooked, such as implements, manures, and the most important of all, labor. Capital may be productive or nonproductive. A million of gold and silver locked in a strong box, or a thousand acres of uncultivated land, may be capital, but so long as the property remains in this state it produces nothing, and the owner may be actually growing poorer, instead of becoming richer. Increase of wealth does not depend on the quantity of capital so much as in the use of it; and in nothing is this more observable than in farming. There is many a man who has commenced farming with fifty acres of land; on this he annually expended in manure, labor, &c. twenty per cent, and the produce was perhaps forty per cent. Encouraged by this success, he added to his farm another 50 acres, but his expenditure in capital is not proportionally increased, and the profits are lessened in proportion. Still he has not land enough, and he keeps purchasing land, while he adds little or nothing to his active capital, and the consequence is, while on fifty acres of land, he realized forty per cent, on five hundred acres he does not clear as much as he did from his fifty acres, or perhaps he actually falls behind. There is nothing more true than that the inordinate desire for large farms has been the ruin of thousands. It is true that a large farm may be made as productive as a small one, but there must be the same proportion of capital in manure, labor, &c. put upon it, a thing rarely or never done. That part of the farm upon which most capital is expended is the *garden, and this is clearly the most* productive and profitable; and so with a small farm when compared with a large one. Let no one therefore desire to possess more land, or undertake the cultivation of more acres than he has capital to manage well. If he does, he will find he is rapidly sinking what little productive capital he possesses, and may become a poor man with the means of *exhaustless wealth in his hands.*

BLOSSOM OF THE LINDEN FATAL TO THE ROSE BUG.

A writer in the Louisville Journal, speaking of the effects of this pest of the florist and gardener, says they are nearly extirpated from his premises, "and seen only at the places of their destruction; these are linden trees when in blossom." He adds—"my first impression was, that the bugs died about the linden tree, after depositing their eggs and terminating their natural career; but such is not the fact; and I now speak with confidence, after several years observation and experience, when I say the blossom of this tree destroys them, and extirpates *(or nearly so,) the race from its immediate* vicinity on the farm on which they grow.—* * In rushing to the delicious fragrance and honey of this flower, they precipitate themselves on their own destruction." Of all the American forest trees there is none the fragrance of which is more attractive than that of the linden or bass wood, and none to which bees resort so gladly to collect honey. *That this honey should be fatal* to some insects and harmless to others, seems rather strange, and if others have observed effects similar to those noticed by the Journal it would be well to have the facts

OF THE INCREASE OR PROPAGATION OF TREES.

ART. 1.—*Increase by Seed.*

It should be a general rule to propagate many kind of the trees by seed, although suckers are in many cases substituted for it; the pear, the apple, the plum and cherry, are the principal families of estable fruits, and are extensively cultivated as a matter of profit, and as these are of such importance, it is quite clear that the best possible manner of growing trees should be resorted to, in order to give the cultivator a due return for money and labor expended.

The greatest error in cultivating the above named varieties of trees from suckers is, that they are prone to throw out suckers from the roots of the parent tree, which acts a nurse for a while, to a numerous progeny of young offspring, which in time draw nutriment from the surrounding earth, and impoverish the parent. If these suckers are cut off from their parent roots, the number is trebled yearly and the oftener they are cut off, the more numerous they grow. Seedling trees seldom throw out suckers from their roots, and hence it is essential to grow trees by seed in order to evade a perpetual trouble, besides having more generally better crops of fruit.

The method of raising your seedlings, is to prepare a piece of ground by digging and manuring it well either in the fall or in the spring, but the spring is generally considered the best. Having the ground prepared, the seed may then be sown either in four feet beds with two feet alleys, or in drills of about six inches wide and a foot between. The latter I would recommend, for by this method the young plants will have a better chance to obtain the sun and air, and grow more stout and bushy, than when grown in a thick bed of four feet wide. The seed may be sown in depth according to the size.—Such as the apple, pear, and small kinds of seed may be sown very shallow, and lightly covered by sifting over it some fine rotten leaf mould, or other light earth, with a portion of decomposed vegetable matter incorporated with it. Peaches, plums, nuts, and large hard shelled seeds will require to be sown deeper in proportion. Such seed should be previously prepared by mixing it with earth in the fall, and keeping it in tubs or boxes during the winter, in order to soften the shells. Many kinds of berries, as mountain-ash, hawthorn and the like, may be treated in the same manner.

If the fall is the most convenient time for doing this business, there is no objection to doing it in a proper manner, and so much of the nursery business of the spring will be forwarded, when seed is sown in the fall, it should be on a piece of ground where it is not subject to be inundated or covered with water, which rots the seed in the ground, and is an almost sure cause of failure, therefore the choice of ground is of great importance.

ART. 2.—*Increase by Cuttings.*

There are many kinds of fruits which are increased by cuttings, as the grape, the currant, the gooseberry, &c. The manner of doing this, is to prepare a rich mellow ground by spreading over it a quantity of well rotted manure and digging it neatly with a plate spade; this being done, the cuttings are to be prepared by cutting them in lengths of about a foot, with a sharp knife; the ground being prepared, the cuttings may be inserted, by placing a garden line and pressing them down about half way into the ground by the side of it, when one row is completed, the ground is to be neatly raked by the side of it, and the line removed to the intended distance between the rows, when the next row may be planted in the same manner, and so continue until the whole is completed.

The selection of cuttings for this purpose, is of some importance as healthy or unhealthy trees may be produced. The cutting should be chosen from young wood of last summer's growth, and that which is strong, straight, and healthy. It should be, if possible, taken from a part of the tree where it has been well exposed, so that it is well ripened; if taken from the centre of the tree, where the shoots are thick they are oftentimes soft and succulant, and hence improper.

The choice of ground for this purpose is very important; it should, if possible, be chosen in a shady place, where the sun and air can have free influence; the soil should be of a rich loamy nature, with a portion of sand, in order that the cuttings may become callous, and root more freely.

ART. 3.—*Increase by Layers.*

Many kinds of fruit, as the currant, the gooseberry, grape, &c. are increased from their parent, by layers; this business is generally performed in the spring, although in some cases, the fall is preferred, in order to forward the busines in the spring. However, the spring is the most to be preferred, as at that time the layers strike root much more freely; besides, the business can be done much more expeditiously.

The most general method of performing this business, is to prepare the earth around the parent plant by digging and well working the ground; this done, the layers are to be chosen of young slender shoots, and if of one year's growth the better, but if of thrifty growth, two or three year's growth will do. Having selected out of the intended layers, bend them gently down to the earth's surface in an opposite direction from the part of the plant in which they grow; this done, make an incision with a sharp knife for the part that they may throw out roots.

The incision or cut is made by placing the heel of the knife to a bud, (at a distance where the shoot can be conveniently laid in the ground,) cutting the shoot about half way through, and bringing the blade upwards about an inch, with a clear cut, so as to form a tongue to the part laid in the ground, to send out roots. This done, press a spade six or eight inches in the ground, into which insert the layer with the cut part or tongue downwards, and close over the part with earth, pressing it down with the heel, and if the shoot is stiff, it may be secured in its place, by placing over it a pegged stick and pressing it deeply in the ground. When the layers are all laid, the ground may be regularly placed about them, and neatly raked or dressed off.

When many plants are desired to be thus raised, I recommend that a piece of ground for the desired kinds be purposely selected, and *stools* planted about three or four feet apart. By this mode a regular succession of layers is obtained every spring from the last year's wood, which is thrown up from the crown or centre of the stool.

I would particularly recommend this mode to be adopted for the Isabella grape vine, by which much finer plants are obtained than by cuttings or any other method in one year.

ART. 4.—*Increase by Inoculation.*

The cherry, plum, pear, and many other kinds of fruit trees, are increased by budding or inoculating. In order to the success of this method the plants to be operated upon should be grown in a thrifty state when worked, else little reward may be expected for the trouble. When it is recollected that the *bud* inserted is to be united to the *sap* in the shoots, it must be at once evident that it should be in the very best state in order to form an union; to the contrary of this, we often see trees operated upon that are old and dried up, or have no sap to feed the inserted bud; the success of such operations requires no inquiry or consideration further than that it is certain that the result will be useless, and the trees where intended to be done, the principal object should be to choose young healthy wood full of sap.

THE MODE OF INOCULATION.—Having the trees of the above healthy description, and the proper season being at hand, the business may be done in the following manner: at the proper season, when the plants to be inoculated are in a right condition, prepare for the operation by collecting healthy shoots of the summer's growth, of such kinds as are intended to be increased. When the shoots are taken from the trees, they are to be divested of their leaves, leaving a part of the forestalk to the length of half an inch; they are then to be kept damp until they are inserted, which should be as soon as possible after being separated from the tree.

There are many ways of inserting buds, but I shall confine myself to the most general, and I believe most successful method, which is performed by making an incision in the tree intended to be inoculated, in this form, T, by first cutting through the rind, in the top, in a transverse manner, holding the knife between the fore finger and thumb; the bottom incision is made by drawing the point of the knife downward an inch; the thin end of the haft is then to be applied to the top of the incision in order to part the rind from the wood, which is done by gently lifting the top and running the end of the haft downward on each side of the incision. The incision being made for the reception of the bud, the next thing to be done is to prepare the bud, by placing the scion in the left hand, between the fore finger and thumb, with the top end next to the thumb. The knife must then be taken in the right hand, and its heel placed half an inch below the bud intended to be taken off; it is then to be carefully drawn upwards half an inch above the bud, cutting it out with about half the wood and bark. This being done, the part is to be placed between the thumb and fore finger of the left hand, and the rind gently pressed back with the edge of the knife, when the wood is to be pinched between the thumb and knife and divided from the rind with the bud, which is to be inserted neatly in the incision by pressing it gently down between the bark and the wood of the tree, and bound with bass or other string, in a neat manner, beginning first at the bottom of the incision, and then continuing it to the top over and above where the cut is made.

ART. 5.—*Increase by Grafting.*

The object of grafting is to prolong any desired fine quality of fruit by uniting it to a healthy vigorous kind, which should generally be such as is grown from seed. In this manner fine kinds of the apple, pear, cherry, and plum are prolonged through many generations, which could not be by seed, for seed from the very best kinds generally returns to varieties similar to the parent crab-apple. The methods of grafting are numerous, but there are two only generally followed, namely, the cleft-graft, and the whip-graft. The former is principally practised on large trees, and indeed in the nursery department in this country; but the latter is universally practised in the nurseries of Great Britain and other European countries.

The scions selected for grafting are those of the last year's growth from the fruitful wood. Suckers from the central part are by no means to be chosen if they can be avoided. The cuttings should be taken from the tree about the beginning of March and tied in bundles, and placed into the earth in a sunny and sheltered situation. The time of grafting depends on the nature of the season, but generally the beginning of April is a good time. When the sap begins to flow freely is the best period, which can be easily ascertained.

CLEFT-GRAFTING.—Having the scions pre-

ing may be prepared previous to performing the work. The grafting-clay is prepared by collecting a quantity of stiff clay, and moistening it with water to the consistence of *stiff mortar*; into this a quantity of short cut horse hair, moss, horse dropping, or other substance may be mixed to thread it together in a manner that it will act as a plaster, not to be easily removed from the tree by rain, sun, or other cause, when once put on. This composition, if well made, is the best, and will be found to answer any kind of grafting.

There are many other kinds of composition made for the purpose of covering grafts, of which bees-wax is the principal; in some instances it is the only thing used, as on small orange trees and those plants that are cleft-grafted, and united in a moist heat. It is used by melting and putting it thinly over the wound with a brush, or even the finger. A very good composition is made by mixing a portion of bees-wax, pitch and glue, with a little hog's lard, and well boiling it together in an earthen pipkin. When used, it is laid on with a brush hot, but not so as to scald the bark.

In the act of grafting, fix on a clean part of the stock or branch to be worked; sawing off the branch in a clean manner, then paring the wound with a sharp knife, being careful not to bruise the outer bark: this done, prepare to make a cleft by placing a straight, stiff bladed knife directly across the centre of the cut, and with a mallet or other tool cleave the crown two or three inches. Having made the cleft, open it by driving down the centre a narrow wedge of iron far enough to open the sides sufficient to receive the grafts, which are prepared by cutting them in lengths about six or eight inches long—cutting the bottom ends downwards, on each side, in the form of a wedge, and so that it fits neatly in the cleft, into which it is to be gently pressed downwards, being careful that the barks of the graft and the stock precisely meet. The cleft part is now to be covered in such a manner that neither sun nor air can have access to the parts of the graft and stock to prevent their speedily uniting. The clay is put on with the hands and closely united to the bark by pressure. When neatly done, it should have the appearance of an egg, and should let off the water freely that may settle on it.

WHIP-GRAFTING is generally performed on small nursery stocks, and although not generally practised in this country, I think it a mode highly commendable for the plum and cherry, grafts of which generally do well on small stocks.

The method of performing whip-grafting is by cutting off the stock at the place selected, in a clean sloping manner; then, with a sharp budding-knife, from the smooth part next to the lowest part of the cut, shave off the bark and wood about two inches long, beginning at the bottom by drawing the heel of the knife gently in the bark and gradually cutting deeper in the wood until the blade is drawn out at the top. The graft is prepared by cutting it in a sloping manner in a reverse position, so that when placed on the cut of the stock it forms a neat splice. Some gardeners recommend cutting a thin tongue in the graft upwards, and in the stock downwards; these two tongues are united in the stock and the graft by pressing the latter downwards into the former; when the union is effected the outer bark of the graft and stock will precisely meet, and the splice in every way exactly fits; this indeed is the grand art in performing the operation. When the graft is set, it is to be bound with bass-string, beginning at the bottom and winding it upwards in a gradual manner. When the graft is bandaged, it is to be covered with clay or other composition in the same manner as directed for the cleft-graft.

ART. 6.—*Inarching.*

Although inarching more properly belongs to the green-house than the fruit department, it will be necessary to say a few words on the subject in this place.

