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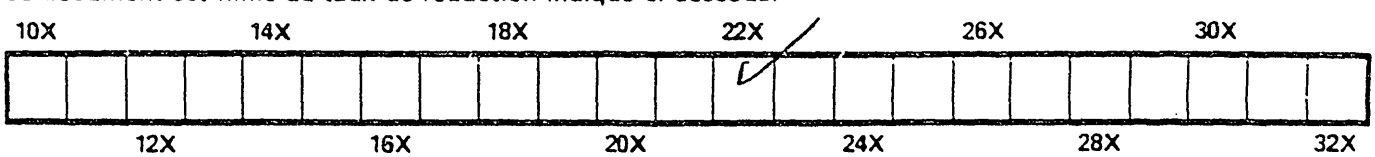

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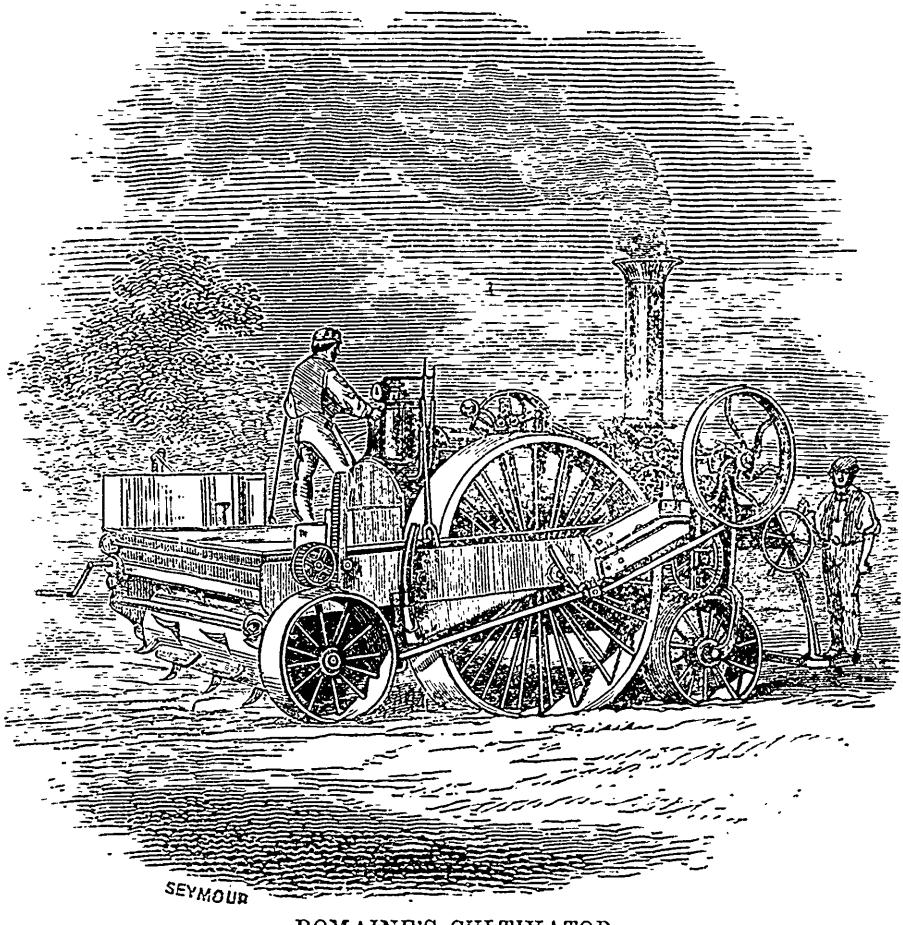
ROMAINE'S STEAM CULTIVATOR.

The *idea* of steam cultivation retains its hold of the English agriculuural mind. In the Western States also, where some of the largest farms in the world are to be found, the desire to harness the steam horse to the plough is so strongly felt, that large rewards have been offered for the discovery of a practical method. We cannot say that the want of a steam cultivator has been much felt, or is likely to be for some time to come, in Canada. Our small farms, our stumpy, stony, knolly, and in many cases, hilly fields, seem better suited to animal than to elemental power—to the slow but obedient ox, to the active and easily managed horse, rather than the heavy, complicated, dangerous (in unskilled hands) and expensive steam locomotive,—even admitting that it can be made to cultivate the soil successfully under favourable conditions. As a stationary power for general purposes, steam is unquestionably superior to any other yet known. Water may be cheaper where it can be had in sufficient quantity, but it is not so managable in this climate, and being confined to those spots where it exists naturally, is unadapted to a variety of purposes. But steam has never yet been successfully applied as a strictly portable power, except in the two cases of steamboats and railroads. The immense weight of the engine itself offers, apparently, an insuperable objection to the use of the steam power in the field, where it is required to move with its work. Boydell's engine, with its movable track, is the most successful attempt yet made to overcome this difficulty. We hear of its achievements in transporting heavy ordnance over marshy ground, and it would, therefore, seem, as a matter of science and fact, that this engine has solved the problem. But, that it will or can be made to supersede animal power in the field, under the ever-varying conditions which must be there encountered; that it will be able to compete with such power on the score of economy, has not yet been proved. We doubt if it will ever succeed in this contest. If destined to triumph any where, it is evident that it will only be upon large and tolerably level farms, such as may be found in England and the Western States.

Our attention has been turned to this subject by the appearance in the London *Illustrated News*, of an engraving and brief description of Mr. Romaine's Steam Cultivator, as improved by Messrs. Crosskill, the celebrated Implement manufacturers. We copy the description and engraving, not because we have much faith in its success as a cultivator of the soil, especially in this county, but because it is alleged to be the invention of a Canadian, has made some noise in Europe, and has received aid and encouragement from the Canadian Government. It ought, therefore, to be a matter of interest to the people of this country. The following is the description which appears in the *News*:—



ROMAINE'S CULTIVATOR.

"Crosskill's Romaine steam cultivator differs from all others hitherto brought before the public, in entirely dispensing with ropes and in effecting its work without dragging ploughs or other implements. It is not a plough; it is a rotatory diggi. g-machine. It consists of a fourteen horse locomotive machine, mounted on a pair of very high broad wheels, with a pair of small wheels on the principle of chair-castors in front, which are used only for steering; a fifth wheel on the near side, behind, is used for setting the depth of cultivation. The cultivating part of the machine consists of a hollow iron cylinder, six feet six inches in length and two feet six inches in diameter, armed with curved iron knives, or hoes or claws. As the machine travels very slowly over the land —about a mile an hour—the toothed cylinder, which projects several inches on each side

beyond the broad wheels, turns round and digs up the stiffest clay soil to the actual depth of from six to twelve inches, stirring the earth, of course, deeper than the points of the claws, and leaving the surface in a fine tilth. From the manner in which the cylinder is attached, and the angle at which the claws enter the ground, bricks, stones, and roots are either divided or thrown out of the soil, or passed over without injury to the machine. The cutters are of wrought iron; under ordinary circumstances they sharpen themselves; and, if broken, they can readily be replaced, as each is secured separately by bolts to the outside of the cylinder. The steering apparatus is very ingenious. The large wheels only are driven by the steam engine. When the machine has to be turned round, one large wheel is left stationary, and the other being driven while the front wheels are guided by the driver, the engine can be turned round in its own length.

"The first public trial of this machine in its present improved shape took place on the 11th September, near Beverley. 'It commenced operations at one end of a field of strong clay stubble, and traversed the entire length, transforming a breadth of 6½ feet into a perfect seed-bed, equal, as some said, to what could have been produced by twice ploughing and harrowing, or clod-crushing. On its arrival at the headland it turned round in less space than a plough with a pair of horses, and returned, leaving, after an hour's work, no vacant space except two small headlands, which could easily be finished when the rest of the work was completed.' It will be observed that the wheels never touch what has been once cultivated, and the cultivator perfectly obliterates the marks of the wheels. The strength of this machine lies in its slow motion and the great breadth it cultivates.

A flywheel it will be observed, is attached to the machine, and when stationary, with the cultivator thrown out of gear (which can be done in an instant,) it may be used for all the ordinary purposes of a portable agricultural steam-engine—to drive a thrashing machine, to grind corn, to pump water, &c.

Some enthusiastic writers in the Yorkshire papers suggest that the "Romaine" may also be used to supersede farm horses, and take corn to market; but we do not believe that the inventor or manufacturers have any such notions, which, in the opinion of the first engineers of the day experienced in attempts at road engines, are perfectly illusory. Horses are cheaper machines for traction on common roads than steam-engines—that was proved twenty years ago.

The machine now open to the examination of any agriculturist, and at work every week near Messrs. Crosskill's works, is the fourth that has been built, each being an improvement on the last. The idea of the machine occurred to Mr. Romaine in 1850. The first machine was built at Mr. Mechi's expense, 1853, and led that enthusiastic gentleman to write to the *Times* that "the doom of the plough was sealed;" the second was built in Canada, under the encouragement of Lord Elgin, who is fond of mechanics, and sent, at the expense of the Provincial Government, to the Great Exhibition of Paris in 1855, where the inventor, Mr. Romaine, was one of the Canadian Commissioners. This machine, like Mr. Mechi's was to be drawn by a pair of horses, the steam being employed turning the cultivator. In Paris Mr. W. Crosskill saw it, and thought so well of it, that he took it up, and the firm have spent two years and some thousand pounds in bringing it to its present state of efficiency. The third machine would not steer or travel until the wheel arrangements had been changed to the present form and proportions. The fourth machine is the subject of our illustration. The expense of working is estimated at 70c. to $1 an hour; the work done at from three-quarters to one acre an hour, according to the depth and consistence of the soil. By lengthening the cylinder a steam engine of the power now used can increase the work done without accelerating the speed."

All this sounds very plausible, and for Mr. Romaine's sake, we hope his machine may prove acceptable to English farmers. But there is a fundamental objection to the *mode* of cultivation which this machine undertakes to perform, which must prevent it from taking the place of the plough to any considerable extent. We pointed out this objection to Mr. Romaine before he took his machine to England,—it is this: his rotating claws may tear up, aerate, and comminute the soil, but they will not *invert it*. Now, the inverting of the soil, the turning *under* of the stubble, grass and other vegetable growth of the surface, in order that by its decomposition

it may supply food to the next crop, is one of the necessities of cultivation, in this country at least, and we apprehend, cannot be dispensed with in England. It is evident from a glance at the *modus operandi* of this machine that a large portion, probably three-fourths, of the vegetable growth of the soil, including roots of plants, will be deposited at or near the surface; and so, its value as plant-food will be, in a great measure, lost. We do not see how this result can be prevented. If you throw up a feather and a guinea, the latter will most assuredly reach the ground first. If stubble, grass, &c., are torn up at the same time with sand and clay, the former being lighter will by the same law, descend less quickly than the heavier body, and will thus be found at the surface. Possibly this tendency might be partially remedied by covering the cylinder so that the earth in falling would carry down the lighter bodies with it. But as the machine is represented in the engraving, the objection we have mentioned must prevent it from superseding the plough. It will merely do, in a more perfect manner no doubt, what is now accomplished by the "Cultivator" in common use. All the difficulties we have hinted at, as standing in the way of a steam locomotive "off the track," will obstruct this machine. Its slow forward motion is a point in its favour, because the power of the engine will thus be used to great mechanical advantage. But we fear, nevertheless, that it will prove an expensive mode of cultivating the soil.

A word as to the origin of this invention. Mr. Romaine is probably the first to attempt the practical application of the revolving hook or "claw" to the soil. But the idea is not a new one. Previous to the year when, as Mr. R. says, the idea occured to him, a clever little book appeared in England under the title of "Talpa," or "Chronicles of a Clay Farm." In the concluding chapter the writer thus suggests the Talpa, or *claw* cultivator:—

"Again and again be it repeated, that it is not *ploughing*, neither is it *digging*, that we want. These are only *means*. What we want is the *end*: we care not for the process. Give me a SEED-BED: show me the soil *comminuted*, *aerated*, and *inverted*, six or eight inches deep, and I will not ask you *how it came so*. What does that matter? If you wanted your coffee ground for breakfast, to a certain fineness of texture, would you be very particular to ask whether the mill that crushed the fragrant berry had worked horizontal, vertical, alternate, elbow-crank, or by *circular* motion? If the farmer or gardener could only have his seed-bed made ready for him as fine as a new mole-heap, or to any other coarser texture, according as he wants it, do you think he would care whether the soil had been first cut into longitudinal strips plough fashion, or into spades cubes, spade-fashion, before it was finally granulated for his use? Surely the one is as indifferent as the other; and singularly enough, both offer problems far more difficult to the steam-engine (if anything can be called so,) than the performance at once of the *ultimate* and entire process without these preliminary forms at all.