The object of inarching is to form a choice and speedy union of any choice variety of hard wooded plants or trees on to a wilding or stock of the same genus or species; and the practice is generally adapted to those kinds that do not speedily unite by engrafting; this is greatly facilitated by inarching, as the parts are always united, and a continued flow of sap almost always insures a certain union.

The practice of inarching is simply done by planting or placing a number of the stocks to be worked around the tree to be worked from, in such a manner that the branches can easily be united together.

The operation is done in the spring about the same time as grafting—when the sap begins to rise in the tree is a proper time. The work is done by bending a shoot from the tree intended to be worked to the stock, where it is to be united in the following manner: Place the part of the shoot to the stock, then with a sharp knife pare off part of the branch and stock so as to make a neat splice in precisely the same manner as the whip-graft; the part united is then to be bandaged and covered as the graft, and in every way managed in the same manner.

EXPERIMENTS IN THE CULTURE OF POTATOES.

MESSRS. GAYLORD & TUCKER—I have been a constant reader of the Cultivator from its first number, and have always esteemed it a highly valuable periodical, but among the very many instructive communications in that valuable work, I occasionally find interposed, articles which are not calculated to lead to any satisfactory result. I allude to such crack articles as give the extraordinary weight of a calf, six months old, without telling us how many cows he sucked, and what other feed he had received, and the great weight of a yearling short horned bull, without stating the amount of milk, meal, roots, &c., he had consumed. Now, if such correspondents had, at the same time, taken a calf of some other good breed and given him food, equally in quantity and quality with his pet, we might arrive at some conclusion as to the relative value of the two breeds; but my principal object in this communication, is a passing notice of some of the reports on the Rohan Potato,—as also an experiment made by myself, with the Rohan and three other varieties of the potatoe.

I shall not undertake to write out the several reports on the Rohans; several of them however, run thus or nearly so:

From	2	Tubers I raised	2¼	bushels.
"	1	"	2¼	"
"	1	"	2¼	"
"	1	"	2	"
"	2	"	2	"

In the above list of experiments, some have stated the number of eyes in each tuber, and the number of hills planted; but have not stated the distance between the hills, so that the produce per acre cannot be ascertained. Again, few describe the soil and the quantity and quality of manure applied, and none that I recollect, have tried any other variety along side of them, with the same soil, manure and treatment: so that nothing can be decided as to the relative productiveness of the different varieties. Again, they generally give the amount of the product, from the amount of seed—now, before I begin with my experiment, allow me to state one, made by one of my neighbors, with the potato called the *Irish Cups*. It was not a trial for a great yield from a given quantity of seed; but to settle the question whether potatoes *could* or *could not* be produced without the eyes of the potato. He took two tubers, of the Irish cups, of medium size, cut them into thin slices, cut the slices crosswise, both ways, leaving the pieces about the bigness of a large pea, and planted them in a rich moist, leamy soil, well manured. They were a long time in coming up, and when they did come, the plants were very small, and for some time apparently feeble; but they began to grow and soon attained the usual size of potato tops; and when they were dug, the produce was fifteen bushels of Irish Cups, which is a greater yield from two tubers than any recorded in the Cultivator. Still it proves nothing, for he never stated how much ground he occupied, nor did Mr. Jackson, of Wellsboro, Pa., (last vol. Cult., p. 12,) whose increase was 214 fold. Now, if the two Irish Cups planted by my neighbor weighed a pound, which I presume they *did not*, the increase must have been 900 per cent or 900 fold, which puts Mr. Jackson's Rohans in the back ground; but all this only goes to show how illusory all such experiments are, without a comparison with other varieties, and with equal treatment.

Now to my experiment. I purchased a farm twenty-five years ago, which is situated about seven miles from my residence in Waterford, and have let it on shares ever since, (keeping the direction of it in my own hand.) I divided my wheat land into three equal portions as nearly as was convenient, leaving the esidue of the farm for meadow, corn, and other uses, and put my wheat land under a three years course of cultivation, i. e. one year under wheat and two years under clover, applying plaster to the clover during the two years pasturage, to which use it was constantly applied until plowed up for the wheat crop. Under this course of management, in a few years the land was brought from a state of perfect exhaustion to a pretty high state of cultivation. The plat of ground on which I planted my potatoes is on an elevation, and a part of one of the wheat fields, and had been under the above course of management for 25 years—it contains about three acres, is perfectly level, the soil *loam*, on a subsoil of marly clay, and was under two years sod. It had never received a shovel full of manure since it was cleared some fifty years ago, except the plaster which had been put on to it during the aforesaid course of management, and what was dropped by the cattle while feeding off the clover—there is not a shade on the plat, nor any locality to invite cattle to visit or beat upon one part more than another of the piece; the soil was therefore perfectly uniform.

In May last, the ground was plowed, after the grass had been closely fed off, harrowed and furrowed both ways with the plow, as evenly as possible, and planted with potatoes the seed rolled in plaster, or gypsum, to be a little more *technical*, and in the following order, to wit: four rows of *Rohans* through the middle of the plat, and in contiguous rows on each side, the three other varieties i. e. merinos, flesh colored and Orange potatoes.

At the proper time the plow was passed between the rows, both ways, and dressed out with the hoe once only. The season was so dry that in our region the potato was considered but about half a crop. With my tenant we dug and accurately weighed 12 hills of each kind, and by an accurate measurement, ascertained the number of hills in a rod, and by the weight of the 12 hills ascertained that of the rod, and by 160 rods, the weight on an acre. That weight divided by 60 lbs. gave the following results per acre:

Merino	364 4-5	bushels to the acre.
Flesh colored	336	" "
Rohan	322 4-5	" "
Orange	288 4-5	" "

Thus, gentlemen, you have the result of my experiment, which was conducted with the greatest possible accuracy and care.—Now, whether the proportions (of the yield) would have been similar if they had been plantdd in other soil and heavily manured, I certainly cannot decide; all I go for is, that when experiments are made to test the relative productiveness of different varieties of the potato, they should be put side by side and honestly treated alike. S. STEWART.

From the Cultivator.

ON THE USE OF LIME.

There are few things connected with agriculture about which so great diversity of opinion exists among theorists and practical farmers, as the value and effects of lime when applied to the soil. By some it is regarded as a manure which may be profitably used upon every soil; others think it a stimulant that can only be used with profit where the soil possesses dormant vegetable matter that requires the action of artificial heat to cause fermentation, and prepare it to become food for plants. "The use of lime as a manure is supposed to have been introduced into Great Britain by the Romans, and has been extensively used there for the last two centuries; in fact it may almost be termed the basis of good English husbandry, as a large proportion of the soil in the British islands is of a cold, heavy and moorish nature, and could never have been brought to its present high state of cultivation without the application of an alterative, or some powerful stimulant that would warm up the soil, bring its dormant powers into action, and cause fermentation; thereby changing its very nature, so far at least as its productive qualities are concerned." Thus heavy clay soils, by a sufficient application of lime to cause thorough fermentation, lose their tenacity, and (while the vegetable matter is prepared to become food for plants,) the soil itself appears by a chemical process to have undergone a change.

It has been asserted that the expense of an application of lime to heavy clays is amply repaid to the husbandman by the increased facility with which such soils can be worked—perfect tillage not being half as expensive as before the application. We think lime will be found invaluable upon all clay soils, especially in the improvement of those that have been worn down by improper tillage Such soils receive but little benefit from yard manure, except given in large quantities; at least they are slow in their action upon vegetation; from the reason of the coldness of the soil, its heavy texture, fermentation is slow and imperfect. By a sufficient application of lime with the manure, fermentation will be more rapid and complete, the close texture will in a great measure be destroyed, and that an improvement has taken place, after tillage and crops will fully attest. I have frequently noticed an experiment made by a farmer in an adjoining town, the results of which are so satisfactory that I am induced to give them in detail. In the spring of 1836, six bushels of lime was applied to four rods of clay in its hot state; the land was thoroughly worked with a plough, and sown to oats; fermentation soon commenced, and was so great as to injure the oats. The process resembled that of yeast in bread, and the effect was the same; the soil was lighter, and resembled a soft loam. In July, the oats were turned under and turnips sown; the crop was large and of good quality. The spring following it received a dressing of manure, with the rest of the field, and was planted to corn. The decided superiority of this piece could be noticed through the whole summer; it grew rapid, rank, and produced double the corn harvested on the adjoining four rods. Spring of '38 sown to oats and clover, both of which were vastly better than on the adjoining land treated in the same manner, with the exception of the lime.

The quantity of lime used in this experiment was large, at the rate of two hundred and forty bushels per acre. But the experiment has shown that all of the effects that have been attributed to lime may be realized where a sufficient quantity is used. The lime in this case evidently acted as a manure, which is proven by the superiority of all four of the crops, as a stimulus both to the soil and the crops, and as an alterative (how permanent I cannot say,) from the appearance of the soil, resembling more a loam than clay, and the ease with which it can be perfectly tilled, compared to the same soil before the application. The results of this experiment are desirable, and the question naturally arises, if heavy or clay soils are to be limed, should not the quantity given be sufficient to produce all the above results? Half the quantity would probably have assisted the partial decomposition of the inert vegetable matter, operated as a stimulant and as a manure, but would not have produced the same effect upon the soil, when was certainly improved, and in addition to being more easily worked, will probably continue to carry heavier crops. Perhaps as a general rule the quantity of lime to be used will depend and should be governed by the quality and nature of the soil, and the results wished to be produced; the lighter the soil the less the quantity required to produce all the good that can be expected on such soils, and *vice versa*. I have seen crops evidently improved by a very slight dressing of lime. There are few farmers that have not noticed its good effects when used as a pickle on wheat, and yet the quantity used was so small that it could only have benefitted the crop as a stimulus. I noticed a few years since in one of my neighbor's fields a very great difference in the appearance of the wheat In one part of the field it was bright and rank—in the other it looked rusty and bad. On inquiry I found that he had been building a house, and had drawn the old mortar and rubbish on his fallow. This was five years ago, and the effects may still be seen.

Some writers assert that the *only* benefit vegetation receives from lime is in the heat it imparts to the soil. Lime can only be reduced to a calx by intense heat. And they contend that a great proportion of this heat is partially fixed in the operation. In support of this theory it is said lime promotes the growth of some plants, and is destructive to others, or that all native grasses of northern climates are killed by it, while the cultivated or natives of more southern latitudes are benefited. This theory, like the fixed heat in lime, will hardly stand the *process of slaking*. It is more probable that the native grasses are destroyed by cultivation, as an application of lime and good culture generally succeed each other. The heat lime produces when slaked, or rather the heat thrown off from the large quantity of water which by its union with the lime is formed into a solid, is without doubt beneficial; but to assert that this is the only benefit lime produces to vegetation is mere theory, which has been falsified by every experiment that has been made in its use.

Lime is found in the formation of a great many of the plants, grains, &c. and wheat cannot be successfully cultivated without the existence of it in the soil. Our geological survey shows that there are large quantities of lime in a majority of the counties in this State, which, with the numerous beds of shell and earth marls, are destined to be valuable resources to the farmer.

JOHN C. MATHER.

TO DESTROY COUCH GRASS.

Answer to "A Subscriber."—Near the close of May plough the land that is subject to couch grass deep, and plant immediately to potatoes. When the potatoes are four or five inches above ground, plough between the rows with a small one horse plough, taking care not to plough so deep as to disturb the sod. Also when the potatoe vines are about a foot long, plough again lightly. By this time the potatoes will spread, so as to prevent the grass from appearing above ground. When the crop is off, plough again light for winter. In spring the root will begin to rot, and by ploughing again deep, the destruction of the couch grass will be completed.

PLAN TO REMOVE STUMPS.

Mr. Editor:—Although I am not myself a practical farmer, yet I love to see all the operations on a farm carried on with neatness and economy. I own a small farm of two hundred acres in Champaign county; and when I purchased it, the fields were greatly disfigured and encumbered with dead trees standing, and with stumps. I wish that I might have the pleasure of your company over the farm, or indeed at the house (for every field can be seen from the door) to show you the excellent condition which it is now in. There is scarcely a stump or bush to be seen, except some very handsome shade trees purposely left for sheltering the cattle in the heat of summer.

The removal of these stumps has been accomplished by a very simple and economical process, which I will attempt to describe, in the hope that it may be beneficial to those who have their lands encumbered with trees and stumps. Procure a dry red-elm lever, about twenty feet long, and about six to eight inches in diameter—a good stout log chain, with two yokes of oxen; this is all the *machinery* that is necessary. The mode of operation is thus: wrap the log chain around the stump a little above the ground, the large end next to the chain and against the stump; make the other end of the chain fast to this end of the lever, drawing the lever tight against the stump; the cattle are hitched to the small end of the lever and driven around the stump in a circle, of which the lever is the radius. One revolution of the oxen around the stump will generally twist out the largest of them; but should not the power thus applied be sufficient to move the stump, the side roots may be uncovered and cut partly off; after this is done, the stump will be easily removed. You will find this plan much preferable to any "patent stump extractor" that you may have seen puffed in the papers.—*Western Farmer.*

BUILDING STONE WALL.

Messrs. Editors—Living as I do in a country abounding with stone, and having had some experience both in drawing and laying, and having been an attentive observer of the improvements that have been made around in the business, I will venture to make a few suggestions; especially as so little is written on the subject. It demands more attention than I have seen given to it. A fence so costly as stone wall should be well made. A great deal of poor wall has been laid in the country; full enough I think for our credit, as it respects our economy or good sense. Considerable half wall has been laid, 3 feet or so at the bottom, and 3 or 3½ high, which would soon bulge and tumble down; and the stakes and rails which would be needed to complete the sham fence would tumble about as soon as the stone, on account of the stakes rotting off; and they of course would have to stick out in the way when stuck 2½ or 3 ft. each side of the wall.

In some parts of the country you may see considerable fence made of posts, boards, and stone, or perhaps rails instead of boards; but the wind operating on the upper part, would soon jam the stone a little too much to make them lay well, and the posts would rot off before a great while; so that the two kinds of fence above mentioned have found but few advocates among us. Give us none of your half fence; we want a whole fence; so good that it will not be learning the cattle to jump, and will last a spell.