Until steam power was discovered, this possibility did not exist. Wind and water being out of the question, there remained nothing for it—no *other* power that could be taken into the field—but men or horses. Ploughing or digging, then, were the indispensable preliminaries; there was no getting on without them; there were but preliminaries it is true, the former leaving everything, the latter a great deal (according as the work was done) to be accomplished afterwards to complete the cultivation. But it is not so now. Since the birth of the steam-engine—no such very long time ago, the whole elements of the question are altered. There exists *now* a portable power—not limited to horizontal action like the horse, nor to vertical action like a man using the spade or the hoe—which, if merely told *what to do*, will go and do it, merely dropping a hint into your ear that *circular* motion is its favourite.

But the willing giant stands idly panting and smoking; for nobody can agree to tell him what to do. One says 'go and *plough*!' another says 'go and *dig*!' each mistaking the means for the end, and trying to yoke this youngest born of human genius to the peddling routine of manual or equine capacity; out of the very perversity of backsightedness that clings to forms and modes which belonged to the *implements* not to the *task*—backsightedness that would with equal reason puzzle its brains in looking for the pole and splinter-bar of a locomotive, the pendulum of a watch, or the paddle boxes of a screw steamer.

But if it is not ploughing, and it is not digging, what is it? 'Go to the Mole, thou dullard,' (the old proverb might be travestied,) 'consider her *ways* and be wise'—who without any coulter, share, or mould-board, without spade, hoe, or pickaxe, leaves behind her, in her rapid track a finer mould than ever RANSOME, HOWARD, or CROSSKILL—than ever spade or rake produced, or the most careful-handed gardener chopped up to pot his plants with. The very rabbit that scratches his hole in the ground, or the fox that scratches after him—like the king-crab, to *eat the kernel and lie in the shell*—or the dog that scratches after both—the whole tribe of 'claw foot," in fact—had scratched hard earth into soft mould, before ever the plough or the spade, or even the more ancient hoe, had broken ground on this planet.

Let us begin from the beginning: let us take 'cultivation' itself into serious thought for a serious moment, and analyze it into its simplest elements, dropping all conventionalities of plodding custom. What is it? How would you do it, if you had neither plough, nor spade, nor hoe nor, rake to help you? With the same tools that the monks of La Trappe used to dig their graves with, and in the same manner! If the mole, the rabbit, the fox, the dog, are not sufficient indicators, take the hand of a man, glove it with hardened steel, multiply it a dozen or twenty times, till you have an instrument as broad a Crosskill's clod-crusher, each hand or claw with its separate arm forming the radius from a central shaft, which bristles all around with a forest of such arms, a sort of revolving Briareus, *not rolling*—let that be especially remarked—but steam-driven, a thousand *dog* power, if you please, for we must not even mention horses, or we shall drop back into the old Scylla and Charybdis of 'traction' and of 'rolling,'—two ideas to be eschewed like poison.

Let us suppose the picture of this formidable looking cylinder of claws to be sufficiently described for the moment—reminding one, at a distant view, of a half-breed between a hay-tedding machine and a Crosskill's clod-crusher—but unlike them, fundamentally distinct from any and every instrument that was ever seen a field, as doing its work not by traction, nor by its rolling weight, but *driven* by its axis, as the steam-paddle, the circular saw, the driving wheel of the locomotive, are driven, supported by its own apparatus, and abraling the soil with its armed teeth, first cutting its own trench, burying itself to the required depth, and then commencing its onward task, *tearing down the bank* (so to speak) on the advancing side, canting back the abraded soil, earth's *sawdust*, comminuted, aerated, and *inverted*, into the trench it leaves behind.

When Mr. Romaine first attempted to carry his "idea" into practice, he adopted the singular expedient of placing a steam-engine in a cart to work the "formidable looking cylinder of claws," while the cart and the engine were to be moved about the field by means of horse-power! This arrangement was evidently an absurd one; but we find a passage in "Talpa," which *might* have suggested this idea also. He says:—

When we have in idea and in fact detached the *work of cultivation* from the mere progression of the implement, made them perfectly *separate* and *independent*, so that if you ceased to proceed, your 'coffee mill' would be still *at work*, and only wanting fresh coffee to grind; then, and only then, shall we have laid hold of the end of the 'clue that leads to cultivation by steam;' for then, and only then, shall we have begun to appreciate the real and unique value of the new agent we possess. To suppose that it would gear its noble faculty to the dragging of ploughs, or the redoubled solecism of a rolling spade machine, is to transgress the elementary axioms of natural law, the fundamental relations and *exactions* that govern all physical progress and discovery.

Talpa never meant to recommend any other power than steam for the two pur-

poses; he merely desired to have the two parts of the machine so adjusted that they could be put in motion independently of each other.

In the next chapter to that from which we have made the above quotations, we meet with the following graphic description of the very machine, in all its essential details, just brought out by Messrs. Crosskill. It is, we believe, a rule of law, that no patent will be upheld for any machine previously "described in a book." If Mr. Romaine has never read "Talpa," we advise him to read it now. It might save him both trouble and expense, if he contemplates a patent:—

"Before we depart this life, we shall see one more wonder moving on the face of the earth, something of this form and fashion—to wit—a complete locomotive engine on four wheels, the front pair turning on a transome, the hind ones fixed; behind them (suspended) a transverse, cylindrical shaft, three feet in diameter, from six to eight feet long, reminding one of a cross-breed between a clod-crusher and a hay-tedding machine, armed with case hardened steel tine points, in shape like a mole's claw, arranged so that the side lap of each claw may cover the work of the other, and no interval or ridge be left uncut: the extremities of the cylinder just covering the wheel tracks. This cylinder of claws you will see raised or depressed at pleasure by the engine driver, and adjusted to slow or rapid revolutions, worked either by cog wheels, or geared from the drum of the engine. That is the 'cultivator.' A platform from the engine extends over it, ending in a sort of moveable tail-board, which may be raised or depressed at pleasure, to regulate the settlement of the soil which scatters from it. The revolution of the cylinder is not *against* but *with* that of the wheels—not dragging or retarding, but rather helping the advance of the whole machine, which is moved slowly forward by a detached force of about two horse-power from the engine."

Energy of the British War Department,—*The London Times*, in stating the preparations, made for the re-conquest of her Indian empire, thus effectually groups the results of what has been done within three months:

It takes a long time to rise to the scale of a grand operation. We are a long time about it, and a still longer time knowing what we are about. By successive efforts of intelligence and resolution, we are at last sending out a great expedition to India; and most of our readers will have to open their eyes, and look around, and sum up, and compare, before they can appreciate the magnitude of the work and its place in the world's history.—Let them imagine themselves, then, on the beach of the South sea last Saturday afternoon. They would there see two immense clipper ships, each as large again as the largest ship in Nelson's fleet, towed from their anchorage by immense steam-tugs, and each with a thousand men on board, of whom near nine hundred were soldiers for the re-conquest of our Indian empire. Instead of two such ships, objects of admiration even to those who see three-deckers every day, let us suppose forty, most of them filled with men, a few with materials of war, and then you have an Armada which combines in one the adventurous spirit of early days, the vast idea of modern times, the hardihood of a rude age and the science of a civilized one. The joint expedition of England and France to the Crimea surpassed everything in ancient or modern times, including even the vast struggles of the latter power at the close of the great war. But even that must yield in turn to the grander fact of an army of 30,000 well-trained soldiers, well found, well officered, despatched in the course of three months from England right across the globe, to re-assert our authority on the shores of the Ganges and the central plains of Hindostan.

Over-reaching Horses.—A writer in the *N. E. Farmer*, who is a blacksmith, cures over-reaching horses, and increases their trotting speed fifteen or twenty seconds per mile, by the following mode of shoeing which increases the motion of the forward feet and retains the motion of the hind ones. He makes the toe-caulks very low, standing a little under, and the shoes set as far backward as convenient, on the forward feet, with high heel-caulks, so as to let them roll over as soon as possible. On the hind feet, the heel-caulk is low and the toe-caulk high and projecting forward. Horses shod thus, travel clean, with no click.

FRUIT GROWERS' SOCIETY OF WESTERN N. Y.

The following condensed details of the meeting of the Fruit Growers' Society of Western New York, recently held at Rochester, N. Y., is from the *Country Gentleman*:—

"The annual meeting of this society was briefly noticed last week. We now give a condensed account of the proceedings, embracing the more interesting facts stated in the discussion.

Leaf Blight and Cracking in the Pear.—Members generally had found these two maladies to go together, but not invariably. The leaf-blight more frequently attacked young plants in the seed bed—and sometimes larger orchard trees. When on bearing trees, it always produced cracking; but the fruit was often known to crack while the trees were unaffected with leaf-blight, and in the thriftiest state of growth. L. E. Berkmans, formerly of Belgium, informed the meeting that the leaf-blight was unknown there, while cracking of the fruit was frequent; but twenty days in a summer without rain, would be called a dry one. Other members had observed cracking caused exclusively by wet weather.

Cracking seemed in many cases to depend on the soil, and an instance was mentioned where trees of the Virgalieu, on the grounds of T. G. Yeomans, of Wayne County, where the fruit of this variety is always ruined by cracking, were removed to the grounds of a neighbour, and afterwards bore fair and excellent fruit. The disease could not be caused by *exhaustion* of the soil, several instances being mentioned where it had occurred on young trees, on new soil, and in the one case, out of nine or ten, was the only one affected.

As it had been found that young seedlings once affected, were more apt to be troubled with leaf-blight the following year, the opinion was entertained that it was a very small fungus, whose extremely minute seeds were carried through the sap pores to all parts of the plant, and were ready to germinate and develope themselves whenever the wet weather favored their growth on the surface of the leaves. It had been proved that the seed of the little fungus that produces rust in wheat, were carried from the grain or seed, up the stalk in the sap—these seeds being immeasurably smaller than the pores; and it was in accordance with analogy to suppose that the leaf-blight was similarly propagated.

Among the sorts of pears not liable to crack, were named the Ananas d'Ete, Flemish Beauty, Beaurre d'Amalis, Bartlett, and others.

Trees on New Soil.—The question was discussed at some length, whether trees grown on soils which had been previously occupied with trees, and enriched by manuring was as good as those on new soils, or those previously occupied by farm crops merely. The members generally had found a second crop of nursery trees from the same land, inferior to the first, even with considerable manuring, unless some years of 'rest' intervened—which period appeared to vary with the natural strength of the soil from two to eight years. Rotation in tree crops was found important, as well as in farming; for example, it was stated by T. C. Maxwell, of Geneva, that he grew a block of cherry seedlings on land, one-half of which was previously used for dwarf pears, and the other half for cherries. The cherries, after the cherries, were only one-half as large as after dwarf pears. He had grown fine cherries after a crop of peach trees. Some of the members, and especially C. Barry, thought that trees raised on manured old ground were not so healthy as those on new soil, the latter affording fibrous roots in abundance, while on old soils, made rich with manure, the roots are thick, forky, and few in number.

Dwarf Pears for Orchard Culture.—Many interesting statements were made on this subject.—Several very striking proofs were furnished of the profits of dwarf orchards. T. G. Yeomans, of Walworth, Wayne County, had large plantations of dwarf trees. They were eight feet apart each way, and were cultivated by two horses walking abreast quite as perfectly as could be done in a garden by hand, and at a less expense than corn and potatoes. His trees are about eight years old. His Angoulemes bear now about a bushel per tree, and sell readily for fifteen dollars per barrel. Many of the pears weigh about a pound. A member stated that he had that very morning measured and estimated half an acre of dwarf Virgalieus on Ellwanger & Barry's grounds, and found that 120 bushels per acre would be below the actual product this unfavourable year, the price being $3 per bushel. The trees are but six years from the bud. Last year the crop was about the same—the year before, or when but four years from the bud, they yielded at the rate of $500 per acre. They had a row of Louise Bonne of Jersey, eight years old, that at the

same rate per acre, would yield 500 bushels, and they readily sell at $3 per bushel. The cultivation is not more costly than that of a cornfield.

W. P. Townsend, of Lockport, who had much experience, made the following statement on this subject:—Seven years since he commenced raising trees. A quantity of quince stock were imported and set in the usual manner—in nursery rows, and budded with pears. At the age of one year, one-half of the year trees were dug out. He then determined to leave the balance in such a manner that the ground might be occupied by a pear orchard, which was done by removing two rows and leaving one, which made the distance ten feet between the rows. The rows thus left were thinned out so that they stood three or four feet apart. At the distance of 20 feet in each alternate row, a standard pear tree was planted, so that the ground was cut up into squares of ten feet, which I think is the proper distance for a dwarf and standard pear orchard. The dwarf trees on this plot are now five years from the bud. The land occupied by these trees is about one acre. The product this year, 11 barrels, Bartlett's, sold for $10 per barrel, and by estimate the balance of the crop will be 30 barrels, which is sold at the same price. These same trees in 1855 yielded 18 barrels; in 1856 but a small crop. The varieties, Bartlett, White Doyenne, Le Cures, Louise Bonne de Jersey and Duchess de Angouleme, with a number of varieties planted as specimen trees. Mr. T. has had not the least doubt but the culture of years upon quinces could be made very profitable. But the planter of dwarf trees could not expect a return without at least giving his trees a good tillage as he does his potatoe field; and the course taken by most planters has been quite the contrary, which has in a great measure been the cause of the prejudice against the planting of the pear on the quince. There is not the least question but the planting of trees and their cultivation can be profitably made to replace the loss of the wheat crop; nor is there any cause to fear over production, so long as the western portion of our land is open to us as a market.

It was generally conceded that the cause of failure in dwarf pear culture was owing to a bad selection of sorts, and to the almost universal neglect of cultivation, planters generally not giving their trees any thing like the attention they do their common farm crops.

The proper depth for planting dwarfs was discussed at some length, and it was the general opinion that it was best to have the point of union about even with the surface of the ground. If much deeper, the pear would throw out roots, which experience had always shown, made bad trees; the roots being few and one-sided, the trees grow obliquely. Bending the newly formed roots around the tree, partially obviates this difficulty. If the quince is above ground, the borer is apt to attack it.

Best Form for the Standard Pear.—The general opinion was, there should not be a tall, naked stem, liable to injury by exposure to the sun's rays. Some members preferred a short trunk, some 2 feet high, others would allow the branches down to the ground. The objection that low branches prevented cultivation, was shown to be erroneous, by the fact that the great mass of the roots extended far beyond the spread of the limbs.

The best Age for Nursery Trees.—Many striking facts were stated showing that the common eagerness for very large trees to set out for orchards was a very mistaken one—two or three years from the graft of bud, being as old as was profitable in any case. In many cases, large and small trees had been set out side by side, and in three or four years the small ones had always outstripped the others.

Raspberries and Blackberries.—The following interesting facts were given by different cultivators present:—

Charles Downing said that the variety known as the Hudson River Antwerp was the only sort cultivated largely for the New York market. The product was from $300 to $800 per acre. Sold at wholesale at 10 cents a basket, and three baskets made a quart.

H. E. Hooker, at 10 cents a quart, found the yield here to be about $140 per acre. Had taken a correct account of one bed containing 16 rods—one tenth of an acre, and containing 146 hills, four feet apart each way. The product was 200 quarts which at 12½ cents per quart would be $25. Charging the cost of picking and marketing, manure and cultivation, and costs of plants, use of land, &c., at fair prices, there was left a clear profit of fourteen dollars and eight cents on this small piece of land.

C. L. Hoag, of Lockport, sold over one hundred quarts this season at 16 cents. Brinckle's Orange is not only the best fruit, but bears altogether the best crop. He did not think it firm enough to bear carriage a great distance. The plant is hardy, though he found that when covered in winter a better crop is produced, and finer. The Hudson River Antwerp, killed back, unless covered.

Nathaniel Draper, of Rochester, had grown the Red and Yellow Antwerp on the same soil for twenty-five years. Used no manure during the time, but kept the weeds down and the canes tied to stakes. Never lost a crop, but plants taken from his beds and planted in highly manured soils have proved barren. Others had observed that high manuring had resulted in strong growth and unproductiveness. P. Barry thought that raspberries might be raised for six cents a quart at a good profit.

The following remarks on the management of the Blackberry were made by C. P. Bissell, who has many thousand plants under cultivation:—The young plants should have good roots. The first season the branches spread on the ground, the second and third year throw up strong shoots. Should be planted in rows some eight feet apart, and about the same distance in the rows. For training, the best way is to set posts and run two wires from post to post, to which the bearing canes should be tied. In the spring cut the canes back to about five feet, and also shorten the laterals to five or six buds, or they become so heavy with the weight of fruit as to break from the cane. The blackberry fills a vacancy between raspberries and peaches. Had picked over 400 berries from one plant. After bearing is over, the canes may be united from the wires and allowed to fall by their own weight. When fully ripe, the fruit was good, but persons often picked it before ripe.

P. Barry thought the high Bush or Dorchester Blackberry better and more valuable than the New Rochelle. Charles Downing thought the former the best flavored, but it was not so large nor so productive as the New Rochelle. The Newman was sweeter than either, but not very productive.

It was resolved unanimously to adopt the name *New Rochelle* for the variety known by this appellation, instead of *Lawton*.

Select Lists of Market Fruits. A very valuable result was obtained, by each member preparing in the form of a ballot, a list of the 12 best pears, 12 best apples, and 6 best peaches, exclusively for marketing. Twenty-one votes were given, and the following list shows the number received for each—omitting all those that received but one vote. There were fewer ballots given for the peaches:—

Pears.

Bartlett	19	Theodore Van Mons	4
Louise Bonne de Jersey	18	Glout Morceau	3
Duchess de Angouleme	18	Beurre Superfin	3
White Doyenne	17	Urbaniste	3
Easter Beurre	16	Bloodgood	3
Lawrence	16	Brandywine	3
Seckel	12	Buerre Giffard	3
Vicar of Wakefield	13	Beurre Clairgeau	2
Flemish Beauty	11	Beurre Rose	2
Beurre de Anjou	9	Onondaga	2
Beurre Diel	8	Rostiezer	2
Tyson	8	Stevens' Genesee	2
Sheldon	6	Osband's Summer	2
Buffum	5	Ananas d' Ete	2
Belle Lucrative	5		

Apples.

R. I. Greening	19	Golden Sweet	6
Baldwin	18	Gravenstein	6
Roxbury Russett	17	Golden Russett	4
Red Astrachan	14	Yellow Bellflower	4
King of Tompkins Co	13	Swaar	3
Talman Sweet	13	Joathan	3
Northern Spy	12	Rambo	3
Esopus Spitzenburg	12	Seek-no-Further	3
Fall Pippin	9	Duchess of Oldenburgh	2
Sweet Bough	8	Peck's pleasant	2
Primate	7	Porter	2
Cayuga Red Streak	7	American Summer Pearmain	2
Early Harvest	6	Vandevere	2

Peaches.

Crawford's Early	15	Old Mixon Cling	2
Crawford's Late	13	George 4th	2
Old Mixon Free	10	Early Purple	2
Early York	9	White Imperial	2
Morris White	5	Red Cheek Melocoton	2
Cooledge's Favorite	4	Smock's Freestone	5
Large Early York	4	Walter's Early	2
Honest John	3		

PREPARATION OF SOIL.

In the cultivation of the garden, as of the farm, the first thing is to select the locality for a particular crop, or for a permanent object, as that of a garden, for instance, and to prepare the soil.

After all the divisions of soils that have been made, they may for all practical purposes be reduced to three, *sandy*, *clayey*, and *loamy*, in the first of which *sand* predominates, and in the second *clay*, while in the third sand and clay are happily blended in about those proportions which render them desirable to the cultivator.

A loamy soil is to be preferred for gardening purposes. Choose such a soil if you have it on your farm, and in a location suitable for the garden. But remember that the garden is a part of the homestead; it is to be beautiful as well as profitable; its elegancies and luxuries are to be on hand and not afar off; it is to adorn your dwelling, as your dwelling is to adorn it; is to be the rendezvous for many a social enjoyment, earlier in the morning than you go to the broad field, and later in the evening than you return from its weary labours.

If, then, your buildings are already erected, or even if the ground for them is chosen, you have no great range for the choice of a "garden spot." If the soil, where as a matter of taste and convenience you want to meet your wife and children and friends, among flowers and fruits and esculents, is not a feasible loam with a porous subsoil, one that will stand the drouth and drink in excessive rains so readily as not to to keep the surface long flooded, you must make it such. The expense will be considerable, but it will pay, and you cannot enjoy the pleasures and profits without.

An expense may be necessary which might well alarm you, if it were to be applied to your whole farm. But what is it for an acre, or half an acre? Nothing compared with the substantial benefits promised, to say nothing of the exquisite pleasure. If the soil is so exceedingly refractory that it cannot be made deep and mellow and rich, without a very great expense, it might be well to content yourself with a smaller garden than you would otherwise cultivate, though as a general rule we believe the gardens of our country are too small, and should be enlarged rather than diminished. If the mechanic or the professional man has but the sixth-tenth of an acre, it is worth a great deal, and we would advise him to make the most of it. But why should not the farmer, who has land enough, take a generous piece for a garden? Of all that the garden produces, there is scarcely an item which he can not dispose of advantageously, if he have a surplus, either by sale, or by giving it away, or feeding it to stock. An acre is perhaps better than more, because if the enclosure is too large, it may fail of getting cultivated so well as to be ornamental and highly productive; and half an acre is certainly better than less, because the person who but half appreciates the economical and ornamental value of a garden cannot do all he would desire on less ground. An acre, with fruit borders occupying one-half, and leaving an oblong or square half acre for the garden proper, would be to our mind, and that whether the farm of which it were a part were thirty acres or three hundred.

If your soil is a medium loam, and has a porous subsoil, you have nothing to do in the way of preparing the soil but to plough ten or fifteen inches deep, harrow, grade, plough again, and work in a plenty of good barn manure, so incorporating it with the soil that it shall pervade every inch, and you are ready to set your trees and make your garden. But suppose it to be a stiff instead of a medium loam, a few loads of sand in addition to

the manure will effect the requisite amendment. Or if it is a light sandy loam, then a few loads of clay will make it just what you want. And the cost in either case will hardly be worth naming. If instead of being a loam, a little too stiff or rather too light, it is a sandy soil, then clay in addition to manure is all you want to make it just what you would have it. The more sandy the more clay will be required. Or if your soil is the stiffest clay, sand enough with manure will make it as good a loam as you can desire. Where clay is used as an amendment, it should alway be exposed to the frosts of winter before ploughing in, and should be thoroughly incorporated with the soil: and even when sand is used the soil should be ploughed more than once, harrowed many times, and the new ingredient evenly mixed. And where sand or clay, as one or the other may be required, can not be obtained within a reasonable distance, swamp mud, long out and well warmed in the sun, and washed with rains, will go far towards producing the same amendments—will readily produce, only less permanently, both the effect of clay on sand, and of sand on clay, rendering a compact soil lighter, and a light soil more compact. The The difference is that this application would need to be repeated every few years, whereas the amendment of a soil by applying its opposite, is a permanent amendment.

The above is all on the supposition that the subsoil is porous, such that water passes downward freely, neither floods the surface, nor stops and becomes stagnant one, two, nor even three feet below. If there is any doubt about this, dig holes, like post holes, one, two, three, and three and a half feet deep, and if water stands more than a very few minutes in them after even the hardest shower, that ground requires draining, in order to be fit for a garden. You then have to preface your other amendments, whatever may be required, by underdraining. Of course, you would not have an open drain in your garden or anywhere near your house. A tidy farmer will hardly have them anywhere. Go to work then, and lay down the under-drains. For a garden where you expect to do a good deal of work, and would deem it bad economy to render your labour less satisfactory by any defect in the soil, the drains should be near each other. In some cases one very deep drain running through the centre, and side drains falling in from opposite directions, not quite as deep, and near to each other, would be advisable. But we all know that "water runs down hill," and the owner can decide where to lay his drains better than somebody a thousand miles off.

We will only add, that the autumn is the best time to prepare the ground for a garden. Winter even need not be lost, in case of large amounts of heavy earth to be drawn from a distance. How we wish that thousands of our farms, now showing only a little, stingy, miserable apology for a garden, not the most beautiful nor always the most productive spots on these farms, could show next spring, as the snow leaves them, grounds already prepared for gardens beautiful enough and fruitful enough to tempt the angels to come down and walk in them in the cool of the morning and evening.