Finish your wall when you begin it, and make it 5 ft. high; and in ground that is wet and liable to heave, do not begrudge a ditch, and make a free use of sticks.

Whole wall seems to take but little more stone than half, where it is as narrow at the bottom as it ought to be; our best wall layers say from 2 ft. to 2½. Wall almost always

bulges out at the side, when it falls down; and when it is wide at the bottom, it bulges a great deal worse than when it is not, every one knows, that knows much about stone fence; therefore we think if it is as narrow at the bottom as we can well lay it, it will stand the better. Convenience of laying requires more than 2 ft., but otherwise I do not know what objection can be raised against having it that width: we have tried it so narrow considerable. Then make it 5 ft. high, and without your sheep are smarter than mine they cannot climb over it.

Sticks are of great use in a wall. Get wood that will split well, be durable and soft; or almost any kind will answer; split the sticks ½ an inch or an inch thick, and 2 or 3 wide, and have them nearly as long as the width of the wall where they are used. Mr. Rice of Hannibal, a man to whom no little credit is due for improvements in wall laying had some wall that was laid with sticks 8 years ago, taken down, and after taking down a foot and a half, from the top, the sticks resembled lumber seasoned under shelter, all of the way except the ends of the sticks. I have taken down wall after a rain and most of the inside was not wet at all by it. Mr. Rice was of opinion that basswood would last 50 years. The sticks should not stick out quite so far as the stone, or they will be likely to catch water, and carry it on to the middle. They are not needed at the top, where the stones reach across occasionally.

But with the truest proportions, and a liberal use of sticks, the stones will not keep their place on ground that heaves much Dig a ditch at least 8 in. deep, and fill with small stone. For such a wall as I have been describing, the ditch ought to be about 3 feet wide, & care taken to have it straight, so that the wall will not be on the edge, and especially off the edge, in any place. If the ground is hard to dig, and you can plow a straight furrow, back furrow, but do not plow too wide. If the ground digs easy, a line, a few stakes, a shovel and peck, and a good digger, will operate to as good advantage as any thing, I guess. In filling do not put large stones in the side of it.

If the ground is dry and, not inclined to swell and shrink much, by freezing and thawing, and especially if you build your walls north and south, a ditch would be of little or no benefit; but it almost makes "all odds" on wet ground.

If you have round and flat, small and large stone, take some pains to have the kinds mixed together; especially have plenty of small ones to fill into the middle of the wall.

And no good wall layer needs to be told to have the coarse and fine, round and flat, long and short stone judiciously mixed and have the wall as well bound as may be. It wants some of the best stone on top, those that are coarse and will reach across; on account of making the wall firm, and staying on good.—*Albany Cultivator.*

Horticultural Phenomenon.—A pear tree, which is known to be at least eighty years old, and which for a many years bore a considerable quantity of fruit, of the jargonelle kind, ceased to be productive on being surrounded by high walls, which were from time to time built near it, until it was almost entirely excluded from the current of air which seemed necessary for its preservation in health. At the usual period in this season it threw on its leaves, and even became more prolific than usual for some time past, by the production of *two* pears. Three weeks ago its leaves began to decay, and its branches in a short time became denuded. Ten days ago it was observed to have fresh green buds bursting forth from the bare twigs, and, strange to say, it is now in full blossom, showing large clusters of bloom, that would have been worthy of admiration in its best days. This extraordinary tree is in a garden belonging to a lady in Duke street, in this town, and is inclosed in the building between that and Seel street.—*English Paper.*

SMALL FARMS.

If it were not for the irresistible desire of cultivating large fields, a system might be commenced, the benefits of which would soon be acknowledged by every farmer; a small amount of land well cultivated will make a poor man thrive—a large tract neglected will bring a wealthy man to poverty. If a man can obtain from one acre more than he usually obtains from five, the renovating system ought not to be delayed a day. When hay turns out less than half a ton to the acre, the labor and expense of getting the same will be double that of getting it when the produce is two tons. Fifty loads of manure to the acre will raise the produce to our hay land—worn out to the half-ton standard—up to the value of two tons for five years; and half that quantity for the succeeding five years, will keep the land up to that point. In the one case the land produces without manure five tons of hay; the expense of fencing, taking care of the land, and cutting and curing the hay, will amount to three-fourths of the value of the produce—so if the hay be worth $12 a ton, the annual income of the land will be $15 only; but in the other case seventy-five loads of manure will give twenty tons of hay per annum, worth $240, on land which on the exhausting system gave $60 only; leaving, at the end of ten years, more than the difference of the value of the land itself, with the satisfaction to the proprietor, worth as much more, of witnessing good crops, where only wretched ones grew before.—*Western Farmer.*

To Cure a Burn.—Take a spoonful of lard, half a spoonful of spirits of turpentine, and a piece of rosin as big as a hickory nut, and simmer them together until melted It makes a salve, which, when cold, may be applied to a linen cloth and laid over the burn. If immediately wanted, spread it on a cloth as soon as melted—it will very soon cool. I have seen it applied after corroding effects of chemical poison, after a foot has been burnt by boiling sugar, after severe scalds, and in every case the sufferer obtained perfect ease in ten or fifteen minutes after it was applied. It may be applied two or three times a day, or as the cloth becomes dry.

To make Wood Incombustible.—Take a quantity of water, proportioned to the surface of the wood you may wish to cover, and add to it as much potash as can be dissolved therein. When the water will dissolve no more potash, stir into the solution, first, a quantity of flour paste of the consistency of common painters' size; second, a sufficient quantity of pure clay to render it of the consistency of cream.

When the clay is well mixed, apply the preparation as heretofore directed to the wood; it will secure it from the action of both fire and rain. In a most violent fire, wood thus saturated may be carbonated, but it will not blaze.

If desirable, a more agreeable color can be given to the preparation, by adding a small quantity of red or yellow ochre.

A good coat of it applied to the floor under stoves, would be an excellent precaution.

The Meteors.—On the very interesting subject which has of late occupied so much of public attention, both in Europe and America, the periodical return of the meteors in August and November, we have been favored with the following communication from Sir John Herschell:—"To the Editor of the *Athenæum.*—Sir, the bright moonlight of the 9th inst. having prevented my obtaining satisfactory observations of the meteors, to whose periodicial return on the 9th and 10th of this month Professer Quetelet has drawn much attention, as being more regular than the displays of the 12th and 13th of November, allow me, in place of observations for the current year, to offer as my contribution to our stock of knowledge on the subject the following incidental mention of such an occurrence, in Sir W. Hamilton's account of the great eruption of Vesuvius in August 1799, printed in the *Transactions of the Royal Society*, volume 70, which will be read with the more interest, the periodical nature of the phenomena being then unknown, and its occurrence being ascribed to him by some local electrical agency developed by the volcanic ejections. 'August 9, 1799,' after describing the phenomena of the eruption during the day till seven o'clock at night, 'when all was calm,' Sir W. Hamilton goes on to say, 'it was universally remarked, that the air for many hours after the eruption, was filled with meteors, such as are vulgarly called falling stars. They shot generally in a horrizontal direction, leaving a luminous train behind them, but which quickly disappeared. The night was remarkably fine, starlight and without a cloud. This kind of electrical fire seemed to be harmless, and never to reach the ground, whereas that with which the black volcanic cloud of last night was pregnant, appeared mischievous, like that which attends a severe thunder storm.' The meteors of August 9, 1840, in so far as I observed them, radiated almost without exception from a point in the heavens very near the star Gamma, in the constellation Perseus; which is almost coincident with the point (near the star B Cameleopardali) from which I observed them to emanate on the 10th August, 1839. Facts of this nature appear almost decisive in favor of the opinion that a zone or zones of these bodies revolve about the sun, and are intersected by the earth in its annual revolution.—I have the honor, &c.—J. F. W. Herschell.—Collingwood, Aug. 15, 1841."

A Brilliant Bedstead.—The Emperor of Russia recently sent to the Shah of Persia, a bedstead made entirely of chrystal, worked in imitation of large diamonds, incrusted in a solid frame. On each side there are spouts made to eject scented water, which, by its murmurings, invites to sleep. It is crowned by a large chandelier, which spreads light in such a manner over itself, and the rest of the frame, as to give to the whole the splendid appearance of a million of diamonds reflecting their brilliancy at once.

A new mode of communication at sea by a trumpet called the telephonic, or far-sounding system, invented by M. Sudre, instead of the ordinary system of signals, has recently been tried by the squadron of Admiral Hugon, and found to answer completely. The sound may, it is said, be heard distinctly in favourable weather, a distance of 2,200 toises—about two and a half English miles.

Wonderful Sagacity of a Horse.—A very singular circumstance occurred on a farm at Buchanty, six miles from Crieff. A wild bull going at large in a park there, along with a number of cows, one day lately attacked the herd boy, and heaved him by his horns over his head; the boy fell to the ground and when lying, the bull was about to make a second attack upon him, when a horse, which was grazing near by at the time, and seeing the murderous intention of the bull, galloped forward, and turning himself round, struck the bull two severe blows upon his side with his hind feet, which rendered him almost lifeless. By this interposition of the horse, the boy was enabled so far to recover himself as to make his escape.—*Stirling Observer.*

FARM HOUSES.

We think there are few points of husbandry in the effect of bad management and want of calculation, so generally apparent among farmers, as in the position, arrangement, and construction of their dwelling houses. Comfort and utility is too often sacrificed to show and beauty of design, and neatness of execution ove looked, where they ought to be most apparent. There can be as much good taste shown in the selection of a position, and in the construction of a farm house, as in that of a palace, and there can be no good reason why it should not here be exercised.

The position of a farm house is of great consequence, and should be determined with particular reference to conveniences, salubrity, and appearance. The whole ground should be examined before the choice is made. The facilities of procuring fuel; of securing a plentiful supply of good water; of having an easily accessible means of ingress and egress to and from the premises; of the manner in which the productions of the farm must be moved, such as hay and grain, and the manure returned to the fields; all these things must be well looked at before the place for the farm building is fixed upon.—It would be obviously improper to build on the highest part of a farm, or on some distant corner, because such spot was on the most public road, since a farmer's travel is mostly on his farm, and a judicious selection of a site for his buildings, may, in a few years, save him hundreds, if not thousands, of miles of travel. If he has occasion to leave his farm twice or three times a week, he had much better travel over the distance of half or three-fourths of a mile that number of times to the main thoroughfare, than by building on one side or corner of his farm, be compelled to do it many times daily.—But some will say, if we do not build on the road, how will our friends find us? Let no one give himself uneasiness on this point.—The man who has friends will be found by them; and sometimes by being a little out of the way, he will be saved the interruptions caused by what the idle, and those who are obliged to devise some method of killing time, denominate calls of friendship. A shrewd old farmer, one of the best hearted men, as well as one of the most accurate observers of human nature we have ever known, selected the position of his farm building at a considerable distance from the main thoroughfare. His friends objected to the singularity of his choice, as there were places equally favorable, and more accessible. "When a man builds his house in the road, as almost every one does," said our friend, "he must expect to be run over by those who have nothing else to do but to run over other people; if, on the contrary, he puts himself out of the way, the crowd pronounces him a singular man, an eccentric genius, or something of the kind, and as the mass are usually afraid of an uncommon man, they pass him by on the other side."

Salubrity is a point not to be overlooked or hazarded in the choice of a place for the farm buildings. Never allow any consideration to draw you into a swamp or the vicinity of one, where the sun of an American summer is sure to engender in some form the seeds of disease, if not of death. A dry soil, free ventilation, and the absence of all sources of malaria, are indispensable conditions to the robust health the farmer requires. We know of some who have voluntarily subjected themselves to dangers of this kind, under the idea that diseases of this class will wear themselves out. To such we recommend the case of a middle aged woman, found by a friend of ours in a log-cabin on the banks of the Des Plaines, in Illinois. She was suffering under a fit of the ague, and when told to be of good courage, as the fever and ague was a disease that would wear out, she replied, "She believed, as that was the fourteenth summer she had had it regularly, and she thought it was not quite as severe as at first."

Those, then, who are yet to erect their farm buildings will, in selecting the position, do well to consider their course of cultivation, the crops they will be most likely to grow, their comparative bulk and ease of removal, the distribution of their manure, the requisites of convenient location and health, and the capabilities of the place for the display of correct taste, before the die is cast, since so much of the value of a farm and the pleasure and profit of cultivation is depending on these things.

Another point of very great importance is the plan of the buildings, and the materials of which they are to be constructed. In a house that is well arranged, where the apartments bear a proper proportion and position to each other, where the whole is skillfully constructed with reference to comfort and ease of labor, every housewife knows the advantages that are gained in the saving of work, and in the economy of time. The houses of our farmers are like their farms, usually very much too large. Where a house is so constructed that no room is wasted, a building of very moderate dimension will furnish ample accommodations for a respectable family; much better, indeed, than half our ill-arranged, half-finished huge "shingle-palaces," as our English friends term our dwellings, can offer. In building houses, comfort in the resident, and ease to the laborer, male or female, is too much disregarded. Great houses, large and high rooms, vast fire places, and abundance of light, seems to be the great requisites. When the cost of rendering a large and a long room comfortable; of furnishing or finishing them so as to cause the execution to correspond with the design; and the little possible use the farmer's family can have for so much room in a dwelling, is considered, we think a more rational style of building should be adopted.—But whatever may be the size of the farm house determined upon, the materials used and the execution should be such as to ensure permanence and durability. It may and will cost more in the first place to build well than ill; to use first rate materials than defective or worthless ones; to have the work done in the best manner, rather than half done; but the costly building will be the cheapest in the end. When finished, it is finished for a life, or perhaps half a dozen, and its repairs will cost but a mere trifle, while the cheap house will absorb from five to ten per cent of its first cost annually in repairs, and finally require rebuilding, while the other is only in its prime.

Stone or brick is the best material for building in this country; as in such houses the great conditions of durability, and an equality of temperature, are best attained.—Brick or stone houses, however, require dry and well ventilated cellars, and the plastering of the rooms should not be laid immediately on the walls, otherwise they are apt to acquire humidity, and operate unfavorably on health. When proper precautions in these respects are taken, such dwellings are unobjectionable, and their durability, the ease with which they can be kept at a proper temperature for comfort and health, by heat in the winter, and the circulation of air in the summer, render them preferable to others. The additional fuel required in the common wood farm house, over that necessary in one of stone or brick will, in a few years, balance the difference in the expense of materials, independent of the pleasure and comfort derived from the avoidance of sudden transitions from a high to a low temperature, or vice versa, and its general effect on the health.