Tree Guards.—In reply to an inquiry whether the rubbing of sheep is injurious to ornamental trees, I have observed that it has been injurious. I have a guard, which I adopted after trying many several years ago, and subsequent experience has confirmed its advantages. It is formed as follows:—Take stakes, such as are used for hurdles for sheep folds, drill holes through each, three or four inches from the top and bottom: then saw another stake across into two-inch lengths, and drill each in the direction of the growth thread the stakes and the short pieces alternately, as many as may be necessary to surround the stem of the tree, an a copper wire at each end, and close it round the stem and fasten the wire. This forms a secure cradle, very much resembling that put over a horse's neck to prevent his reaching to bite a blistered leg. Space must be left to admit of the growth of the stem for three or four years. The cradle lies loose around the tree, on the surface of the ground and never damages it; and it effectually prevents barking, for which some animals have a most inconvenient propensity. Three feet stakes are sufficient for sheep, and five feet for cattle.—*Gardener's Chronicle.*

Preserving Grain.—Grain to keep well should be perfectly ripe, and then be placed in a situation where it can remain cool and dry. It has been recommended when you have small quantities only to keep, a few barrels for instance, to put in dry bricks in different parts of the mass. These would absorb and retain any moisture that would be in their immediate neighborhood, not being liable to any action such as heating by any decomposition, and hence have a tendency to preserve the good condition of the grain in which they are placed. We have never seen the experiment tried, but the theory looks plausible. —*Exchange.*

FATTENING SWINE.

The propensity to acquire fat in many animals, seems to have been implanted by nature as a means of protecting them against certain vicissitudes to which they might be exposed. The first herbage of the season works off the impurities of the blood, and cleanses the system from unhealthy humors, renovating the constitution and the functions of the body, and enabling the animal to accumulate a store of strength to carry it forward in its destined course. The bear, and other hybernating animals, acquire an amount of fat by the close of autumn, which enables them to live through the long winter without the trouble of seeking food or eating it. True, it is rather a low degree of life—an oblivious sleep—but it is adapted to their nature, and consistent with their enjoyment. The deer also lays up a supply of fat against winter—smaller in amount, to be sure, than that of the bear, but sufficient with the food it can ordinarily procure, to carry on the economy of the system till the return of spring. It is so with the buffalo or bison; and our domestic cattle show that they were originally endowed with a similar propensity, which domestication has not obliterated.

In regard to the hog, if circumstances are favourable, he is inclined to lay up such a supply of fat during autumn, as would render it unnecessary for him to undergo such exercise or exposure during inclement weather. With plenty of *lard oil* to keep his lamp burning, he would prefer dozing in a bed of leaves in the forest while the ground is covered with snow, rather than to *grub* daily for a living. He fattens most rapidly in such a state of the atmosphere as is most congenial to his comfort—neither too hot nor too cold; hence the months of September and October are the best for making pork. The more agreeable the weather, the less is the amount of food required to supply the waste of life

Against fattening hogs so early in the season, it may be objected that Indian corn, the crop chiefly depended on for the purpose, is not matured. Taking everything into consideration, it may be better to begin to feed corn before it is ripe—or even at a stage of considerable greenness. After the plant has blossomed, it possesses a considerable degree of sweetness—hogs will chew it, swallow the juice, and nothing but the dry fibrous matter, which they eject from their mouths when no more sweetness can be extracted. They thrive on this fodder, and will continue to eat it till the nutriment is concentrated in the ear, and then will eat the cob and grain together till the cob gets hard and dry. Farmers who have practised this mode of feeding, consider it more advantageous than to leave the whole crop to ripen, unless they have a supply of old corn to feed with. Even in the latter case, it is questionable whether hogs will not do better on corn somewhat greener than they would on hard corn, unground. True, it is not necessary that corn should be fed unground, but much is fed in this condition, no doubt at a loss.

In many parts of the country swine are fed considerably on articles which are not readily marketable—as imperfect fruits, vegetables, etc. Where such articles are used, cooking them is generally economical, A mixture of squashes (either summer or winter squashes,) pumpkins—the nearer ripe the better—potatoes, beets, and apples, boiled or steamed, and a fourth or an eighth of their bulk of meal stirred in while the mass is hot, forms a dish on which hogs will fatten fast. If skimmed milk or whey can be had, the cooked food may be put with it into a suitable tub or vat, and a slight degree of fermentation allowed to take place before the whole is fed out. The animals will eat it with avidity, and probably derive more benefit from it than if it had not been fermented. Articles which are of a perishable nature, should be used first in fattening swine, in order to prevent waste, and turn all the products of the farm to the best account.

Another quite important advantage of early feeding, is the less trouble in regard to cooking the food and keeping it in proper condition to feed out. The cooking may be done out of doors, if convenience of feeding would be promoted by it, and there is no expense or trouble to guard the food against freezing.—*Boston Cultivator.*

Car wheels are now constructed in two parts, for the purpose of providing against cracking in cooling, and of renewing the tread when worn out, without removing the hub from the axle. This is evidently good plan, provided the parts can be secured together with sufficient firmness and strength.

When the juice of the grape is exposed to a temperature of 70 degrees, its own temperature is raised, carbonic acid is given off, scum arises to the surface, a sediment subsides at the bottom, and the *must* is changed to wine. This is the simplest case of fermentation.

VARIOUS FACTS IN TILLAGE.

Depth of Sowing Wheat.—Wheat may be sowed too shallow as well as too deep. The depth must vary with the nature of the soil. A thinner covering is required in a close heavy soil, than in one light gravelly or sandy. The following experiments were made by Petri, the results of which would vary with the moisture or dryness of the soil. They are given as a specimen of trials of this kind, which if often repeated by farmers, would afford them much valuable information.

Seed sown to a depth of	Appeared above ground in	Number of plants that came up.
1-2 inch	11 days	7-8ths.
1 "	15 "	all.
2 "	18 "	7-8ths.
3 "	20 "	6-8ths.
4 "	21 "	1-2.
5 "	22 "	3-8ths.
6 "	23 "	1-8th.

Good Rotation.—A successful farmer, who has enriched his farm, while he has enriched himself from it, pursues the following course: First, he takes especial pains with manure, wastes none, saves all, mixes well in the yard, (not by forking over, but) by a proper distribution of straw, stable cleanings, &c. Next, he makes corn his leading crop, as affording both grain and folder, and as being all returned to the soil, in feeding all to animals, except what is sold in beef, pork, &c. The *first year*, the corn has all the manure in spring, at about 25 loads per acre. The *second year*, oats, barley, or spring wheat follows. In the autumn, sow winter wheat, which constitutes the *third year's* crop. This is seeded down to clover, which (being plastered) constitutes the *fourth* and *fifth year's* crop in meadow or pasture.

The Wheat Crop Improving.—John Johnston of Geneva, N. Y., is one of the best farmers in the country. He first of all underdrains; he then feeds his land well (with manure) and this enables his land to feed his large herds of animals: there manure feeds the land again; and both feed him and fill his pockets. He said, at the close of the year 1856, after all the unsual disasters which had happened to the wheat crop for some years previously, "*My own wheat crops for the last eight years, have averaged more than they ever did in the same length of time for thirty-five years.*" The reason he gives, he has sown *no wheat on undrained land*—added to the good farming described above.

Grass Lands.—No farmer should be satisfied with less than two tons of hay per acre from his meadows, and his pastures should be as good. There are several means of improving grass lands. If the land is wet, springy, or holds water in the subsoil, it should be drained. This may be easily determined by digging a hole two feet deep in spring of the year, and if underdraining is needed, water will stand in it. We have known meadows greatly improved by draining. Next in order, are manuring and deep ploughing for previous crops. Last, but not least, is heavy seeding. We have succeeded in doubling the product of grass, by quadrupling the seed—and this paid well. We have known five tons of hay per acre, by sowing a bushel of seed per acre.

Long and Short Manure.—One great objection to using fresh or unfermented manure, is the difficulty of working its long fibres into the soil, and *mixing it finely with the earth*, a most essential operation. All these difficulties are surmounted, by cutting all the straw used for bedding. It need not be cut very short. If all the corn-stalks fed to cattle, were first cut finely with a machine driven by horse power, the animals would eat much more, and there would be none of that peculiarity unmanageable manure occasioned by large corn-stalks. A friend of ours cuts all his stalks with a four horse power—an hour's cutting lasting a long time—and finds great profit in it every way.

Value of Straw in Manures.—It is found by careful chemical examination, that different kinds of straw possess quite different values, to work up into manure. This relative value is very nearly determined by the quantity of nitrogen they contain. Barley straw is the poorest of all; oat and rye straws are about one-third better; wheat is nearly double in value to barley; buckwheat is rather better than wheat; meadow hay and corn stalks are far ahead of any of these, being five times as rich in nitrogen as barley straw; and red clover hay and pea-straw are each about eight times as rich as barley. Whether these substances are mixed directly with manure, or eaten first by animals, they produce their relative effects.

Manure Enriched by Grain.—Nearly every farmer is aware that the food controls the quality of manure, and that, for instance, dung from horses fed high on oats is quite a different thing from the droppings of grass-fed horses. Some kinds of grain contain more nitrogen than others, and of course impart more fertilizing power to the manure. Barley is the poorest, Indian corn a little better, and oats better than either by about 20 per cent., the three not being very unlike.

Harrowing Inverted Sod.—Farmers often find harrowing inverted sod to tear up the turf, and make grassy tillage. The double Michigan plough is a perfect cure, but not always at hand, and sometimes it may not be advisable to use it. Grass land which has been inverted by the common plough late in autumn, and which has been underdrained or is otherwise dry enough, may be harrowed very early in the spring, without the least disturbance of the sod, if done when only a few inches of the surface has thawed, and while the grassy portion of the sod is chained fast by ice.

Garden Rotation,—The following enumeration of the different families of garden vegetables will enable the gardener to plan a rotation, so that similar plants will not occupy the same soil in successive years—those classed together should not succeed each other.

1. Peas, beans.
2. Cabbage, cauliflower, brocoli, turnip, raddish.
2. Carrot, parsnip, parsley, celery.
4. Potato, tomato, egg plant.
5. Cucumber, melon, gourd, squash.
6. Lettuce, salsify, endive, chicory.
7. Onion, garlic, shallot, lock.

AGRICULTURAL IMPLEMENTS.

(*To the Editor of the Agriculturist.*)

Perth, Co. Lanark, Oct. 17th, 1857.

Dear Sir,—Owing to the holding of our assizes I could not get to the Provincial Show at Brantford. We find this a *grievance* here every Fall. I do not know that this can be helped, though anxious that it should be. It keeps professional men who are favourable to Agricultural pursuits from participating in these annual gatherings, where located remotely as we are.

It appeared to me too, that confining the animals exhibited, in close apartments, and invisible as at Kingston, was an objection. This was in part remedied this year by the Procession of Prize animals The successful articles, if marked in some way as the Premium ones, to distinguish them, after the judges have decided; so that visitors could inspect them personally, at leisure, would be a gain to the public and to competitors.

I observe you were one of the judges on Agricultural Implements, and I am desirous of hearing your opinion (which might be published also in the *Agriculturist* as of use to others), as to the improvements made in Mowers and Reapers, which gave the premium to D. Atchison of Thornhill, over Messrs. R. & R. S. Patteson of Belleville, who took the prize last year. Also a description of the Field Cultivator of J. Netherington, Clarke. Do you recommend this as the best we can get, as I wish to procure one. Also the Horse Hoe, of John Watson, Ayr. Can you give particulars and prices? The same with regard to A. Carts' machine for cutting roots, and Wm. Crow's Seed Drill. Is this last a better article than Seymour's? Your reply will confer a favor on

Yours, very truly,

W. O. BUELL.

Remarks.—The suggestion of Mr. Buell in regard to marking prize articles and animals, is one that ought to be attended to. We think, as the Exhibition is limited to three or four days, and many persons attend but one day, it would be a decided improvement if the Judges in all the departments were furnished with cards marked 1st prize, 2nd prize, 3rd prize, &c., before entering upon their examination; and as soon as they make their award, one of their number should attach the appropriate card to the prize animal or article. This would be gratifying to exhibitors, and interesting to the public. By deferring this until the Judge's books are returned to the Secretary, much time is lost, and room allowed for misrepresentations, and petty frauds.

The combined Reaper and Mower, to which the first prize was awarded at Brantford, was not exhibited at Kingston, It possesses two or three important features which in the opinion of a majority of the Judges rendered it worthy of the distinction awarded to it. The writer did not see it operate as a mower, being otherwise engaged, but the report of the committee was that it did its work equally well with the others. As a Reaper it performed well, and possessed this advantage over the others, that the delivery could be made at the side, or in the track of the machine. Another distinctive feature is, that *side draft* is completely obviated, and the weight of the tongue only, rests upon the horses' necks. A fourth point is, that the machine is made chiefly of iron, and the specimen exhibited, displayed excellent workmanship. For these reasons it was adjudged the first prize. But all the prize machines will do excellent work, and Mr. Buell can hardly mistake if he orders either of the three. We may observe that the difference of price, according to statements of exhibitors, was inconsiderable. The Cultivator to which the first prize was given, was well made, and iron throughout. In the writer's opinion it was rather a "grubber," than a cultivator, and ought to have been in a separate class. But a majority were of opinion that it would do precisely the same work as the cultivators with broader teeth, and it was allowed to stand in the class. The second and third prize implements were well made and will no doubt prove efficient. None of them were tried, an omission which we hope will not occur next year. There was very little competition in Horse Hoes. They were all admirable of their kind. The machine for cutting roots to which the first prize was given, was new to us, and operated remarkably well. We should like to procure one for our own use. The seed-drill was of ordinary construction; we saw nothing about it worthy of special commendation. There was no competition properly speaking.

We have now replied to all the queries of our correspondent, except as to prices. These were generally asked by the judges, but the answers were not perhaps always reliable. As few implement manufacturers advertize prices, we are equally in the dark with our readers.

Friction Matches should never be left where mice can get them—they have sometimes carried them in among their nests of shavings and papers, and slight causes have set them on fire and burned houses. A lady was nearly burnt to death, by the fire from a match which had been carelessley thrown on the floor, and which she fired by treading on it.

SAVING MANURE.

As the period of the year when farmers yard or stable their stock is approaching, it is all-important that proper measures should be taken to preserve intact all the elements of fertility usually to be found in the manure heap. It is indisputable that a large portion of the farming community do not collect so great an amount of nutriment to return to the soil as it is in their power to do; and it is also undeniable, that a still larger number do not pay the attention to what they do accumulate that they ought.

The value of manure depends, in a high degree, upon the ammoniacal properties it contains. As this salt has a great affinity for water, rains and moisture will soon carry it away, and after two or three leachings the pile is rendered almost worthless. In addition to ammonia, nearly all the other components of farm yard manure, as potash, soda, &c., are likewise soluble, and are readily removed by water. When manure is thus exposed for any length of time, nothing but insoluble material is left—that which is comparatively valueless is given to the soil with the vain expectation of promoting the elements of fertility.

Many experiments have been made for the purpose of testing the relative worth of manure properly cared for, and that exposed to the action of the weather. One of these, by Lord KINNAIRD, under the auspices of the Royal Ag. Society, in which potatoes was the crop grown, the yield averaged upwards of four tons in favor of covered manure. Upon two acres of wheat—which was fed with manure that was cared for—the produce amounted to 108 bushels 52 pounds; while upon another two acres, treated with an equal amount of uncovered manure, the yield was but 83 bushels 57 pounds. In the growth of straw the produce was very marked—the first field produced 9,842 pounds, while the yield of the second was but 6,864 pounds.

Chemical analyses have also aided in giving light upon this subject. It has been substantially demonstrated that covered contained double the nitrogenized properties possessed by the unsheltered, and that while the latter contained only *eight-tenths* per cent. of potash and soda, the former had fully *two* per cent. The proof of this analysis is fully "worked out" in the growth of the straw in the experiments mentioned.

There are several things to which the farmer should give his attention in the care of the manure heap. Putrefaction, or decomposition, needs to be promoted; such absorbents as will prevent the dissipation of ammonia into the atmosphere ought to be employed; and the robbery, by leaching, of whatever sun and air have seen fit to leave prevented. To accomplish the first of these objects comparative dryness of situation is required. Dampness is a necessary element of decay, but we think all that is absolutely wanting for this purpose is contained by the voidings of cattle. Another requirement is the compactness of the heap. Heat is sooner generated where the manure is somewhat solid—the moisture is better preserved, and "fire-fanging," or burning, is not so much to be feared. The following mode practiced by Mr. MECHI, of Triptreehall, England, is considered the most perfect in use. The whole of his cattle, sheep and pigs are kept under cover, on sparred wooden flooring, which permits their droppings to fall through the openings into cellars or chambers beneath. To accomplish the end sought more effectually, the straw is all cut up into short lengths, and saturated with liquid oil cake, or linseed, and mixed with ground corn, and in this way his entire amount of straw is used solely as food, no bedding being required.

This system, when first brought into vogue, was assailed by many of the writers on agricultural subjects, and condemned in no measured terms, "as preposterous, expensive, unsatisfactory in its results, and contrary to the nature of animals so fed." The *Cyclopedia of English Agriculture*, in reply to the assertions, says: "These points must be decided not by theory, but by prolonged experience. With regard to the point which lies in the way of this article—the value of manure made by Mr. MECHI's plan—it appears a self-evident proposition, that the manure so obtained must, from the absence of anything like active fermentation, be superior to all other kinds derived from the ordinary modes pursued, just in proportion to the loss sustained from fermentation by one or the other of these." The great gain in value of manure thus made, is claimed upon the assumption that ammonia—the very base of enriching substances—is almost wholly retained, that the mode most effectually prevents the escape of this element of fertility.

In Belgium, according to SCHWERTZ, manure is accumulated in the stables. The cattle are placed upon a kind of platform raised above the pavement of the stable, and the droppings being withdrawn from under them, are trodden down and allowed to accumulate upon the floor.

In Switzerland, Boussingault says, the urine that is passed by the cattle flows along a gutter which communicates with a large reservoir containing water, in which not only the solid excrements diffused, but in which the litter is washed, this being changed twice a week. The reservoir is constructed under the floor of the cow-house itself, in order to be protected from the frost. The fermentation of a mass so diluted is scarcely perceptible, and, save from leakage, there is no loss of decomposing animal matter. The liquid manure is raised by means of a pump, and carried to the meadow in tubs placed upon carts.

All farmers recognize the virtue of such action as tends to preserve the value of manure, but there are large numbers who have not made such complete and efficient preparations as they might. The present season furnishes ample opportunities for the construction of manure sheds or such other receptacles as may be deemed expedient, and we hope that all who can will perform their whole duty in this respect.—*R. N. Yorker.*

ARCTIC VEGETATION.

Dr. Kane, in his account of his first cruise, gives the following description of the vegetation he found in a small cove, near the latitude of 70°:

Strange as it seemed, on the immediate level of snow and ice, the constant infiltrations, aided by solar reverberation, had made an Arctic garden-spot. The surface of the moss, owing, propably, to the extreme alterations of heat and cold, was divided into regular hexagons and other polyhedral figures, and scattered over these, nestling over the tufts, and forming little groups on their southern faces, was a quiet, unobstructive community of Alpine flowering plants. The weakness of inividual growth allowed no ambitious species to overpower its neighbor, so that many families were crowded together in a rich flower-bed. In a little space that I could cover with my pea jacket, the veined leaves of the Pyrola were peeping out among chickweeds saxifrages, the sorrel and Ranunculus. I even found a poor gentian stunted and reduced, but still, like every thing around it, in all the perfection of minature proportions.

As this mossy parterre approached the rocky walls that hemmed it in, tussocks of sedges and coarse grass began to show themselves, mixed with heaths and birches; and still further on, at the margin of a horseshoe, and fringing its union with the stupendous piles of debris, came an annulus of Arctic shrubs and trees,

Shrubs and trees! the words recall a smile, for they only typed those natives of another zone. The poor things had lost their uprightness, and learned to escape the elements by trailing along the rocks. Few rose above my shoes, and none above my ankles; yet shady alleys and heaven-pointing avenues could not be more impressive examples of creative adaption. Here I saw the bleaberry (*Vaccinium uliginosum*) in flower and in fruit—I could cover it with a wine-glass; the wild honey-suckle (*Azalea procumbens*) of our Pennsylvania woods—I could stick the entire plant in my button-hole; the *Andromeda tetragona*, like a green marabou leather.

Strangest amongst these transformations came the willows. One, the *Salix herbacea*, hardly larger than a trefoil clover; another, the *S. glauca*, [S. Uva-ursi], like a young aithea, just bursting from its seed. A third, the *S. lanata* [S. arctica], a triton among these boreal minnows, looked like an unfortunate garter-snake bound here and there by claw-like radicles, which, unable to penetrate the inhospitable soil, had spread themselves out upon the surface—traps for the broken lichens and fostering moss which formed its scanty mould.

I had several opportunities, while taking sextant elevations of the headlands, to measure the moss beds of this cove, both by sections where streams for the lake had left denuded faces, and by piercing through them with a pointed staff. These mosses formed an investing mould, built up layer upon layer, until it had attained a mean depth of five feet. At one place, near the sea line, it was seven feet; and even here the slow process of Arctic decomposition had not entirely destroyed the delicate radicles and stems. The fronds of the pioneering lichens were still recognizable, entangled among the rest.

Yet these little layers represented in their diminutive stratification, the deposits of vegetable periods. I counted sixty-eight in the greatest section. Those chemical processes by which nature converts our autumal leaves into pabulum for future growths work slowly here.

THE TURKEY.—FATTENING.

One of the most useful and beautiful domestic birds is the Turkey. It ranks next in importance to the common fowl. What we could do, or how we could keep Thanksgiving or Christmas whithout the turkey, is a question we hope never to be forced to investigate. The Turkey is a native of North America, and BUFFON says it was unknown before the discovery of America, and it has no name in the ancient languages. Its range is from the Isthmus of Darien on the south, to the fifteenth degree north; and east and west, the Atlantic Ocean and the Rocky Mountains. It has never been seen south of Panama, and is unknown, beyond Lake Superior. The Wild Turkey, is far more beautiful than the domesticated bird. The plumage of the Wild Turkey is generally described as being compact, glossy, with metallic reflections; feathers double, as in other gallinacious birds, generally oblong or truncated; tips of the feathers almost conceal the bronze color. The large quill coverts are of the same color as the back, but more bronzed with purple reflections. The lower part of the back and tail coverts are deep chestnut, bandedgreen and black: the tail feathers are of the same color, undulatingly barred and minutely sprinkled with black, and having a broad blackish bar toward the tip, which is pale brown and minutely mottled; the under parts duller; breast of the same color as the back, the terminating black band not so broad; sides dark-colored; abdomen and thighs brownish-grey; under tail coverts blackish, glossed with brown and the tips bright reddish-brown.

The plumage of the male is very brilliant: that of the female is not so beautiful. When strutting about, with tail spread, displaying himself this bird has a very stately and handsome appearance, and seems sensible of the admiration he excites. Dr. Bachman says, "that in a state of domestication the wild turkeys, though kept separate from tame individuals, lose the brilliancy of their plumage in the third generation, becoming plain brown, and having here and there white feathers intermixed."

At this season of the year, the subject of FATTENING is of the greatest importance Many of the birds brought to market are very poor, and a little attention to this matter for a few weeks, will increase the profits of the farmer and the pleasure of the consumer.

It is only when the cold comes, and turkeys are about six months old, that they should be fed with better and more plentiful food, in order to increase their size and plumpness for market. Indian corn, ground barley, wheat, also rice and other articles used to fatten common fowls, are considered best for turkeys. Their weight, when well fattened and carried to market, should average twelve pounds; their living and dead weight is as eighteen to twelve pounds.

Cobbett says, "*As to fattening turkeys, the best way is never to let them get poor.* Barley meal, mixed with skimmed milk, and given to them fresh, will make them fat in a short time. Boiled potatoes mixed with Indian meal, will furnish a change of sweet food which they relish much, and of which they should be allowed to eat as much as they can. As with others, the food of this bird must be kept clean, and the utmost care taken not to give them on the morrow the mixture of the preceding day; because if the weather is warm, it will sour, which might displease them."

Much has been published of late in our agricultural journals in relation to the alimentary properties of charcoal. It has been repeatedly asserted that domestic fowls may be fattened on it without any other food, and that too, in a shorter time than on the most nutritive grains. "I have recently made an experiment," says a writer for a Philadelphia paper, "and must say, that the result surprised me, as I had always been rather skeptical. Four turkeys were confined in a pen, and fed on meal, boiled potatoes, and oats. Four others, of the same brood, were also at the same time confined in another pen, and fed on the same articles, but with one pint of very finely pulverised charcoal, mixed with their food—mixed meal and boiled potatoes. They had also a plentiful supply of broken charcoal in their pen. The eight were killed on the same day, and there was a difference of one and a half pounds each in favor of the fowls which had been supplied with the charcoal, they being much the fattest, and the meat greatly superior in point of tenderness and flavor."