In the construction and arrangement of our dwellings, particular attention should be paid to the economization of fuel. There are few farmers in the United States that do not find their fuel cost more than their bread. The annual expenditure might be lessened one-half or two-thirds by care in building, and the adoption of the improved method of warming houses by heated air, of which illustrations were given in the last volume of the cultivator. That little extra cost at first, which prevents the necessity of a constant expenditure hereafter, is, to the farmer, the strictest economy; and that method of building which shall secure a desirable temperature at nearly all seasons, certainly should have the preference. Nowhere is the good effect of system, and a well digested plan of operations more conspicuous than in the construction and arrangement of the farm buildings. Order and judgment here exert their full influence, and in a great degree stamp the character and the mind of the man. The most slovenly are not insensible to the value of neatness, and the farmer whose buildings are inconvenient, ill-constructed, disorderly, dilapidated, and without taste or design, cannot help a feeling of respect for the man whose domicile exhibits an appearance the reverse of all this. Let the farmer then build well, build for durability, build for comfort and utility, and not for ostentation or show, and he will find his reward.

PLANTING LIVE FENCES.

When land is to be divided or enclosed for fruit gardens or orchards, it may be effected by planting live fences of different varieties of woody plants; but those of a dwarf thorny nature are found to answer the best purpose in most cases, being more proper to guard against cattle and other intruders than those without armature.

The plants used for such purpose, are those varieties which are found to thrive well in different parts of the states, and if natives the better, being more hardy and better able to withstand the changes natural to the climate. The European hawthorn is perhaps the best plant for this purpose, although it does not answer equally well in all parts of the country. In the New England States particularly, this plant is liable to be destroyed by mildew and the borer, but in the state of New York it does much better. The buckthorn, or *Rhamnus catharticus* of Linnæus, is now much planted in New England, and answers the purpose admirably well. To this may be added the *Shepardia eleagnoides* (of Nuttal) or Buffalo tree, which I am inclined to think, when it has had a more general trial, will supersede anything that has hitherto been introduced for the purpose. The locust, white mulberry, sweetbrier, beach, and many varieties which have been cultivated for other uses, may be added to the list; but, as my object is to give directions regarding live fences to enclose orchards, &c. I shall proceed to treat on that subject.

Sowing the seeds of plants for live fences.—The seeds of different varieties of plants for live fences are generally sown in nursery rows eighteen inches wide and two feet between the rows, or they are sometimes sown in four feet beds with eighteen inch or two feet alleys. The autumn is the proper season for sowing, or so soon as the seed is ripe. Such seeds as have a hard covering, as the locust, should have their outer covering softened by boiling water being poured upon it, as the seed will not vegetate unless its covering is so softened as to admit air and moisture to it.

Planting the Fence.—When the young plants are only one or two years in the nursery rows, they will be fit for planting. The ground intended to be planted should be previously prepared for it, by cleaning it well, and working in a quantity of good rotten manure. The planting may be performed by stretching a garden line where the location of the fence is designed; the plants may then be inserted in a single row six inches apart, by the spade or dibble; but the former I would recommend. The work is done by placing the spade parallel with the line, and pressing it down with

the foot and hand to the depth required for the plant, when it is to be drawn three or four inches forward, to admit the plant to be put in at the cavity at the back of the spade, which is to be taken out and the earth closed to the plant by the right foot. Two persons are required to perform the work, one to use the spade and one to insert the plants.

The plants will require to be kept clean during the summer with the hoe, and the following spring a sprinkling of well rotted manure may be spread by the sides of the rows and neatly dug in with a spade. The next year the management is the same as regards keeping clean, &c. The third season the plants may be headed down to two or three buds or eyes, and the ground well worked and kept clean, indeed your live fences of this kind should always be kept in the best of order. The fourth year the plants may be headed down to within six inches of the root, and the sides cut thin, so as to form a hedge of a narrow roof-like appearance, or, to give a more definite idea, like the mane of a horse.

Training, or after-management.—When the plants are of a proper strength they are to be pruned or brushed once or twice a year—in the fall and spring, after the young shoots have made about six inches of wood. The hedge should be kept as thin as possible on the top, tapering from the bottom, which should be kept thick and above two feet and a half through. It should be increased to six feet in height which will be sufficient in most cases, but where it is required to be higher, it may be gradually allowed to attain a greater height. Keeping it clean and a regular management the first few years, is the principal object that must be attended to.

FEEDING HAY TO SHEEP.

I am located in a very hilly country, and of course my system of farming is various, but my intention is ultimately to confine myself to raising fine wool. I have tried many ways of feeding sheep hay. I have spread it on the ground, which I consider the most slovenly and wasteful. I have fed in board boxes, on racks made about 2½ feet wide and from 12 to 16 feet long, with a roof to keep the hay dry; they are made of boards about 1 ft. or 15 inches wide, nailed on 4 inch scantlings in each corner; the bottom board to stand on the ground; the next course to be nailed on 8 inches above, leaving that space all around the box for the sheep to put their heads through to the hay; but they will waste considerable hay fed in this way, if they are fed all they will eat. For the last two winters I have let my sheep run to the stacks, which may appear to be very wasteful and slovenly in theory, but I do not find it so in practice, owing to the manner in which I build my stacks. In the first place I take a pole about 5 inches diameter at the butt and about 3 at the top; blue ash is the best. I set this about 2½ feet in the ground and stamp the dirt firm around it; let it be long enough to project about 3 feet above the top of the stack, for convenience of the stacker in topping off: then take four blocks about 18 inches in diameter, place them around the pole, and on those blocks build a rail pen only 3 rails high; cover the ground with rails about 6 or 8 inches apart to keep the hay off the ground, and in this pen and around the pole, build the stack in the usual way. I generally put from 2½ to 3 tons in a stack; the sheep will eat out the hay under the rails clear into the pole, and the stack will settle down the pole, the bottom resting on the rail pen, until the sheep will eat it all up, with but little waste. Such has been my practice for two winters past, and I have this summer stacked all my hay intended for sheep in this manner. My sheep are Saxony and grade sheep, and I have about 750. I have tried various lengths for the blocks to build the pens on, and find about 18 to 20 inches the most suitable length; large sheep would need higher blocks.

It is now admitted among all intelligent farmers that there can be no profitable farming, without giving to the earth in proportion to the crop we hope to receive. How this can be done by interior farmers is the great desideratum in agriculture. They have no large cities to resort to for manure—the exhausting process will run out all concerned in it; and unless some substitute for animal manure can be found, the condition of farms in the country must deteriorate. We believe the day is not distant when all farmers, by the aid of chemistry applied to agriculture—may make a compost from the resources of their farms that shall be fully equal to animal manures.

We think it now pretty evident from the most exact and careful experiments, both in this country and Europe, that different material may be combined in compost, which may be equal in their nutritious proprieties to pure manure. Of this we propose to speak at large hereafter as soon as we shall have had time to put our house in order.

The Merrimac Manufacturing Company at Lowell, till very lately have kept a large stable of cows for the sole purpose of their manure to be used at some stage in the process of drying—but a distinguished chemist in their employ by analyzing this manure, has made a compound of other materials, on chemical principles, which possesses all the properties of this manure which is required in their business.

This chemistry can do to aid the farmer to obtain a substitute for pure animal manures, in scientific compost.

If farmers will but listen to the voice of science and encourage the efforts of scientific men, she will ere long be as powerful in their behalf, as she is to aid the mechanic or manufacturer.—*Boston Cultivator.*

Extract from an Address of the Hon. Chilton Allen, President of the State Agricultural Society of Kentucky.

"But the great disadvantage under which American agriculture has had to labor, is the neglect of the government. When we have seen that the ancient Egyptian, Assyrian, Persian, Phœnician, Jew, Chinese, and the inhabitants of ancient India, became great and prosperous by bringing the power of government and religion in aid of individual industry in cultivating the earth: when we have seen that all the modern governments of Europe have discovered and are now practising upon this ancient principle of national improvement, is it not astonishing that our National and State governments are the only ones in the world that give no direct assistance to tillage? Our surprise is increased when we read the following words from the last message of President Washington to Congress:

"It will not be doubted that with reference either to individual or national welfare, agriculture is of primary importance in proportion as the nations advance in population and other circumstances of maturity; this truth becomes more apparent and renders the *cultivation of the soil more and more an object* of public patronage.

"Institutions for promoting it grow up, *supported by the public purse;* and to what object can it be *dedicated* with greater *propriety?* Among the means which have been employed to this end, none have been attended with greater sucess than the *establishment of boards* composed of proper characters, charged with collecting and diffusing information, enabled by premiums and small pecuniary aids to encourage and assist a spirit of discovery and improvement.

"This species of establishment contribute doubly to the increase of improvement by stimulating enterprise and experiment, and by drawing to a common centre the results every where of individual skill and observation and spreading them thence over the whole nation. Experience accordingly has shown that they are cheap instruments of immense National benefits."

What wizard spell—what fatal darkness has blinded the eyes of our public councils so long to the great agency of human prosperity, and to the parting council of the father of his country?

Why in the name of the experience of the world are manufactures and commerce more entitled to governmental protection than agriculture? While it is true, that seven-eights of our population live by agriculture, is it not strange, passing strange that, in a country possessing free institutions, it is also true that, from the foundation of our government up to this time, there cannot be found either in the statutes of the the State, or the Nation the word AGRICULTURE; while it is true that the National code from 1789 to 1836 is replete with provisions for the protection of manufactures; while it is true that commerce in every place on the globe is under the shield of National power, is it not strange, that it is also true, that there never has been appropriated, either from your National or State treasury, one dollar for the direct encouragement of the *art of husbandry.*

The question of domestic manufactures has occupied the widest space in the public attention. Behold the power of commerce! From 1816 to 1836, for repairs and increase of the navy we have expended $22,000,000; during the same period the whole naval establishment cost $66,000,000. At this expense, our nation, very properly, has made the stars and stripes wave over every ocean and upon every sea, for the protection of our commerce.

Reference to a single recent historical fact will illustrate the ascendant power which commerce has acquired over the councils of our country, and the sleepless vigilance with which it is guarded in the most remote parts of the earth, in the year 1831, the merchant vessel Friendship from Salem, was captured and plundered on the pepper coast of the island of Sumatra. After the capture of Friendship, Capt. Endicot, her commander, told the islanders that he belonged to a great nation on the other side of the globe, that would, before the end of twelve months, send a big ship to punish the outrage that had been committed upon him. They laughed at the idea of the existence anb power of the United States. The news of the capture of the Friendship was brought to our government. The powerful ship Potomac happened just at that time to be ready for sea, and she was forthwith despatched to avenge the outrage which had been committed upon the commerce of the United States. Time rolled on; the 12th months had nearly elapsed; the 13th moon was nearly at hand, in two days more the pirates would hail the anniversary of the capture of the Friendship. All but a very few were deriding the idea of the threatened visitation of the big ship; yet they could not dismiss the ominious threat from their minds. On the morning of the 17th February, 1832, just forty-eight hours before the expiration of the twelve months, the sun rose on Sumatra; and behold! there stood, sure enough, the terrible big ship! They saw, in the stars and stripes, as they floated on the breeze, the fate of the pirate and the murderer. Their forts were stormed, and their town laid in ashes; and such a terrible impression made of the power and justice of the United States, that, since that time, the smallest American vessel can float in safety in these remote piratical seas.

Thus, it was to protect an inconsiderable branch of our commerce, upon the opposite side of the world, that a national ship circumnavigated the globe, in a voyage of four years, doubling the Cape of Good Hope in going out, and that of Cape Horn in coming in, at the cost of probability a millon of dollars. If the national mind, if the national resources, could be brought to bear thus directly on agriculture, what glorious results would follow!—The expenses of this single expedition would have established an agricultural college, with

an experimental farm, in each of the States, and made educated practical farmers of thousands of poor orphans.

But why has it happened, here in a free land, where farmers constitute seven-eights of the whole population, that the arts and commerce have been able to monopolize the resources and legislation of the country, while not one hour is even devoted, by our public functionaries, to the consideration of agriculture? These are the reasons;—Those devoted to manufactures and commerce have been able, from their concentrated position, to act together in organized concert; and concert has enabled them to bring into their service the public press and public men. They have been able to bring to bear upon public opinion all the means of popular instruction; while those devoted to agriculture have been dispersed over the continent, from Maine to Louisiana, and from the Atlantic to the far west, each man in comparative solitude, relying upon his individual efforts, without the means of communicating with his brethren of the same class. Having no union, this mighty, unembodied, disorganized interest, acted not at all upon the public councils. But the spirit of the age will overcome this difficulty. Most of the States have already made agriculture the subject of legislation; Societies are every where springing up; public journals, devoted to the art of husbandry, are multiplying; able men, in all parts of the Union, are addressing the people in their primary assemblies; light is shed abroad among the farmers, and the time has arrived when those who pay nine-tenths of the public revenue will claim the right to be heard in our public council.

It will be impossible, in a free land, for the stupid and absurd notion, that the seven-eights of the people, devoted to the cultivation of the earth, should remain ignorant, while education is mainly received for those devoted to the learned professions. It will be impossible, where the ballot box is in the hands of the farmers, of the emoluments and honors of the government much longer to be concentrated in the hands of other professions. It will be impossible, in a free land, for those who pay nine-tenths of the public revenue, to remain much longer quiet, and see annual thousands squandered in local and trivial legislation, while the great basis on which stands the public prosperity, is wholly neglected.

There is but one thing needful to make agriculture in Kentucky the surest road both to wealth and fame; and that is, to raise the standard of education among the farmers.—When this is done, our educated young men will not at all crowd the learned professions, but will soon find that the occupation of a farmer is more sure than any other to lead to competency and honorable distinction. Whenever the opinion shall prevail that the cultivation of the earth gives greater scope for the exercise of a highly cultivated mind than any occupation in the world, the landed interest will learn its power. It will have its statesmen and orators every where in primary assemblies, and in legislative halls, to defend and protect its interests. The vast elemental power of agriculture will then be brought out of that chaos in which it has been so long buried, and shaped into system.

Behold the millions of minute streamlets, issuing from the sponges of the Alleghany and Rocky mountains, without any apparent connection! Yet, by and by, they form themselves into a thousand noble streams, and these thousand unite their mighty volumes of water in the Father of Rivers, who pours his resistless floods into the Ocean! So shall the scattered and apparently disconnected interests of the farmers, from the Atlantic to the far west, and from the great Lakes to the great Gulf, be formed into a union that will rightfully and safely control the destinies of America, and perhaps of the world.

This enlightened interest will not seek, in the least, to depress the favor which manufactures and commerce have in the government, but to place their mother, agriculture, one step above them. Then agricultural colleges, experimental farms, geological surveys, reports on productive industry, and premiums for new and improved implements, will occupy the time of Congress and the State Legislature.

We have seen that the eminent statesmen of antiquity made agricultural the chief care of their governments. We have seen that all the modern nations of Europe lie in poverty and ignorance, and despotism, until they discovered that God had connected the virtue, and intelligence, and prosperity of mankind, with the cultivation of the earth; until they discovered that the power and resources of the government must act directly on the subject.

The industry and finances of France were in a wretched condition, the nation in poverty and ignorance, until that country happened to have a great King and a great Minister. They saw what was the matter. Henry IV. and Sully applied the remedy; they applied the funds of the government to raise agriculture; and by stimulating a single branch of industry, they raised France to opulence. They gave bounties for raw silk, and for rearing mulberry trees. The result is, that besides the supply for her own vast consumption, she annually exports $25,000,000 worth of silk. Thus, by the application of a small premium, which no one felt, the prospects of France were changed. The silk culture gave an easy and pleasant employment to millions of indigent people, and created a vast home market for all the products of agriculture, and changed the habits of the people from indolence to activity.

It is now agreed that America is better adapted to the culture of silk than Europe or Asia; and it is perfectly certain that judicious legislation would introduce it into these States, to the saving of the drain of $20,000,000 of specie, which we annually send to the East for that article. In our own time, and within our own observation, the industry, finances, and powers of the world have been revolutionized by the culture of a single plant, (cotton.) Russia was unknown among the civilized nations, until the government of that country, by bounties, induced agriculturalists from other nations to settle in their dominions. In 1783 Catherine II. established schools, and as early as 1793, Russia became an exporter of grain to the amount of millions of bushels. There are now Americans in Russia conducting farming operations on a large scale. Before the power of the Russian Government was brought in aid of individual industry, in the promotion of agriculture, there were but a few fishermen's huts on the Neva, where now stands the most splendid capital in the world.

GRASSES.

1. I have found in our publications on agriculture, very little information on the improvement of our meadow and pasture grounds. Indeed, the names of our native grasses are scarcely enumerated, much less are their habits described, or their relative merits for hay and pasture pointed out, in any American work which has fallen within my notice. A considerable portion of our land is unsuitable for the system of convertible husbandry, that is, an alternation of grain and grass crops.

2. Of this description are our stiff clays, marshes, and swamps, and all of those lands in which tillage is rendered difficult by reason of hardpan, stones, or wetness. These should be improved as permanent meadows and pastures; and it is of the first importance to the farmer to know the grasses which will render them most conducive to profit; for that our grass grounds are as susceptible of improvement as our tillage grounds, by a suitable selection of seeds, and suitable management, must be apparent to every reflecting mind. The improvement and productiveness of our cattle and sheep husbandry, which at this time deservedly engage much of the public attention, depend materially on this branch of farming.

3. *Sweet scented Vernal Grass.* This is a grass of diminutive growth, and is not worth cultivating for hay. It is nevertheless considered as valuable in pasture, on account of it affording very early feed, and growing quick after being cropped. Its proper situation is *high*, well-drained meadows. It constitutes, in such meadows, in Massachusetts at least, one half of the whole crop. Its chief fault is that it is too early for the other grasses, but it affords a second and even a third crop if cut early. It is the grass which gives the finest flavour, so grateful to milch cows.

4. *Meadow Foxtail* possesses all the advantages of early growth with the preceding, and is much more abundant in product and nutriment. It generally constitutes one of five or six kinds which are sowed together, by the English farmers, for pasture; and affords withal a tolerable crop of hay. It does best in moist soils, whether loams, clays, or reclaimed bogs. Sheep and horses have a better relish for it, says Sir G. Sinclair, than oxen.

5. *Rough Cocksfoot.* Dr. Muhlenburgh and T. Cooper concur in opinion that this is the *orchard grass* of the United States, though some that I have raised as orchard grass does not seem to correspond with the figure of *dactylis glomerata* in the second volume of Dickson's Farmer's Companion. In England, cocksfoot is taking the place of rye grass with clovers. Arthur Young speaks in high commendation of it; though all writers concur in the opinion, that it should be frequently and closely cropped, either with the sythe or cattle, to reap the fully benefit of its great gerits.

6. I should prefer it to almost every other grass; and cows are very fond of it. Cooper rates it above timothy, and says it is gradually taking the place of the latter, among the best farmers about Philadelphia. This is probably owing to the fact that it is earlier than timothy, and of course more suitable to cut with clover for hay. Its growth is early and rapid, after it has been cropped. It does well on loams and sands, and grows well in shade.

7. If further facts are wanting in favour of this grass for pasture, the reader will find them in an article in the American Farmer of the 14th November, 1823, supposed to be Col. Powells, a gentleman who combines as much science with judicious practice, especially in cattle and grass husbandry, as any person in the Union. He says, "I have tried orchard grass for ten years. It produces more pasturage than any artificial grass I have seen in America." Sow two bushels of seed to an acre.

8. *Tall Oat Grass.* Both Arator (Mr. Taylor) and Dr. Muhlenburg have placed this at the head of their lists of grasses, which they have recommended to the attention of the American farmer. The latter says, it is of all others the earliest and best grass for green fodder and hay. The doctor was, probably, not apprized of its deficiency in nutritive matter, as indicated in the table.

9. It possesses the advantage of early, quick, and late growth, for which the cocksfoot is esteemed, tills well, and is admirably calculated for pasture grass. I measured some on the 20th of June, when in blossom, when it should be cut for hay, and found it four and a half feet long. The latter math is nearly equal in weight, and superior in nutritious matter, to the seed crop.

10. *Tall Fescue*, although a native grass, has not fallen under my personal observation. It stands highest, says Davy, according to the experiments of the Duke of Bed-

ford, of any grass, properly so called, as to the quantity of nutritive matter afforded by the whole crop, when cut at the time of flowering; and meadow catstail (timothy) grass affords most food, if cut at the time when the seed is ripe.

11. It grows naturally in wet grounds, in bog meadows, and on the side of ditches, often to the height of four or five feet. Our ignorance of agricultural botany, and of the intrinsic value of this grass, can alone have prevented its being more generally known and cultivated. It must be very valuable for wet grounds, as from its rapid growth it is calculated to smother or keep down the coarser kinds, which naturally abound in these situations.

12. *Rye Grass* is extensively cultivated in Scotland and the north of England; and where cocksfoot has not superseded it, is generally mixed with clover seeds. It is rather declining in public estimation. It does well in pasture; and as it contains much nutriment, is considered valuable for cows and sheep. Dickson says it does best in rich moist meadows. Young does not speak well of it.

13. *Red Clover.* There are many species of the *trifolium*, and several varieties of the red clover. Whether the kind we generally cultivate is the *pratense*, or not, I am unable to determine. The character of red clover as a meliorating fertilizing crop, is too generally known to require illustration. It cannot be depended upon for permanent grass lands; though it yields to no grass for alternating with grain, in convertible husbandry.

14. It formerly was as indispensable in a course of crops in Norfolk, England, (which has been pre-eminent for good tillage,) as turnips; and the maxim was, and still is, "No turnips, no crops." But it appears from Young's survey of that country, that it cannot now be depended on oftener than once in from eight to twelve years. Trefoil, white clover, cocksfoot, rye grass, &c., are therefore alternated with red clover in the grass years. There is reason to believe that neither red clover nor other grasses will bear repeating for a course of years upon the generality of the soils.

15. They must exhaust the ground of the peculiar nourishment required for their support. In Great Britain white clover, trefoil, rye-grass, or cocksfoot is generally sown with red clover seeds. From twenty to thirty pounds of seeds are sown to the acre. In the northern states, timothy is generally sown with clover, though the mixture is an improper one for hay; for the clover is fit for the scythe ten or fifteen days before the timothy has arrived to maturity. If sown alone, from eight to sixteen pounds of clover seed should be put on an acre; more on old land than on new.

16. *White or Dutch Clover (trifolium repense)* is considered in England of importance to husbandry, if we are to judge from the great quantity of seed which is there sown annually. With us, many districts produce it spontaneously; but it is too seldom sown. It shrinks greatly in drying, and does not contain as much nutritive matter as red clover; yet its value as a pasture grass is universally admitted. Its increase is very much facilitated by a top dressing of gypsum, lime, or ashes.

17. *Lucerne*, although affording much more green food, contains less nutriment in a single crop than red clover. It must, however, be borne in mind, that it grows much thicker than clover, and will bear cutting twice as often. In the soiling system, an acre of lucerne will keep four cattle or horses from the 15th of May to the 1st of October.

18. I sowed seed in 1821, at the rate of six pounds the acre, with barley. It has stood the winters well, much better than clover; and has been in a state of progressive improvement. Drought has not effected it.—The plants are very tender the first year, and require either a very clean tilth, or to be kept free from weeds and grass with a hoe the first year. It should have a deep loam, as it sends down tap roots five or six feet; and it is equally necessary that the ground should not be wet.

19. It may be sown either in drills or broadcast, with or without grain. Fifteen pounds of seed are required for the acre if drilled, and twenty are not too much if sown broadcast. To the proprietor of a dairy, an acre or two of lucerne would be valuable, to be fed to his cows in addition to ordinary pasture.

20. *Long rooted Clover* is a native of Hungary, and I do not think has ever found its way across the Atlantic. The root is biennial, and if sown in the fall, lasts only during the next season. It penetrates to a great depth in the ground, and consequently is but little affected by drought. It therefore requires a deep, dry soil.

21. The product of this grass, when compared to others that are allied to it in habit and place of growth, proves greatly superior. It affords twice the weight of grass, and more than double the nutritive matter that is given by the common clover. It gives abundance of seed; and, says G. Sinclair, if the ground be kept free of weeds, it sows itself, vegetates and grows rapidly, without covering in, or any operation whatever.

22. Four years it has propagated itself in this manner on the space of ground which it now occupies, and from which this statement of its comparative value is made. This species would, no doubt, prove a valuable acquisition to our husbandry, whether we consider its value for green food, hay, or as a green crop to be turned in preparatory to grain.

23. *Sain Foin* is peculiarly adapted to a calcareous or chalky soil. It is true, it is cultivated in Norfolk, England, which is a soil of sand and loam, naturally destitute of calcareous matter. But it is common there to dress their lands with clay marl, which abounds with carbonate of lime; without which dressing, says Young, Norfolk soils will not grow sain foin.

24. This writer considers it "one of the most valuable plants that were ever introduced into the agriculture of Great Britain."—The well-known Mr. Coke cultivates four hundred acres of this grass, and sows it without other seeds. Several attempts have been made to cultivate sain foin in this country, but hitherto, I believe, without success.

25. *Timothy.* This grass is distinguished in Great Britain by the name of *meadow catstail;* in New England by that of *herd's grass.* It is one of the most valuable grasses that are cultivated; and what is worth the notice of every farmer, it affords more than double the nutriment when cut in the seed that it does in the flower.

26. In tenacious, strong and moist soils, it is entitled to precedence, perhaps, over any single grass for hay, yet does not seem to be suitable to mix with clover seeds when intended for meadow. Another consideration, which renders it particularly worthy of attention, is the seed which it affords, and which may be saved without materially diminishing the hay crop.

27. *Fiorin* has of late years been brought into notice in Great Britain, by the experiments of Dr. Richardson, who particularly recommended it for the cold boggy soils of the mountain districts, where ordinary grasses would not thrive. The peculiar value of the fiorin, and of other grasses of the agrostis family, arises from their fitness for winter pasture; as they lose very little of their bulk or nutriment by remaining in the soil after they had ceased to grow. Its name (creeping bent or couch grass) implies a difficulty in mowing it, except on a surface perfectly smooth.—*To be continued.*

MAGGOT AND RED RUST IN WHEAT.—A correspondent of an English paper, under this head writes as follows—I have, during the last fifteen years, paid minute attention to the growth of the wheat plant; and by carefully observing it through all its stages, have endeavored to discover the reason of our having a deficiency in this the most valuable of all the productions of the English farmer; and I trust my labors have not been in vain. I shall in the first place confine myself to the cause of the maggot in wheat. When we experience through the spring months a long succession of easterly winds, it invariably follows that we are afflicted with a greater prevalence of blight and fly than is usual. This fly (which is exceedingly small, not larger than a flea) is the parent of the wheat maggot, and to explain fully its attack on the plant, it will be necessary for me to go through the different effects it produces on the ear. It commences by depositing its ova (which are considerable in number) before the ear has made its appearance out of the ribbon, and as soon as the ear gets fairly shot out, the state of the weather decides the fate of the eggs. If it continues moist or wet with occasional gleams of sunshine, the greater part of these eggs come to maturity and produce a small yellow maggot, which immediately commences its work of destruction upon the blossom; before it leaves the wheat shoots forth, the season is hot and dry, the eggs so deposited by cup, and afterwards upon the grain itself; thus causing a total failure wherever it has been able to secrete itself. If, on the other hand, when the fly cannot come to maturity, or at least very few of them—for in all seasons we have more or less of this destructive insect—their ravages are of very little importance, comparatively speaking, if we should have a prevalence of dry weather during the progress of the growth of the grain. I have conversed with many old farmers on the subject of red gum or red rust in wheat, and most of them assert that this disease does little or no injury to the crop; but in this I certainly differ much from them. I do not contend that this is quite so injurious to the grain as the maggot, for that totally destroys the corn, whereas red rust does not, but causes it to shrivel up, and not come to proper maturity, leaving only a half fed grain, producing bran and not flour. The red rust is produced by a moist atmosphere or too much rain immediately after the wheat has shed its blossom; wetness causes the cup to be closed and prevents the escape of the juice or perspiration of the grain, which in dry weather is evaporated by the wind and sun, and makes it become a glutinous substance which adheres to the grain and inner part of the cup; this eventually is a kind of powder or red rust, and produces the sad effects described above. The chaff of some kinds of wheat, and especially the white, being less porous than others, renders them more liable to this disease.