WASHING CLOTHES.—It would save a great deal of toothache, and ague, and chills, if every woman would rinse her clothes in water a little warm. When the teakettle is put on to boil water for starch, fill it full, and put some into the rinse water. White clothes look better if the boiling suds is blued, instead of the last rinse water.—*Cor. Ohio Culti.*

TO FATTEN HORSES.

A horse should be fattened as speedly as possible, when you commence the process, as you lose money by being six months putting on what flesh can be made in six weeks.

When a horse is to be fattened, the first thing to be done is to put his stable in a clean condition, as no animal can fatten easily, while the affluvia of deleterious gases are being constantly breathed by him. Feed in such quantities as the animal will eat up clean, and at no time suffer his food to lie by him. If he be fed six times a day, instead of three, so much the better.

Potatoes will fatten some horses speedly, and loosen their hides. Carrots are also excellent with oats and corn, and if ground, the grains are much more nutritious.

A little very good hay should be fed with the other feed, and always give plenty of pure soft water, when it can be easily obtained.

The curry-comb must be used freely, plenty of clean bedding supplied, and above all, see that a sufficient ventilation exists to make the air fresh and pure.

AN ILLINOIS FARM.

What will those persons who have been accustomed to consider five hundred acres a large farm, think of the following? The editor of the *Spirit of the Agricultural Press* has recently been on a visit to the farm of M. L. Sullivant, Esq, in the south-eastern part of Champaign county, Illinois. The farm contains over *twenty thousand acres*, and although only about seven thousand acres are yet under cultivation, employs over one hundred men! Three thousand acres are planted in corn, and the editor estimates that the farm will produce at least 15,000 bushels of wheat this year, besides large quantities of barley, oats, flax, &c. Mr. Sullivant employs five different reapers this season, and threshes immediately after cutting, employing a steam engine as his power in the latter operation. A blacksmith's shop is located on the farm, and employed continually in repairing farm implements; a school is kept up for the education of the children of the workmen. One hundred and twenty-five yoke of oxen and fifty horses are employed. It must be acknowledged that this is something of a farm, and that Mr. Sullivant possesses much executive ability to successfully manage such a stupendous concern; yet we are informed that every thing moves on as regular as the click of a chronometer.

Mr. Sullivant also farms it on a large scale near Columbus, in this State. He has lands enough in Franklinton and Franklin county, one would suppose, to satisfy most men; a considerable proportion, too, of the very fertile Scioto bottoms. Within the past three or four years he has been selling portions of his large tracts in Ohio, and investing in prairie government lands in the West, mainly in Illinois. He has monopolized in the vicinity one hundred thousand acres of the great prairies in Central and Southern Illinois, every acre of which he considers intrinsically worth $20 for agricultural purposes, even for corn alone. He entered some forty thousand acres in one body, on which there was scarcely a stick of timber, and not a drop of running water. The big farm spoken of is on this tract. His tenants have to haul firewood about twelve miles. Water is obtained by digging at a reasonable depth, and supplies are furnished by windmill pumps. Mr. S. broke up a strip of prairie some two hundred miles in length to put out Osage Orange hedge for fencing, but gave up the experiment. He now uses posts and boards, and has planted hickories at proper distances for future posts. He expects that the thrifty young trees will become large enough to be used for posts as they stand by the time the first fence rots down, say a hundred years.

Last year Mr. Sullivant's Illinois farming operations were not very profitable. His immense corn fields were mainly planted on the newly turned prairie sod, and the season was so unfavorable that the harvest was very light. His lands he regards about as fertile and productive as the Scioto bottoms, and his crops this summer and autumn will largely swell the overflowing granaries of Egypt.—Mr. S. is quite moderate in his expectations. He does not hope to be a rich man himself, but thinks he may leave something for his children.—*Cleveland Herald.*

IMPROVED LIME KILN.—An improved lime kiln has been invented in Rockland, Me., by which the burning of lime goes on continously. In the old way, a kiln full is burned, cooled, and the lime taken away, then the kiln is filed up again, being in operation only half the time.

CAN WE AFFORD TO LIVE IN IT.

Occasionally some millionaire builds a mansion, which is the admiration of the town, or erects a country house, which, with its grounds, is the pride and boast of its neighbourhood. In time the great man dies, becomes insolvent, goes abroad, or tires of his hobby; and then the property is put up for sale. Everybody crowds to see the dwelling, or drives out to the country house. The pictures, the furniture, the hot-house or the grounds, by turns the theme of admiration. The night of the sale arrives. The auction room is crowded. To judge from the sea of faces looking up at the crier, one might think that the competition would be enormous. But the fact is the reverse. The auctioneer expatiates long before he can obtain a single offer; the property, at first, seems about to be knocked down to the first bidder; and when at last, other offers are made, they come almost reluctantly, and though the hammer falls amid a general cry "how cheap!" the purchaser looks as if he already half repented of his bargain.

And why? Simply because it is one thing to buy a costly house, but quite another thing to live in it. Men, before they purchase a stately mansion, should ask themselves whether they can afford to keep it in appropriate style. A hundred thousand dollars for a dwelling makes necessary thousands of dollars for furniture, thousands for dress and equipage, and thousandsgmore for servants, parties, Newport and Saratoga. There is a fitness in things, demanded by public opinion, which requires these expenses, and to this opinion nine men out of ten sooner or later practically yield, even if they or their wives do not embark in the extravagance at once. But usually there is backwardness in this respect. Fitznoodle purchases a new house, with rosewood doors, walnut staircase, stained glass windows, and before he has fairly recorded his deed, Mrs. Fitznoodle wants the walls frescoed and panelled with satin, and ten thousand other superfluities. The estimated cost of the movement is soon trebled; the annual outlay grows in proportion; and Mr. Fitznoodle is either ruined, or condemned to groan, forever after, over his increasing expenses.

What is true of the would-be-fashionable, is just as true, however, of persons with more limited means. If men worth only a hundred thousand dollars or two, ape the millionare's style of living, so do young merchants, professional men, even clerks and mechanics, ape those richer than themselves.—The weakness of wishing to live in a fine house is almost universal. The fine house, too, is relative; for that which a millionare scorns, the young merchant thinks superb, and that which the merchant looks down on, *the clerk pinches himself to obtain. It is amazing how many families live in dwellings* beyond their means! The miserable shifts to which such families are driven in order to keep up appearances, are melancholy to think upon. In the end, too, the head of the family dies, having laid by nothing, and the widow and children sink into a hopeless poverty, the more poignant to them, because of the mortification attending it. It would be well if the question was often asked, when moving into a better home is proposed, "Can we afford to live in it?"—*Horticulturist.*

TO PREVENT GIRDLING OF TREES.

(From the new revised Edition of Downing's Fruit Trees of America.)

Great injury is done to young orchards in some districts by the *meadow mouse.* This little animal always works *under cover,* and therefore does its mischief in winter when the snow lies deeply upon the ground. A common and effectual mode of deterring it is that of treading down the snow firmly about the stem directly after every fall of snow. But this is a very troublesome affair.

The following mixture will be found to be an effectual prevention. Take one spadefull of hot slaked lime, one ditto of clean cow's dung, half ditto of soot, one handful of flowers of sulphur, mix the whole together with the addition of sufficient water to bring it to the consistency of thick paint. At the approach of winter paint the trunks of the trees sufficiently high to be beyond the reach of these vermin. Experience has proved that it does no injury to the tree. A dry day should be chosen for its application.

English nursery men are in the habit of protecting nurseries of small trees from the attacks of *rabbits,* simply by distributing through the squares of the nursery coarse matches made by dipping bunches of rags or bits of tow, in melted sulphur, and fastening these in split stakes a couple of feet high. The latter are stuck into the ground, among the trees, at from 12 to 20 feet apart, and are said completely to answer the purpose.

IRON VERSUS HEMP.

Circumstances indicate that, in certain kind of steamers, iron will entirely supersede the use of wood as a building material.

Another use has been made of it to a limited extent, in its substitution for hemp, for standing rigging. Careful tests have been made recently in Liverpool, in which the superiority of iron seemed fully substantiated. These tests had special reference to the comparative strength of wire and of hempen rope. The following are given as the sizes and materials of the samples subjected to the first experiment with the results:—3¼ inch galvanized wire rope, broke at 20 tons 15 cwt.; 3¼ inch Manilla hemp, ditto, 5 tons 17 cwt.; 3¼ inch Russian hemp, ditto, 4 tons 15 cwt.; 3¼ inch galvanized wire rope, ditto, 16 tons 10 cwt.; 2¾ inch galvanized wire rope, ditto, 8 tons 10 cwt.

How far these results may be counterbalanced in the matter of convenience, it belongs to experience only to decide. The *Liverpool Post* says, in reference to the superior strength of iron as shown in the above experiment:—

"But from a table handed to us we perceive that this is not the sole, or indeed we might almost say the greatest, of the advantages it presents. For instance, we observe that wire rope is a fourth less in weight, and not one half the bulk of that made of the hemp of the relative strength and enduring capacity. The advantage of this, especially in beating to windward, needs no comment. Moreover, we are assured the cost is 25 per cent in favor of wire rope over hemp, estimating weight and saving. Again wire rigging is much less susceptible of atmospheric changes, the latter continually stretching. And when, in addition to all these advantages, it is remembered that wire rigging needs no stripping or refitting, as hemp rigging must have every few years, we can not but come to the conclusion that wire rope seems destined ere many years to surpass, if it shall not entirely supersede, hemp rope in ships' standing rigging. Already, indeed, we see that for years it has been creeping into more general use; and if the approval of experience can add, as it must, to the value of scientific tests, the use of it will be even more than proportionately rapid, for those who have used it invariably prefer it over hemp.

PUDDINGS BY THE WHOLESALE.

Here is a rule for building a dozen puddings or more on one foundation. What an idea! It may be a good one, however. Let the ladies look at it and see:

BAKED PUDDINGS.—Take about three eggs for each quart of milk, beat them thoroughly and stir with the milk, adding salt and sugar or molasses to the taste, and a little nutmeg or spice if desired. It is now ready to pour into the pudding-dish and set in the oven as a custard pudding, or with apple or other sauce stired in, as a fruit pudding; or it can be used as a basis for almost any other pudding. Take the custard as prepared, and thicken it somewhat with cold corn cake or pone crumbled fine, and you will have a light and excellent Indian pudding, or thicken with dry bread well crumbled, for a good bread pudding, that will please all. Or the pieces of stale bread may be sliced thin, and slowly dried and browned in the oven, then pounded fine or ground in the coffee-mill, and a little of this powdered rusk—about one tablespoonful to a quart—used to thicken it, with ground clove for spice, and you have a rusk pudding.

Add rice which has been previously boiled in milk, to the custard, for a rice pudding, or a little sago or tapioca, well soaked and boiled, for a still further variety. Hominy well boiled, or grated sweet corn, too, make puddings which some are fond of. A pudding which we particularly like, is made by taking very thin slices of bread buttered thinly, putting a layer of this at the bottom of the dish, then a layer apple sliced thin, another layer of bread, and so on till you have enough, then pour a custard made at first directed over the whole, and put it into the oven. Or for the bird's nest pudding, take small tart apples, pare and core, put them in the pudding-dish and pour the custard over.

The proportion of eggs may be increased or diminished in any of these puddings, according to the supply, and rasins or West India currants can be added or not at the pleasure of the cook. All of these puddings should be baked very slowly, and not suffered to boil in the oven. Sweet cream, with sugar, and if wished, a little nutmeg added, makes the best sauce for any of those. Or thicken boiling water with a little flour, add a small lump of butter, sugar, salt and spice, and either lemon juice, or lemon essence and vinegar, and yet have a good, plain sauce.—*Ohio Cultivator.*

SMUT ON WHEAT.

Smut seems to be a parasitic fungus, of which there are several varieties, as on Indian corn, wheat, &c. The black dust of matured smut is to be regarded as its seeds, each particle of which, however light and evanescent, is capable of germinating and producing its kind when brought into favorable circumstances. It is difficult to say precisely how these seeds find their way into the receptacles of growing wheat; but it is probable they adhere to the kernels of wheat when sown, and we know that in some way they are carried upward with the growing plant, and are developed at the base of the newly forming kernels simultaneously with the bursting of the spike from its sheath, or perhaps a little before the head makes its appearance. From this time the fungus grows and develops itself more or less rapidly, as the weather favors or otherwise, drawing its nutriment from the plant, thus partially depriving the forming wheat of its appropriate food, as well as insinuating a hurtful ingredient.