CAUTION TO FARMERS.—Mr. Honey, of Hollingbourne, having last week applied some arsenic and soft soap to the backs of his sheep and lambs, it was afterwards discovered that some mistake had been made as the relative proportions which should have been used, in consequence of which 119 died within two days.—*Dover Chronicle.*

TO PRESERVE OYSTERS FRESH.—Instead of packing them in the usual way, say with the deep shell undermost, pack them as they are taken off the beds, the flat shell undermost. By this method the shells will remain closed, and the fish feed on the liquor for at least three days longer. Those who will not believe let them try the experiment when the oysters are thrown on the beds; such is the instinct of the oyster so placed, that it invariably turns on the under shell.

PHYSICAL EDUCATION.

Hast thou daughters? Have a care of their body.
Ecclesiastics.

The inhabitants along the shore in the old Bay State, are becoming less robust and hardy than their fathers were. The present generation has less vigor and health than the last possessed. The causes are doubtless many—and not few of them are hidden.—But a hasty glance at society will disclose some departures of the present generation from the habits of the past age, which obviously tend to debilitate. The closeness of our dwellings, rendered desirable by the high prices of fuel, causes us to breathe a less pure atmosphere than pervaded the dwellings of the yeomanry in the times when the chimney corner would hold half a score of children; the extensive substitution of coffee and tea for milk, bean porridge and the like, have brought on a degree of feebleness;—the general use of fine wheaten flour instead of rye and Indian corn of former days has overloaded and weakened the digestive organs in many cases;—the fashion which excludes the *thick* shoe and boot, and exposes the foot to cold and wet, has helped to bring on many maladies;—the abandonment of wrestling and other games requiring great muscular efforts, (though perhaps the abandonment is wise,) may be a cause of the increase of feebleness. In short, less of hardship and more luxury in modes of living, have exerted their enervating influence upon our community for the last quarter of a century. And though we are still a vigorous, energetic and enterprising people; yet, as these characteristics are becoming less prominent, it is proper for us to enquire into the causes and help to stay their operations. We feel the duty incumbent, because we think that the intellectual, moral and religious character of individuals and nations, has a close and intimate connection with the health and strength of the body. The public good, (not its prosperity in money making merely)—the public good—in the highest, broadest, deepest sense of the terms—is closely interwoven with the general health and strength of the people. Therefore necessity is laid upon those who would be faithful public teachers, to discountenance all customs which tend to bring on general feebleness.

We commenced with a quotation from a wise man of olden times—"Hast thou daughters? Have a care of their body;" and it was our purpose to say distinctly, that the physical education of those who are to be the mothers of the next generation, is the first duty of parents; yes, we distinctly put this branch of education first; for while we would have habits of truth and obedience early formed, we are persuaded that these and other good habits are of much less worth to the world when found in one of feeble constitution, than when connected with a healthy frame, that has power to act out the promptings of the soul. *Make the child hardy;* and to do this, the food must be simple, the clothing loose and comfortable, and exposure to the weather in all its states, must be habitual. The dirt, the wet and cold into which the child will rush with delight, are all contributors to its health and energy of character. There is much *imprudent prudence* in keeping children within doors—much *cruel kindness* in keeping them from exposure—much weakening *poison* in the *healthful delicacies* furnished for their feeble digestive organs. Let kindness to your offspring be far-sighted. Let it remember that health is promoted by vigorous exercise and pure air. Let it not forget that winter's snows and summer's suns help to harden and strengthen the growing body.

Preserve the child from immoral habits and exercise little more restraint than is necessary for this, until the foundation of firm health is apparently well laid. There has been a tendency for a few years past to force the growth of the intellect in advance of physical growth; but this is a contravention of the course of nature, and must in many instances bring either death or debility. He who formed the mysterious connection between the body and the soul, has obviously designed that the growth of the former shall precede that of the latter; and any course which shall prematurely develope the mind and call it into highly vigorous exercise in early childhood, is necessarily attended with danger of destroying the body.

But we designed to speak particularly of the physical education of daughters. Let them be accustomed to regular and vigorous exercise, and that too in the open air.—It is becoming almost barbarous to send the girls to the milking stool and to the lighter work in the field. We are not without a share of the feeling on this subject which prevades this vicinity: and yet looking at the future and reasoning from the well known facts, the conclusion is irresistible that it would be better—far better—better for *them* & better for the next generation, that our daughters should engage in the out-door labors which their grandmothers performed. Then a fresher gloom would spread over their cheeks, and more healthful blood would flow in their veins. They would discharge their household duties with more despatch and less fatigue. Their spirits graduated by their health, would diffuse more life into the family circle—and the mind, sympathizing with the body, would be clearer in its perceptions, more prompt in its decisions, more efficient in all its operations.

Looking forward to the future, we see not how it is possible for any other than a feeble race to be produced from the pale faced girls, of compressed forms, that are growing up in both city and country. The subject is that of delicacy, but it is so closely connected with human welfare, that some obvious truths connected with it should not be suppressed. We say that the same laws by which, in brutes, the offspring partake of the characteristics of the parents, operate in the human species; and no female can expect to be the mother of a healthy family of children, who has not a firm robust constitution. The weaknesses produced by the stimulants, by unwholesome food, inactivity, impure air, tight lacing, thin shoes, or avoidance of vigorous exercise, will be transmitted to their children. The sins of the parents are visited upon the children for generations. These truths teach a lesson that should be heeded. Could the young of either sex but be made acquainted with the facts which we have witnessed, they would learn that the marriage relation often—very often results in a family of feeble and insufficient children, and this too in consequence of such weakness in the parents that should have deterred them from entering into the married state. For we hold it to be wrong for an intelligent being to be voluntarily instrumental in bringing others into existence, when the probability is strong that the children will inherit such weaknesses as will render them unhappy or burdensome to society.

This subject of physical education is more closely connected with human welfare than almost any other that can be agitated.—We have not discussed it; but the hints here given may cause some of our readers to make it a matter of serious and useful reflection. Should we but feel it a duty to disclose all our convictions relative to this subject; and could our advice be taken, many of the young of each sex would go down to their graves unwedded and childless, and this too, not oftener from any faults of their own, than from the faults of parents and of fashion, which have rendered them prematurely feeble.—*N. E. Farmer.*

Lazy rich girls make rich men poor, and industrious poor girls make poor men rich.

AN IMPORTANT DISCOVERY IN AGRICULTURE.

In the Phalange, a Fourier paper published at Paris, Sept. 8th, a novel discovery is described, which if true, will work a great change in an important department of agricultural labor. It is communicated to the Paris print, by Charles Pollard, and M. Bernard, who date their letter at Brest, August, 1841. It appears, that while they and some of their friends, who farm their own estates, were engaged in conversation on the subject of agriculture, it was observed by one of them, that that branch of industry was suffering more from the want of capital and enterprise, than any other, and that nothing was to be done without manure, which was every day becoming more scarce and expensive. This remark led to an inquiry into the properties of manure, and particularly as to what provision nature had made in those uncultivated regions where there seems to be a vigorous and luxurint growth, without artificial assistance.

"In observing nature unassisted, or unthwarted, rather by the hand of man, in vegetable reproduction, it is found that when the seed is ripe it falls upon the ground, and then the plant which has produced it sheds its leaves, or falls itself upon it, in decay, and covers and protects it from the weather, until generation has commenced, and the young plant is able to grow up in health and strength, and full developement, to recommence the same routine of seeding and reproduction.

"From this it follows that, in nature, every plant produces its own or *humus*, and that the earth only serves to bear the plant, and not to aid or nourish it in vegetation. The nourishment of plants is thus supposed to be derived from *air* and *water*, *heat* and *light*, or electricity, in different proportions, adapted to the different varieties of vegetable nature."

With this general notion in their minds, and considering wheat to be, in present circumstances, one of the most important vegetable substances, they agreed to try experiments, and in October last, undertook the following operations:—

In a field which had been sown with rye, because the land was deemed too poor for wheat, a plot of 12 square yards, untilled and left without manure, was carefully strewed over with the grains of wheat, and wheaten straw was laid upon it closely and about one inch in thickness. In a garden, also, which has been neglected several years, a few square yards of earth were trodden over, and the surface being made close and hard, some grains of wheat were scattered on this hardened surface, and a layer of straw one inch in depth, was carefully laid over it and left, as in the former case, to take its chance without ulterior attention. And, in order to make doubt impossible concerning the mere secondary functions of mineral earth in vegetable reproduction, 20 grains of wheat were sown upon the surface of a pane of glass and covered with some straw alone, as in the other case.

The germination of the seed was soon apparent and most healthy in developement.—"The winter has been rigorous," says these correspondents, "for this part of the country, and the earth has sometimes been frozen in one solid mass to a depth of six inches in the garden where the wheat was sown, and this has happened several times during the winter, to the great injury of many plants, and even the entire destruction of some, while the spots protected by the straw were never thoroughly congealed, nor were the grains of wheat, though lying on the surface under the straw, at all affected by the cold. During spring excessive droughts prolonged, and several times repeated, have prevented vegetation on the common plan from flourishing in healthy progress, while our little spots of wheat have hardly felt the inconvenience of excessive dryness, for the earth protected by the straw has never been deprived entirely of moisture, and our blades of corn were flourishing, when all round was drooping and uncertain. To conclude, then, we have thoroughly suc-

ceeded in our practical experiment, and the wheat produced is of the finest quality. The straw was more than six feet high, and in the ears were 59, 60 and even 80 grains of wheat of full developement, the admiration of all who saw them, and particularly those which grew upon the pane of glass, and which were quite as healthy and as large as those which grew upon the common earth. It must be observed also that there was not the smallest particle of earth upon the glass, and that the plants were left entirely to themselves, without being watered or attended to in any way whatever from the time of sowing to the time of reaping.

The cause of this sucess, they think, may be explained in the following manner:

"Straw being a bad conductor of heat, and a good conductor of electricity, maintains the root of the plant in a medium temperature, and prevents the earth from being deprived entirely of moisture. The moisture of the earth, or the substratum, being continual, facilitates the gradual and constant absorption of carbonic acid gas from the surrounding atmosphere, and hydrogen and carbon, the chief elements of nourishment to vegetables, are thus economized in regular supplies where they are constantly required, and pass into combination with oxygen from the roots up to the stems and branches of the plants in which they are assimilated, and the oxygen throws off in exhalation from the leaves. The straw decays but slowly, and thus furnishes its substance by degrees to the young plant in due progression and proportion, (such as the siliquous ingredient, for instance, of the pod or capsule) so that the decomposition of the straw corresponds to the four phases of fermentation, in progressing from the *saccharine* to the *alcholic*, the *acid* and the *putrid*, analogous to those of *infancy, budding youth*, and *seeding* of the plant.

"We observe that our blades of wheat have but a very few roots, and those are short and hard, something like a bird's claw; and this agrees with the remarks of Mons. Raspail, who states that the most healthy plants in ordinary vegetation have the least exuberance of roots and fibres.

"Another important observation, also, is, that weeds and parasitical vegetation are prevented by this method, for the straw chokes every other plant but that of its own seed. Many other interesting observations might be made on these experiments, but we refrain, at present, from obtruding on your readers; but if any of them wish for further information on the subject, we shall willingly afford them every facility. The importance of the general result will easily become apparent without further comment, and a revolution in the present modes of agricultural labor is a necessary consequence of this discovery. No tillage will now be required, nor any artificial stimulants in manure and other more or less expensive combinations with regard to soil and culture. In fact, it would be tedious to enumerate the various advantages that may result in practice from this casual experiment, and therefore, we proclaim it simply to the world that all may profit by it."

As this experiment can be easily tried, we hope some of our farmers will put it to the test, and communicate the result. We shall certainly try it on a small seven by nine lot of ground which is the largest that is vouchsafed to a dweller in the city.—*N. Y. Evening Post.*

SIGNS OF A POOR FARMER.