Now, on the supposition that the smut in wheat comes from sporules (smut seeds) distributed with the seed wheat, which we suppose to be correct, it follows, that if you could wash the seed before sowing, perfectly clean, there would be no smut in the crop; for however warm, damp, or lowery the season, smut will not grow unless there is seed for it to grow from. But it is impossible to secure perfect cleanliness from these sporules or smut seeds: they are too minute to be all washed away, and their vitality is not destroyed by pure water. Hence the importance of washing seed wheat in some solution that will destroy the vitality of such of the sporules as fail to be washed out.

Salt, plaster, quick-lime, arsenic, sulphate of copper, and other things have been recommended. The first is always at hand, and the next two are seldom far absent from the farm; and we believe that these are sufficient. If the seed be first washed in pure water, then in a weak brine, of say one quart of salt to a pailful of water, and then dried in plaster or quick lime, (the latter not too be used to fresh, nor very freely, lest it injure the vitality of the wheat,) we think that there will be little danger from smut, and that the operation will be favorable rather than otherwise to the germination and early growth of the seed wheat.—*American Farmer's Magazine.*

RENOVATING WORN APPAREL.

To remove grease spots from silks and satins, use fresh ox gall, or pure turpentine, camphene or burning fluid. Camphene is purified turpentine, and burning fluid is a mixture of three parts of alcohol to one of camphene, and is perhaps the best of all these. To remove acid stains, apply an alkali, as ammonia, (hartshorn), to the spot very carefully. With some colors ammonia will produce spots, hence it should be used sparingly, and applied only to the stain. Ink can be removed by being soaked or reapeatedly washed in solution of tartaric acid, or oxalic acid or salts of lemon. Woollen goods may be freed from grease by camphene, or burning fluid or alcohol, repeatedly applied, or even by soap applied liberally and well rubbed in. The cloth must afterwards be thorougly rinsed. Paint can be removed by camphene or burning fluid, repeatedly applied. Grease in a carpet may be removed by the same process, or by covering it with a considerable quantity of magnesia, which will gradually absorb the grease, and at least very much improve the appearance of the carpet. This process may require several days, and perhaps more than one application. Dry French chalk, or powder, upon a grease spot, will also absorb the grease, whatever the material to be cleaned, woollen, silk, &c. It must be applied liberally, remain a day or two, and be thoroughly removed afterwards by a brush. This is on the principle of absorption.

Ox gall may be prepared so as to be useful in this way, for an indefinite time, as follows:—Take one pint of gall, boil and skim, divide into two parts. To one add half-an-ounce of salt, and to the other half-an-ounce of powdered alum, both being heated till everything is dissolved. Pour into separate bottles, and let them stand in a quiet place for six or eight weeks, or till bright. Then pour off the clear portions and filter both through tissue or blotting paper into one vessel. In this state it will keep unchanged and free from odor.

To Stop Horses Frothing at the Mouth.—I have completely stopped frothing at the mouth by washing my horse's mouth out with the following mixture:—Six drachms of alum dissolved in a quart of sage tea, using it in a wine bottle, as you would refresh a race-horse, after a race, each time you go out.—*Cor. London Field.*

THE BEST METHOD OF STORING AND PRESERVING POTATOES DURING THE WINTER.

W. Frankland, Esq., said he considered that very much depends on the state the potatoes are in when taken up. As regards his own, this year they had been partially attacked with the disease, and he thought at one time they were going to be very bad; but they have turned out much better than he expected. Those diseased he sorts out as he takes them up. He then thinly spreads the good in his out-houses, when they are taken up wet; but this year they are so dry and clear that he has laid them much thicker. He lets them lie ten days or a fortnight to sweat, and then sorts them into three heaps, marketable, for sets, and the bad and small for pigs, &c. In about another fortnight he stores them in pits in the field, as by keeping in the house all the winter they are apt to shrivel, and do not look so blooming in the spring.

Mr. Geo. Welburn, of Eyingdales, said that he sorts his in the same way as Mr. Frankland, and spreads them accordingly; he has an out-house on purpose for storing them for the winter, and therefore never makes pits in the field. As soon as he thinks they are fit to put by, he stores them in his potato-house, and covers them with straw and dry sods. He takes particular care of his sods from year to year, always preserving them from wet. By these means, living as he does near the fishing town of Robin Hood's Bay, which he suplies all the winter, he can get easily at them at all times, whether frost or snow, which he could not were they in pits in the fields.

Mr. T. Ward, of Bannial Flat, said he does the same as Mr. Frankland as far as he has room in his out houses; but as he grows a large quantity he cannot take, perhaps, such minute pains and care of them. He causes them all to be sorted, as they take them up, and leaves all the diseased and bad ones on the land, and turns his pigs in to consume them. He first puts the good in small heaps in a field, and covers them with straw, and lets them lie in this way about a fortnight to sweat; he then has them properly sorted, and stores them in pits for the winter. He thinks Mr. Welburn's plan a good one, were there is a proper storing house.

Mr. E. Ormeston, of Struggleton said that he puts all his potatoes in the house the same as Mr. Welburn. He is very particular in sorting them, as he believes that the diseased potatoes infect the good; but in a few weeks after they have been taken up and sweated, they may then be stored for the winter, he having houses for the purpose.

All the other members present concurred in the opinion that potatoes must be allowed time to sweat before they are stored away for the winter, and the diseased regularly sorted from the good, as there is no doubt of the disease being contagious. —*Mark Lane Express.*

PRESERVING TOOLS FROM RUST.

Farmers should take great care of their farm implements at all seasons of the year, but more especially in the fall and winter seasons, when not in general use. The following compound is excellent to apply to all implements liable to rust:

Take about three pounds of lard and one pound of rosin. Melt them together in a basin or kettle and rub over all iron or steel surfaces in danger of being rusted. It can be put on with a brush or piece of cloth, and whenever it is applied it most effectually keeps air and moisture away, and of course prevents rust. When knives and forks, or other household articles, liable to become rusted or spotted, are to be laid away, rub them over with this mixture, and they will come out bright and clean even years afterwards. The coating may be so thin as not to be perceived, and it will still be effectual. Let every one keep a dish of this preparation on hand. As it does not spoil of itself it may be kept ready mixed for months or years.—Fresh lard, containing no salt, should be used. Rosin is a cheap article, may be obtained almost anywhere for four to six cents per pound.

To Mend a Chain Pump without Taking it up.—When the chain breaks, uncover the well and hook up one end of the chain. Tie a long cord to this end, and the other end of the cord to a large cork. Drop the chain with its cork down the pump tube, when, as soon as the cork passes the lower end, it will pop up to the surface of the water in the well. Draw it up and with it the cord, and with the cord the chain, when the chain is readily united, and the circuit made again.

MECHANICS.

"Out of nothing—nothing comes."

The laws of nature, unlike human laws, can neither be changed nor evaded; and, for want of a proper knowledge of simple and unchangeable laws, many men waste time and money in trying to produce great effects by insufficient means. The mechanical powers, as they are called, do not, and never can, create power—they only modify its application. The power most easily measured, is that of gravity, or weight: and it is the cheapest of all powers, or first movers, when, as in the case of a waterfall, nature constantly winds up the weight for us for nothing. Suppose then we have one thousand pounds of water falling ten feet in a minute. No human contrivance can make that water raise more than its own weight to the height of ten feet in the same time. It cannot raise quite as much, for the friction of the machinery must waste part of the power; but, as it may be a part let us omit the small friction from these calculations.

The effect of the mechanical powers is to enable us, while our original power remains the same, and the rate of its motion the same, to exert a greater power with a slower motion, or a lesser power with a quicker motion. But, in all such cases, the power produced multiplied by the speed with which it moves, will be found to give the same product. Thus one thousand pounds falling ten feet in a minute, may be made to raise ten thousand pounds one foot in a minute, or one hundred pounds one hundred feet in a minute, the same power being required in each case: but no man can make it do more, for if he did, he would create something out of nothing, which is contrary to a law of nature. For this reason all attempts to make a mechanical perpetual motion have failed, and forever must fail! as such a machine would be equivalent to making a weight raise another equal to itself to the same height in the same time, and enough more to overcome the unavoidable friction of the machine, which friction, however small, is certain sooner or later, to stop the motion, unless additional power is applied, sufficient to overcome the friction. Therefore every man who is trying to make a perpetual motion, or any machine which he expects to do more than the power applied to work it, is wasting his time and money in that which will be certain to end in disappointment.—*Exchange.*

PRESERVING GRAPES.

The following method of preserving grapes, from the *American Agriculturist*, is worthy of trial:

My mode of gathering and preserving grapes for Winter use is as follows:—When they are fully ripe, suspend a basket by a strap of cord passed around the neck, thereby giving liberty to both hands for picking; with one hand hold the cluster, and with the other cut it from the vine: remove from the clusters all unripe or decayed fruit, and deposit them in the basket until it is filled. (I use a market basket that will hold about a half bushel.)—Carry the grapes thus gathered to the place for packing. I use boxes about two feet square by six inches deep in the clear, with covers made to shut tight. In packing lay a newspaper on the bottom of the box, then a layer of grapes, then a paper and a second layer of grapes, which, when closely packed usually fills the box; set the box in some dry and airy place, with the cover open or off, and let the box remain open for ten days, or until the sweating process is passed; then close the box and set it in the fruit room, cellar or garret, any place where the fruit will not freeze, or which is not extremely damp.

Grapes packed as above directed, will open at any time during Winter or Spring following, as fresh as when packed. The only secret or mystery is, that the moisture which spoils the fruit when packed in saw dust and other absorbents, passes off during the ten days that the box remains open, instead of being absorbed, and remaining to keep the grapes damp, and ultimately mould and spoil them. I have practiced this method for several years without the loss of a single bunch of grapes. So perfect has been my success that I have more confidence in the preservation of the grape than any other fruit. I use *shallow* boxes for packing grapes, that the moisture may the more readily escape, and that the first layer in the bottom may not be crushed, by the weight above.

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RULES FOR EXTERIOR DESIGNS FOR HOUSES.

1. In all cases study beauty of form and proportion, and not ornament. Tasteful simplicity is better than fanciful complexity—as a statute in simple drapery is better than one bedizzened with feathers, ribbons, and unmeaning gewgaws.

2. Proportion may be shown in the smallest cottage as well as in the most magnificent palace—and the former should be carefully designed as well as the latter. However small a building may be, let it never show an awkward conception, when a good form is more easily made than a bad one.

3. The general outline of a building should not only exhibit good proportion, but every part. The height of a room, of a door, a window, should accord with its breadth; and the distance and distribution of these should observe the same rule, and should correspond with the expression as a whole.

RULES FOR FATTENING ANIMALS.—1. Let them have good, clean, nourishing food. 2. Feed them with the utmost regularity as to time—for "hope deferred" wastes flesh by fretting. 3, Feed often, and never give a surplus. 4. Let the pen or stable be kept clean and sweet—dirt or filth is always adverse to thrift. 5. Let the air be fresh and pure. 6. The water they drink must be pure. 7. They should have *rest* most of the time, and only very gentle exercise. 8. Keep them tranquil, and avoid fright and anxeity. If all these are carefully observed, they will make a vast difference in results.

TO MAKE HENS LAY IN WINTER.—Provide,

1. A comfortable roost;
2. Plenty of sand, gravel and ashes, *dry*, to play in;
3. A box of lime;
4. Boiled meat, chopped fine, every two or three days;
5. Corn and oats, best if boiled tender;
6. All the crumbs and potato parings;
7. Water, not cold, or blood warm.

This treatment has proved quite successful—and hens which, without it, gave no eggs, with it immediately laid one each, on an average, every two days.

ASPARAGUS.—It would be a curious item for the census statistics to know what portion of the farmers of America raise asparagus; a plant so easily grown and so valuable for food that no farmer's table in the proper season should ever be without a dish of the fresh cut buds, tenderly boiled in clear water, and served up in a deep dish with toasted bread and drawn butter. It is one of the easiest things to produce that a farmer ever grows for food; as he can have an annual supply of it with a very small amount of labor or cost of fertilisation. It will grow in any well prepared soil, though best in a deep, rich loam, spaded up, or trenched deep, highly manured, which appears to be all that is necessary to insure an abundant crop.

By covering the bed every Fall with compost, or even barn-yard manure, and forking it in early in the Spring, you can keep up the fertility of the bed, and thus have a supply for many years. Some think that a dressing of salt is an excellent stimulus for asparagus, because, being a marine plant, salt is natural to it. Chip manure or leaf-mold is excellent for a top dressing. So is pure sand.—*Exchange*.

PREPARATION OF HAMS.—B. P. Johnson, of the N. Y., State Agricultural Society, found on a recent visit to Maryland, hams far superior to any he had ever met with in New-York—and received the following account of the mode of preparing. We can fully endorse all that is said in favour of this mode of preparing and cooking, having used substantially this mode for many years:—

To every 100lbs of hams, take 8lbs. of fine salt, 5 ounces of saltpetre, 5 ounces of brown sugar, half a pint of molasses, and an ounce of African red pepper; first sift and powder the saltpetre, and pass the salt and sugar under a rolling pin, and then mix altogether. Rub this well on the skin side, and slightly on the flesh side, putting as much as possible into the hock. Place them on a platform for six weeks. [We repeat the rubbing two or three times.] Smoke with hickory wood. If the hams are large, they must be boiled six hours—if small, or if but half a one is taken at a time, four or five hours will do. Keep the pot filled, supplying evaporation with hot water. [The directions state that after the first boiling, the pot should be partially withdrawn, so as to allow simmering merely, but we do not see any special advantage, as *simmering* and *rapidly boiling* water are both at 212° of the thermometer.]

To Prevent Cistern Pumps Freezing.—Cistern pumps often are made to bring up the water through curved or inclined lead pipe, so as to conduct it to any desirable place in the kitchen. They usually have a valve to open by a stroke of the pump-handle, and let all the water down again, so as not to freeze. But careless hired girls frequently omit this, and the lead pipe is filled with ice, which often splits the lead and spoils the pump. A safer way, therefore, is to place a small splinter of wood under the lower valve, to let the water leak out in about five minutes, and drain the pump. This is to remain only during winter. The best pumps are now made so as to *screw off* the base in a few seconds laying the lower valve to view. If pump tubes become acutually filled with ice, they may be quickly thawed by pouring hot water *directly* on the ice, through a small lead or other tube, which must settle as fast as the ice thaws. Ice may thus be thawed a foot per minute—but without this tube it could not be thawed in a whole day, for the hot water being highest, remains at the top.

Keeping Potatoes in Winter.—Potatoes spoil in winter, if buried, from three causes. First and greatest, want of ventilation. Secondly, and nearly allied, dampness. Thirdly and more rare, freezing. Farmers find most of their potatoes spoiled at the top of the heap, where they suppose they became frozen; but this is not the usual cause; the damp, foul steamy air ascended there, and could not escape, and this spoiled them. A hole made in the top, with a crowbar, and closed with a wisp of straw, would have allowed egress to the confined air, and saved the potatoes.

The best way to secure potatoes out-doors, is to make large heaps, say 50 or 60 bushels see that they are dry and clean, by digging before wet weather comes on; cover them all over with *one foot* of *packed straw*, and three inches of earth. The straw will prevent dampness, and the few inches of earth will favor ventilation. A farmer who raises many potatoes, and practices this mode, does not lose a peck, on an average in 50 bushels.

Gutta Percha Photographs.—It is announced that gutta percha photographs are a recent English invention. The negative picture is produced in the ordinary manner upon the colodion film on a sheet of glass, and it is fixed and dried in the ordinary manner; it is then dipped in a solution of gutta percha, and after draining off the excess it is dried by a gentle heat, and nearly a transparent film of gutta percha will be found upon the collodion. If the film is not sufficiently thick, this operation is repeated one or more times until a sufficiently thick film of gutta percha is formed. The whole is next immersed in water, which causes the colodion to separate from the glass, and come away with the film or sheet of gutta percha firmly adhering to it. These films or sheets are sufficiently transparent, and are tough and flexible, and may be handled without injury.

Re-dressing Millstones.—This operation, formerly so tedious, can now, it is said, be performed with much facility and success by a machine devised for the purpose. With this machine, any person capable of turning a crank can re-dress the lands and furrows of a millstone in a very accurate and expeditious manner. The novelty of the invention consists of a number of picks guided and fed back and forth from eye to circumference of the stone, by means of a screw shaft and as they traverse are caused to rise and fall, by means of a cam shaft. The chisels, or blades of picks, are so confined that the liability of their being broken, owing to their high temper and concussion with stone is by this uniquearrangement completlely avoided.

The Greatest Steam Invention Yet. — The *Baton Rouge Gazette* under the above heading, has the following:

Wm. St. Martin, of this city, has invented an engine which can be constructed, boiler and all, for about $50. The machine is so simple that we might with propriety say it is merely an escape-pipe, taking up no more room. The steam is admitted into the centre of a drum or cylinder, in which the shaft works; from this the power is applied directly, without further friction. The other day we saw the perfected model of the engine pumping water about twenty feet, and throwing it into the reservoir at the brewery.—This is the appartus wanted, for getting in a cheap manner, one or more horse power to drive small machinery. Mr. St. Martin has made application for letters patent and when he gets them, we think he has a fair prospect to realize something from the result of his genius.

Food Consumed by Cows.—Prof. S. W. Johnson says that according to experiments made in Bavaria, cows to give the greatest quantity of milk, must consume daily one-thirtieth of their live weight in hay, or other food of equivalent value. More food increases flesh and fat, and less diminishes milk.

Coloration of Poisons.—A late writer recomends that all poisons employed or sold by druggists be stronlgly colored with carbo-azotic acid, one grain of which is sufficient to impart a distinct yellow to 70,000 grains of water. This acid has the peculiar property of imparting a yel ow color to the skin of a person taking it, as also to any food in which it might be mixed. It has been proved not to destroy or in any way modify the beneficial effects of prussic acid in which it has been mingled, and the inference is thatit would prove equally inert in other poisons, while it would serve to alarm the user, and indicate the poisonous character of any preparation in which it had been mingled, either by accident or design.

Cheap Barometer.—Take a clear and clean bottle, and put in a small quantity of finely pulverised alum. Then fill up the bottle with spirits of wine. The alum will be perfectly diss lved by the alcohol and in clear weather the liquid will be as transparent as the purest water. On the approach of rain or cloudy weather, the alum will be visible in a flaky spiral cloud, in the centre of the fluid, reaching from the bottom to the surface. Thus a cheap, simple, and beautiful barometer, is placed within the reach of all who wish to possess one. For the simplicity of construction, this is altogether superior to the frog barometer in general use in Germany.

Blacking for Horse Harness.—Melt 4 ounces of mutton suet with 12 ounces of beeswax, and 12 ounces of sugar candy, 4 ounces of soft soap dissolved in water, and 2 ounces of indigo, finely powdered. When melted and well mixed add half a pint of turpentine. Lay it on the harness with a sponge, and polish it off with a brush. The blacking is for working harness, which should be cleaned and polished up at least once a week when in constant use.

The following is a receipt for carriage harness blacking :—Take three sticks of black sealing wax, dissolve them in half a pint of alcohol, and then apply with a sponge. Lac dissolved in alcohol, and colored with lampblack, will answer the same purpose. This is a quick drying, hard varnish, liable to crack the leather, and should, therefore, be put on as seldom as possible.

Elderberry Wine.—Take three quarts of black elderberries, when quite ripe, to a gallon of water and four pounds of brown sugar, a little root ginger and a few cloves. Boil the berries and water half an hour, strain them, and then boil the wine and spice together about an hour. Skin the froth as it rises. When it is boiled, let it stand till almost cold; then add a teacupfull of yeast, and let it stand three days. Then barrel it, and let it stand four months, when it may be bottled, with a lump of sugar in each bottle. Cork tight, and keep in a cool place. Age improves it.

Elderberry Syrup.—Take of the juice of Elderberry one quart; boil it to one pint; strain and add two pounds of double refined sugar; again place it over the fire; so soon as it shall have boiled, remove it from the fire, and when cold bottle it for use, taking care to have it well covered. With a less quantity of sugar there will be danger of its becoming mouldy. As a gentle purgative, this syrup is an excellent medicine, of very pleasant taste, and is peculiarly serviceable to children who are not easily induced to take common medicine. The dose for an adult is a wine-glassfull.—*New England Farmer.*

Storing Ruta Bagas.—These roots heat easily, and they require most thorough ventilation. Next, to be kept as cool as practicable, without freezing—a little frost will not hurt them, if thawed very gradually. If stored in a cellar, they must not be placed on the bottom of the cellar, but kept a foot above, on a coarse wooden grate, which may be made of rails. This will admit air freely. If heated, they become dithy and comparatively worthless.

If kept out-doors, they should be placed in *ridges*, not over three feet wide, and as steep as they will pile, and as long as convenient. Cover well with sraw, then a few inches of earth—in the northern States, six inches will do. Pat the earth smooth with a spade, to drain off rains. Then make a hole with a stake or crowbar, every six feet, and put in a wisp of straw—this allows ventilation.

Grinding or Crushing Food.—Chemical experiments have proved that the outer skin of grain is nearly insoluble, by the gastic juice of animals. Hence, when grain passes through them whole, it imparts but a small portion of nutriment to the animal. But if only broken before feeding, or by mastication, the whole of the kernel is digested, and the skin only passes away.

HONORABLE NOTICE OF AN IMPORTANT DISCOVERY.

Nearly ten years ago Mr. JOHN KYLE, an eminent horticulturist in the neighbourhood of Glasgow, Scotland, after a long course of experiments, propounded as a preventive and cure for the grape disease, which about that time commenced its ravages in France and Spain, the application of sulphur to the plant. Mr. KYLE's mode of cure was the subject of considerable discussion at the time, and by not a few it was treated as preposterous and ridiculous, Year after year, however, facts accumulated in its favor, and at length all objections were silenced by the most satisfactory demonstrations of the efficiency of the cure. After this discovery had acquired some celebrity, it was made the subject of careful experiments in France, and found to be an effectual remedy for the vine-blight, which had been considered a very serious calamity. A report has just been presented to the French Government, mentioning that the remedy for the disease first propounded by Mr, KYLE, in 1848, is the only which has proved successful, not only in destroying, but also in preventing the blight; whereupon the government, in conjunction with the Societe Industrielle, has awarded 10,000 francs (about $2,000) to Mr. Kylé, as the first propounder of the cure.

This wholly unsolicited and unexpected reward is highly honorable to all the parties connected with it.

It seems somewhat probable that sulphur may yet be found to be effectual as a remedy for other forms of blight, mildew, &c., such as are known to attack the potatoe plant, the hop, the gooseberry, the peach, and our most important cereals, as wheat, barley and oats. The diseases affecting these several plants, commonly known as blight, mildew, rust, &c., are thought by many to be of a similar origin, and to be the results of minute fungi, of which different species attack different plants. The great success which has resulted from the application of sulphur to one species of this multiform disease, seems sufficient to encourage to the undertaking experiments with it in other forms. We trust that some of our more enterprising readers will bear this in mind next year.—*Country Gentleman.*

A MODERATE ESTIMATE OF THE VALUE OF SORGHUM.

A gentleman in Michigan, who avers that he has kept himself entirely free from all excitement or fever, in regard to this agricultural novelty, and at the same time has never given utterance to a sneer or a grumble against it as a humbug, thinking it wiser to wait patiently for the results of the experience before forming any judgment or opinion about the matter, writes as follows:—

"I think I can very plainly perceive in certain of the reports which have been given to the public in regard to the yield of syrup from the Chinese Sugar Cane, a disposition to exaggerate, or some manifestations of that tendency to delirious raving which is so frequent in fevers of the same kind as that which has lately made its appearance, and goes by the name of Sorghmania. Several published accounts of the yield of molasses from the Sorghum, give estimates of the amount which may be calculated upon per acre, which far exceed any reality which has as yet come under my personal observation. Still I have no doubt that in southern portions of Ohio, Illinois, &c., and in states still further south, the yield will be always considerably greater than in Southern Michigan, to which last my observation has been confined. Some even here, talk very confidently of obtaining from small experimental patches, at the rate of from 250 to 300 gallons of syrup per acre. Of the accuracy of the measurements employed in these cases, I am ignorant; but am able to speak positively as to one piece of half an acre, which received exactly such manuring and cultivation as are usually bestowed on crops of Indian corn. The cane grew on this piece to the height of from eight to over ten feet, and matured only a part of its seed before frost. After being crushed pretty effectually in a cider mill the juice was boiled down to the consistence of ordinary New Orleans molasses, and the amount was found by *accurate* measurement to be 60 gallons, or at the rate of 120 gallons of syrup per acre.

"In the latitude of 41° to 42° we believe this was an *average* crop, and we can, therefore, be not a little incredulous when we hear of estimates reaching *greatly* beyond this accurately ascertained result. In lower latitudes, in warmer seasons, or with higher cultivation, larger yields might readily be credited or calculated upon. But even at this rate our farmers can procure syrup from the Sorghum cheaper than they can raise other produce to exchange for sugar and molasses."