He grazes his mowing land late in the spring. Some of his cows are much past their prime. He neglects to keep the dung and ground from the sills of his building. He sows and plants his land till it is exhausted, before he thinks of manuring. He keeps too much stock, and many of them are unruly. He has a place for nothing, and nothing in its place. [illegible] he cannot

weather, or in an evening. You will often, perhaps, hear of his being in the bar-room, talking of hard times. Although he has been on a piece of land twenty years, ask him for grafted apples, and he will tell you he could not raise them for he never had any luck. His indolence and carelessness subject him to many accidents. He loses his cider for want of a hoop. His plough breaks in his hurry to put in his seed in season, because it was not housed; and in harvest, when he is at work on a distant part of his farm, the hogs break into his garden, for want of a small repair in his fence. He always feels in a hurry, yet in his busiest day he will stop and talk till he has wearied your patience. He is seldom neat in his person, and generally late at public worship. His children are late at school, and their books are torn and dirty. He has no enterprise, and is sure to have no money, or if he must have it, makes great sacrifices to raise it; and as he is slack in his payments, and buys altogether on credit, he purchases every thing at a dear rate. You will see the smoke come out of his chimney long after day-light in winter. His horse-stable is not daily cleansed, nor his horse curried. Boards, shingles and clap-boards, are to be seen off his buildings, month after month, without being replaced, and his windows are full of rags. He feeds his hogs and horses with the whole grain. If the lambs die, or the wool falls off the sheep, he does not think it is for want of care or food. He is generally a great borrower, and seldom returns the thing borrowed. He is a poor husband, a poor father, a poor citizen, and a poor Christian.—*Balt. Amer.*

FUNGOUS VEGETATION IN WINE CELLARS.—A very remarkable kind of fungous vegetation is known to make its appearance in wine cellars, the substance which supplies the growth being the vapor from the wine in the casks or bottles. If the cellar be airy and dry the vapor escapes, and no fungous vegetation is manifested, but if it be somewhat damp, and excluded from air and light, the fungous growth becomes at once apparent. Round every cork a mould-like vegetation will exhibit itself, and the vapor from the casks rising to the vaulted roof, will there afford nourishment to great festoons and waving banners of fungi. In the wine vaults of the London Docks this kind of vinous fungi hangs like dark wooly clouds from the roof, completely shrouding the brick arches from observation. On a small piece being torn off and applied to the flame of a candle, it burns like a piece of tinder. Should wine escape from a cask in a moist or ill ventilated cellar, it will altogether resolve itself into fungi of a substantial kind. A circumstance of this nature once came under the notice of Sir Joseph Banks. Having a cask of wine rather too sweet for immediate use, he ordered that it should be placed in a cellar to ripen. At the end of three years he directed his butler to ascertain the state of the wine; when, on attempting to open the cellar he could n effect it in consequence of some powerfu. stacle. The door was therefore cut down, when the cellar was found to be completely filled with a firm fungous vegetable production, so substantial as to require an axe for its removal. This appeared to have grown from, or to have been nourished by, the decomposed particles of the wine; the cask being empty and buoyed up to the ceiling, where it was supported by the surface of the fungus.

TOBACCO.—We congratulate our citizens upon the great accession to our resources just beginning to develope itself. Our readers generally, we presume, are not aware that tobacco is now grown to a considerable extent in Northern Illinois. This, we believe, is its second season. The counties of Winnebago and Ogle have the credit of adding tobacco to the other great staples of the Northern portion of the State. Large ville in the former county. Mr. Martin, lately of Alabama, now residing about two miles from Rockford, recently cut a leaf from one of his stalks measuring three feet in length by two in breadth. Most of the farmers in the above mentioned counties have engaged in the cultivation of this crop. From two to ten acres is the quantity of land appropriated by those who raise it to its culture. So far it has produced from one thousand five hundred to two thousand pounds to the acre. The nett profits on each acre are calculated at from seventy to one hundred dollars.—Much of the tobacco raised in these counties has been already harvested and is now drying under sheds which have been erected for that purpose. With regard to our soil as adapted to its cultivation, both are declared to be as suitable as any portion of the Union. It grows luxuriantly as may be readily inferred from the size of the leaf to which we have alluded. Southern men engaged in the cultivation of this tobacco say that our soil and climate are decidedly favorable to its growth. With regard to its quality it may be considered good, to say the least. Cigars have already been manufactured from it, and a friend of ours who is both a lover and judge of the weed says they are superior to the common American article. We anticipate with no small degree of pride the time when we shall add Tobacco to our "Chicago Market."—*Chicago American.*

ENGLISH COTTON SPINNER IN THE SOUTH OF FRANCE.—Amongst other scenes of interest in the neighborhood of Pau, I must not forget one of a very humble and unobtrusive nature. It was the residence of John Haydock, a 'canny' old Englishman, who had been a cotton spinner at Blackburn, in Lancashire; and who having established himself at Rouen during the peace of Amiens, has been a resident in France ever since. His business, it is said, answered sufficiently well for him at Rouen; but family considerations inducing him to leave that place, he bought a little property by the side of a beautiful stream at Jurancon, in the vain hope of establishing a cotton mill upon its banks. He is a most ingenious man, and an excellent mechanic; but there being no trade in this place, all his curious inventions, of which he has a great number, are of little use; and it is to be feared his circumstances are sinking rather low. He has, however, a comfortable cottage and a luxuriant garden, of which he is very proud. While watching his cheerful, honest English face, and listening to his Lancashire dialect, as pure as if he had left Blackburn but a week ago, it brought back to my memory a well remembered scene; and when he showed us his gooseberry bushes, here very rare, among his vines and peaches, and told us they bore a 'terrible sight of fruit,' I could hardly believe I was so far distant from some of the English cottage gardens which I had known in early life. The workshop of this ingenious man is a real curiosity. Amongst a variety of his own inventions and other specimens of art, he showed us some stamps of his own making for printing Spanish cards, by which he has obtained a trifling profit; and though a strange occupation for an English cotton spinner, it was evident from the elegance of their design, that the man was fitted for a higher fate than to dwindle out his days in poverty. His wife, who is a Roman Catholic, says that he keeps his bible hid on a shelf, lest it should be discovered by the priests; and that every Sunday afternoon he locks himself in his bedroom to read it. There is much in the situation of this man to render him interesting to the English residents at Pau. The walk to his dwelling occupies but half an hour, and its situation is one of the most picturesque in the neighborhood. It stands at the foot of a range of steep hills, whose sides are covered with vineyards, and on the banks of one of those fertilizing streams which supply the air with freshness and the earth with verdu[illegible].—*Summer and Winter*

THE ORIGIN OF THE MECHANIC ARTS.

When the first man was brought into being, for the ostensible purpose of *tilling the ground*, he was placed in a garden for the purpose of keeping and *dressing* it. We may suppose that the arrangement of the plants and shrubbery was perfect at first, but as many of the choice plants were merely annual, some attention and exercise—not to say labor—became necessary to nourish, accommodate and maintain them; and also to give to the most useful or desirable an advantage of growth over the more apparently useless, which are now usually termed weeds. He soon discovered the advantage to be derived from the process of planting, transplanting and pruning; also that of cooking or dressing with fire some of the various fruits. He no sooner discovered the various uses of his own teeth and finger-nails than he conceived the idea of using the sharp edge of a thin piece of stone for the purpose of cutting off weeds or small tranches of trees, and for furrowing and adjusting the surface of the earth. The breaking and shaping of stones for this purpose probably constituted the first mechanical operations, and that before anything was done in the line of agriculture. With these stone blades sticks of wood were cut, and we may imagine something of the course of experiments by which Adam succeeded in lashing one of these blades to the end of a stick, with strips of bark or long grass, for the purpose of a hoe; and his exultation of feeling at the final success of these experiments. A correct history of the life and adventures of the first man would undoubtedly abound with incidents of invention and discovery in the Mechanic Arts; and it was discovered and acknowledged in the immediately subsequent ages, that no improvement in any branch of agriculture could succeed unless it was preceded by applicable and corresponding improvements in this science. Wherefore Agriculture may be truly said to have been dependent on the Mechanic arts for its very existence: and in all ages and places its progress and perfection has been restricted to the advance and perfection of the common science of Mechanics. From these facts we may readily adopt the conclusion that Agriculture is neither more nor less than a combination of the ordinary works of nature with the mechanical arts.—*N. Y. Mechanic.*

PROPELLING WHEELS.—We have never known in any one season, so many attempts to improve the mode, or to introduce improved modes of propelling vessels, as within the present year. It is evident that there never has yet been very important improvements made on Fulton's original and rational method—the simple paddle wheel. It is well known and generally admitted that with this wheel there is some loss of power occasioned by vertical resistance, in the dipping or plunging the paddles into the water and lifting them out of it; and the grand desideratum with inventors seems to have been in general, to avoid this loss of power, which does not ordinarily exceed fifteen per cent.; although some have announced that by their favorite methods an advantage of fifty or one hundred per cent. was gained over the common paddle wheel. We cannot understand why inventors have so generally overlooked another disadvantage of much greater magnitude than the one complained of; that is, the receding or escaping of the water to the right and left, and vertically, from the pressure of the buckets or paddles, by which they are deprived of much of that aqueous resistance on which the paddle depends for its effect on the boat or vessel. The principal loss of power, when applied to a paddle wheel, consists in the motion of the paddles while in the water: for if the paddles [illegible] motion in one direction as the vessel has in the other, it is plain that three-fourths of the power is lost. There are but few mechanics who can comprehend or will admit this, however; but we shall make it plain by this demonstration: If the resistance of the water was so permanent that the paddles had no motion at all while in the water, the wheel would not be required to revolve only half as often to produce an equal velocity in the vessel; and it is an established law that double velocity under equal pressure requires quadruple power. Therefore, it is plain that four times as much power is required to propel a vessel with a specific velocity, when the paddle moves with an equal velocity in the water, as when the resistance is permanent. Therefore, the grand desideratum is, in reality, the increasing of this resistance. With this view, several different people at different times have made the experiment of arranging a series of paddles of float boards, on two endless chains which pass over two drums or pulleys. By this plan several paddle boards are equally immersed at the same time. Observation of the operation, however, readily developes the fact, that only one of the several paddles can be useful at the same time; for as soon as either one of them dips, it puts in motion a quantity of water, and then floats along with the water without any further effect until dipped again. Other plans have been tried in other cases, but none of them appears so rational as that of increasing the resistance, by preventing the escape of the water vertically and laterally. If a shovel or a spoon is used as a paddle it is found that there is a much greater resistance when placed with the concave side foremost, than when the reverse, or convex side is forward In fact, a hollow or dishing paddle will meet more resistance than an equal plain surface, which can be accounted for only on the principle of preventing the ready escape of the water from before it. There is, or might be, a much greater advantage derived from enlarging the area of the paddle boards, than can be from the popular custom of increasing the diameter of the wheel; and it is impossible that experiment should justify the policy of making the paddles so small in proportion to the diameter of the wheels, as those of the Atlantic steam ships.—*N. Y. Mechanic.*

SHELTER FOR HORSES.—This invention consists of an awning made of light materials, and supported at the height of about a foot above the back of a horse, by a light frame work of wires and whalebone standing out from the harness. The awning conforms in shape to that of the horse; but being thus elevated, it allows a free circulation of air under it, while it keeps the horse thoroughly sheltered from the rays of the sun. The apparatus may be attached to any harness—is very light and no wise inconvenient. A horse will be able to perform much more service in extremely hot weather by means of them.—*Ib.*

SIGN PAINTER'S GUIDE.—This apparatus consists in part of the principle of the *Magic Lantern* and will aid a painter in readily adjusting the spacing and proportioning of letter-work. Having a set of small stensil letters, he selects the required number, and arranges them on a plate of glass, which he places in front of the lantern, and then places his board at such a distance therefrom, that the spectrum of the letters will fill the space intended for them, when he can readily trace the outlines without danger of error.—*Ib.*

THE MECHANIC.—"The mechanic, sir, is one of God's noblemen. What have mechanics not done? Have they not opened extracted its treasures, and made the raging billows their highway, on which they ride as on a tame steed? Are not the elements of fire and water chained to the crank, and at the mechanic's bidding, compelled to turn it? Have not mechanics opened the bowels of the earth, and made its products contribute to their wants? The forked lightning is their plaything; and they ride triumphant on the wings of the mighty winds. To the wise they are the flood-gates of knowledge, and kings and queens are decorated with their handiwork. He who made the universe was a great mechanic."—*From the Carpenter of Rouen.*

AN UNOXYDIZABLE METAL FOR CASTING.—This alloy has the fracture and aspect of ordinary zinc, but possesses remarkable properties which will render it valuable in the arts. It is as hard as copper or iron; it possesses more tenacity than soft brass castings; it may be turned, filed or bored, as well as those metals; it does not adhere to the metalic moulds in which it run, and may be kept in moist air without rusting, or in the least losing its metallic lustre. Such alloy will be of great utility in the manufacture of machinery; and as, moreover, it takes with great facility any of the bronze colors which it may be desired to give it, either by covering it with metallic precipitates, or by developing the copper which it contains, it will be eminently suitable to be employed in casting statues, vases, and other objects designed to ornament public monuments exposed in the open air. It will have, moreover, the advantage over bronze of costing less.

It is prepared by casting together with proper precautions, zinc, copper, and cast iron. It contains ten per cent. of copper, and ten per cent. of iron.

TEMPERING STEEL.—Mr. Oldham, printing engineer of the Bank of England, who has had great experience in the treatment of steel for dies and mills, says that for hardening it, the fire should never be heated above the redness of sealing wax, and kept at that pitch for a sufficient time. On taking it out, he hardens it by plunging it, not in water, but in olive oil, or rather naphtha, previously heated to 200 degrees F. It is kept immersed only till the ebullition ceases, and then instantly transferred into cold spring water, and kept there till quite cold. By this treatment the tools come out perfectly clean, and as hard as it is possible to make cast steel; while they are perfectly free from cracks, flaws or twist. Large tools are readily brought down in temper, by being suspended in the red hot muffle till they show a straw color; but for small tools he prefers plunging them in oil heated to 400 degrees, and leaves them in till they become cold. Mr. Oldham softens his dies by exposing them to ignition for the requisite time, imbedded in a mixture of chalk and charcoal.—*Dr. Ure.*

NEW SPLENDID KEYED INSTRUMENT.—Mr. H. Breun g has just arrived from Vienna on his way to London, with an instrument called the *Phys-harmonica Piano.* It consists of a powerful and brilliant grand pianoforte, combined with a set of reed stops of extraordinary power and sweetness, which may be either played separately, or combined with the piano. Many of our readers, have, no doubt, seen and heard the organized piano fortes, as they were called, which consists of a piano and a set of organ pipes, worked by the foot of the performer. The great and unremediable defect of these instruments was their liability to be out of tune, as every change in the temperature of the atmosphere has a diametrically opposite effect upon the pipes and strings—heat raising the pitch of [illegible]

seldom sufferable to an ordinary ear, and the consequence has been that they are seldom or never used at the present day. The reed stops—for such we presume them to be—of Mr. Breunig, in tone resemble that of the modern instruments, the concertina, seraphine, symphonicon, &c.; but it appears to us to be superior in many respects to any of those instruments which we have heard. The effect reminds us of that of a soft and very delicately played bassoon and oboe, with all the intervening shades of tone; and nothing can be conceived more pleasing and effective than the combination of the sostenuto of the reed stop and the accompaniments of the piano-forte.—*Liverpool Paper.*

Steam Travelling on Common Roads.—One of the General Steam-coach Company's coaches started from the York and Albany Hotel, near the Regent's-park, at twenty-five minutes past four, yesterday afternoon, and performed the journey to the manor-house at Tottenham, and back again, in twenty-five or twenty-six minutes, a distance of from seven to nine miles, as estimated by two several parties. This would give on a rough calculation about fifteen miles in the hour. But from the obstructions which were encountered on the road, in the shape of flocks of sheep, carts, horses and vehicles of every description, we are convinced this is not a fair estimate, and that twenty miles an hour would be the more correct computation. One fact, however, seemed to be established—namely, that the new steam-coach is capable of running on ordinary roads with speed, economy and safety. The noise of the engine is scarcely perceptible; there is neither smoke nor a visible escape of steam, and the boiler is constructed of numerous pipes, so that if one or even two should burst, the boiler is relieved, and all danger avoided. The facility with the engine is managed is truly remarkable, an instance of which appeared in the descent from the Camden Villas. A cow suddenly rushed across the road when the coach was at full speed, and had the vehicle been drawn by horses a collision must have taken place, and no doubt serious consequences would have resulted; whereas the engineer, with a precision which must be seen to be duly appreciated, steered, we cannot say drove, the coach clear of the animal. We may also mention, that though several flocks of sheep were met or passed, yet without signally checking the speed, the engineer drove through them. To describe the carriage we have only to say that the wheels are very broad, and that in the portion allotted to passengers it resembles the open carriages on the railroads. The stokers sit behind, and the whole complement of passengers was sixteen. The coach is shortly to make a trip to Windsor for the inspection of her Majesty and Prince Albert.

Cooking Apparatus.—Mr. Neil has made additional improvements on his improved cooking apparatus. The centre part contains the furnace and four ovens for roasting victuals, and over these is the steam boiler, which is supplied from a vessel that is furnished with hot water by a pipe leading from the condenser, and thus the steam is at all times easily generated. The process of distilling salt water into fresh is also carried on in the condenser, which makes one of the wings of the apparatus. Forming the opposite wing, and in beautiful uniformity, are the vessels for boiling vegetables, fish, flesh, fowl, &c., and although capable of holding from ninety to one hundred gallons of water, they can be boiled in twenty minutes. The roasting department is likewise very efficient and speedy. A number of gentlemen capable of judging its merits have examined the model, and expressed their pleasure at the perfect manner in which the various processes are formed, and think it excellently apartment or into the funnel at pleasure, and it would thus be also an excellent heating apparatus. The space it occupies is about three and a half by two feet. The invention certainly claims the attention of shipmasters and the public generally.—*English paper.*

The Apple Tree in Normandy.—The apple tree, which seems to have been brought from Spain, at the time when the kings of Navarre resided in general in Normandy—the word *cidre* at least is the Spanish *cidra*—is the breadfruit tree of Normandy; and it is no wonder that the Norman speaks of this tree with a filial affection and veneration, and calls it, with Bernardin de St. Pierre, "*L'arbre de mon pays.*" In the Annals of the Society of Agriculture and Commerce, I have read a formal panegyric on this tree, in which the kindly disposition of the Norman extends itself to nature. That, whether in its spring or summer, autumn or winter dress, it is an ornament to the country, may readily be conceived; but that its fruit fills store room, cellar, and kitchen, that it feeds man and beast, and finally serves for manure, that, in short, it is all in all, can be seen in Normandy only. The apples which are not consumed as such, or exported, are pressed or yield cider, the wine of the province. Such as are not fit for cider serve for making brandy or vinegar. The pomace, or pulp, from which the juice has been pressed, supplies fodder for cattle; mixed with vegetable mould, it forms a capital manure for poor land, and in districts where wood is scarce, this substance is dried, and used the following year for fuel. Thus it is easy to account for the affection of the Norman for "the tree of his country," even when not clad in its spring livery—the most beautiful holiday dress in which I ever saw any land salute the young sun and the "maiden of another clime."

Grahamism.—The advocates of an exclusive vegetable diet have been often ridiculed, and in some cases very happily, but we doubt if any author has equalled Sam Slick in this respect. Sam met a Grahamite on his travels, and thus speaks of him. "His skin looked like a blown bladder arter some of the air had leaked out, kinder wrinkled and rumpled like, and his eyes as dim as a lamp that's living on a short allowance of ile. He put me in mind of a pair of kitchen tongs, all legs, shaft and head, no belly; a real gander-gutted looking critter, as hollor as a bamboo walking cane and twice as yallar. He actually looked as if he had been picked off a rack at sea, and thrown through a gimlet hole."

Water Spout on Lake Erie.—On Friday evening last, between 5 and 6 P. M., our citizens enjoyed the sight of a rare and imposing exhibition in the natural world, commonly known as a "water spout," which passed in front of the town within a mile of the Beacon Light.

It seems that what we call a whirlwind upon land, causes a water spout at sea, when the aerial forces are sufficiently powerful to raise water.

These whirls or whirlpools in the atmosphere result from the meeting of different currents of air, and form a vortex in the same manner as eddies are made in running water by obstructions of counter currents. On Friday the wind blew strong from the N. E until 5 P. M. when it changed suddenly to west, still blowing a gale and bringing onward a dark and threatening storm.

A few minutes before the change of the wind the whirl which caused the spout came off the land two miles west of the Pier, producing a great agitation of the water, raising and driving about the spray with great fury; the sea running high at the same time. In a short time a portion of the low black cloud sack, half way to the surface of the Lake. It was apparently of the size of a large hay stack, hollow, and the spray or vapor of which it was composed had a spiral and upward motion, around the cavity of the column. It proceeded from shore in a N. Easterly direction, not in a regular track, but with constant and sudden deviations, perhaps two miles; the portion descending from the clouds, at times almost dispersed by the strength of the gale.

If the sun had not been obscured, and the air darkened by the storm in the west, (immediately behind it) the whole of the spout would no doubt have been distinctly seen. When opposite the harbor its direction became more southerly, its color changed from the dark cast of a heavy cloud to the whiteness of spray or falling rain, and it took the form of an inverted cone with regular elements, its vortex resting on the water, (not larger than a hogshead) its base surrounded by moving clouds. Very little rain fell while it was in sight, and whether this proceeded from the water elevated by the whirlwind could not be ascertained. As it travelled eastward before the wind, it approached the shore a mile east of the city, changing shape continually, and causing as it passed a great commotion in the already agitated waters. Here a fresh gust seemed to break up the column and it vanished. Fortunately, no boats or vessels were in its route, or damage might have ensued.

Among the numerous displays of the grandeur of storms which our waters afford, we have witnessed none more varied or sublime than this. It was not considered a large spout when compared with those which occur on the broad ocean to the wonder and alarm of the mariner, but seems to have been perfectly formed though upon a limited scale.

We are informed that three of them occurred at the same moment about 25 miles west of this place a few years since; and passed among some vessels without coming in contact with any of them. It may be very long before another makes its appearance here.—*Cleveland Herald.*

Expenditure.—*Let not thy table exceed* the fourth part of thy income; see thy provision be solid and not far-fetched—fuller of substance than art; be wisely frugal in thy preparation, and freely cheerful in thy entertainment; too much is vanity; enough a feast.

THE FADING OF THE WOODS.

Splendour is on the bough!
The withering leaves fall fast;
Yet wilder beauty crowns the forest now,
Than through the summer past.

A more resplendant blaze
Of rich and radiant hues,
Gleams through the autumn haze,
Than mid the summer dews.

So is it nature loves
In all her power to part;
So with her passing splendour moves
The severing human heart.

Calmly through pleasant years
We love some kindred mind;
But 'tis only through our parting tears
Its full delights we find.

Then, how in form and face,
In every act and tone,
Beams forth the tenderness and grace
That melt us, and are flown!

An apology is due for the lateness of the appearance of this paper. Added to the difficulties attendant on the establishment of a new paper, there have been others of a private nature which have assisted in delaying the issue of our sheet. However, in a few days, arrangements will be completed for issuing at a regular period, as will be [illegible]

THE MAMMOTH IRON STEAMER.

The first idea of those who hear of an iron ship is probably of something amazingly strong, but so heavy as to be kept afloat with difficulty, and liable to go down "like a stone," as the sailors term it, the moment she has the misfortune to spring a leak. Now all this is pure imagination, and it only requires to inspect an iron vessel while under the builder's hands to have every prejudice on the subject removed, and to ascertain that so far from being heavier and more liable to sink, the weight of an iron vessel built of the same degree of strength as one of wood, the external dimensions of both being equal, will be something less than half of the latter, the proportion being we believe, in an average, about as seven to sixteen.

A strong wood-built vessel is estimated to weigh at least sixteen hundred weight to every register ton; the new iron ship building at Bristol, about seven hundred weight, or, in other words, supposing a wood built vessel of the same size as the Great Western Company's new iron steam-ship and both to be loaded with the same weight of cargo, the iron ship might take in fourteen hundred tons of water by leakage before she would come to the same bearings as the other.

Not only is the iron ship superior in lightness, but she is far less liable to spring a leak at sea than a wood-built vessel. There is scarcely a plank in an ordinary ship which is not forced into its place, more or less, contrary to the position it would maintain, if left to itself, and this is particularly the case in the bows and in the run of the vessel, where after being softened and rendered pliant by saturation from steam, it often requires considerable mechanical power to bring the planks to what is technically called "their berth."

Again, every plank however firmly bolted to the timbers within, is quite independent of, and unconnected with, those above and below it; the consequence of which is, that every wood-built vessel is liable to strain at sea, whenever, as it is often needful to do, an unusual press of canvass is carried on her; the masts in this case acting as a powerful lever on the upper works, with which they are connected by the deck and beams; and the ballast or cargo below endeavoring to maintain its position by its *vis inertia*, it becomes evident, that in proportion as the vessel heels over from the force of the wind, so much greater must be the strain on the weather or upper side; and this having a direct tendency to open the seams between the planks, it is by no means uncommon for vessels to leak under such circumstances, which had previously shown no symptoms of complaining; and oftentimes the fastening works loose, treenails and bolts are partially drawn, butts started, and the vessel becomes unseaworthy, however new, until she has again been overhauled by the shipwrights.

All old sailors are perfectly aware of this, and are never caught by a storm on a lee-shore, without keeping a watchful eye on the pumps as well as on the sails; but in the case of an iron built vessel it is entirely different; every separate sheet of iron with which she is closed in, is adapted to its peculiar situation from which it has no tendency to remove itself, except that which it naturally derives from gravitation; and as every sheet is bolted in the firmest manner, into all those which it adjoins, above, below and laterally, as well as to the iron ribs or frame on which they are laid, the vessel may be considered as compact as a cylinder; and we should no more expect to find her leak by straining at sea, than we should expect to see the bilge plank of a wood built vessel open through its centre under similar circumstances. To supply the place of a kelson, ten distinct rows of plates are fixed to run the whole length fore and aft, to the bottom, about two feet deep, and something less than that apart, the whole being united by a number of bands in the form of the letter U, the bottom of each of which is fastened into a flooring iron, and the two plates between which it stands; thus with superior lightness, securing equal strength, and distributing the support so as to meet the strain on the bottom wherever it occurs.

To insure the safety of the vessel, and prevent her from being subject to wreck at sea, from whatever cause, she will be divided into separate apartments, each of which will be water-tight, & any two of them supporting the entire weight of the vessel with considerable buoyancy, so that if she ran into an iceberg, or were thrown upon a rock, she would not be liable to to go down, or endanger the lives of the passengers, as long as one end remained unbroken. To this may be added the power of her pumps, which will be enabled in case of any serious leak, to throw off a quantity of water exceeding 7000 gallons, or 25 tons per minute, so that a leak which would in five minutes sink a loaded ship of the size of three or four hundred tons would merely keep the pumps of this steamer briskly at work, to prevent water from gaining on her. In fact, when the ship is fairly afloat, with good canvass aloft and the screw propeller below, she may be pronounced to be the most safe and complete nautical machine with which mankind were ever yet acquainted.—*Polytechnic Journal.*

KINGSTON MARKETS.

Beef, per cwt.	30	0	a	0	0
Mutton, per lb.	0	3	a	0	4
Veal, per lb.	0	3	a	0	4
Ham, per lb.	0	6	a	0	7½
Chickens, per pair,	1	1	a	0	0
Eggs, per doz.	0	9	a	0	10
Potatoes, per bushel,	2	0	a	0	0
Apples, per barrel,	5	0	a	7	6
Pears, per barrel,	25	0	a	0	0
Hay per ton,	70	0	a	80	0
Flour, fine,	30	0	a	32	0
Flour, superfine,	32	0	a	34	0
Oats, per bushel,	2	0	a	2	3

TORONTO MARKETS.

Fine Flour, per barrel,	1	3	9	a	1	5	0
Wheat, per bushel,	0	4	0	a	0	5	4
Barley, ditto,	0	1	9	a	0	2	0
Oats, ditto,	0	1	3	a	0	1	4
Pease, ditto,	0	2	0	a	0	2	6
Oatmeal, per barrel,	0	0	0	a	1	5	0
Beef, per 100 lbs,	0	17	6	a	1	0	0
Mutton, (qr.) per lb.	0	0	3½	a	0	0	4
Veal, ditto,	0	0	3½	a	0	0	4½
Butter, (fresh) per lb.	0	0	8	a	0	0	10
Cheese, per lb.	0	0	4	a	0	0	5
Fowls, per pair,	0	1	3	a	0	2	0
Eggs, per dozen,	0	0	4½	a	0	0	6
Hay, per ton,	2	5	0	a	3	10	0
Potatoes, per bushel,	0	1	1	a	0	1	3

AGENTS

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CANADIAN FARMER & MECHANIC
IS PUBLISHED MONTHLY
For One Dollar per Annum,
PAYABLE ALWAYS IN ADVANCE.

To Post Masters and Agents who send us $10 free of postage, we send eleven copies—twenty copies for $18.

All communications directed to the Editor of the FARMER & MECHANIC, Kingston, Post-paid, will receive attention.

PUBLISHED AT THE OFFICE OF THE NEWS