Farmers' Gazette,

AND CHERAW ADVERTISER.

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By M. MAC LEAN.

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AGRICULTURAL.

PLOUGHS.—Within twenty years great improvements have been made in the manufacture of ploughs. When the *cast iron ploughs* were introduced, it was resisted by most of our farmers who are very proverbially cautious of innovations without substantial proofs, that they are improvements, that the metal would be too brittle for service in most of our rocky fields, and for a long time they were shy of giving them a trial. And to avoid, as far as possible, this objection, the first manufactures of the cast iron ploughs made them exceedingly short—and though they were found to run a vast deal better, or easier with about half the team which was formerly required, the extreme shortness of the body of these ploughs was found unfavorable to the complete subversion of the soil, which all good farmers when ploughing green sward, are desirous to effect.

The latest fashion—*setting the soil edgewise*—they are not willing to adopt until they can be fully satisfied of the advantages which are likely to arise from such they procedure. When others have practiced, and proved, that furrows half turned will be more productive, or more easily tilled than furrows turned completely over, burying up all the grass, stubble, and other manure on the surface, that all this may at once be converted to manure, or to food for future plants—all practical farmers will then be ready to adopt the new scheme.

Prouty & Mears, of Boston, only a few years since seeing what was wanted by the most intelligent farmers, determined to make their ploughs with a longer body and a longer mould plate—and to obviate the objection that long plates were more liable to be fractured or broken among the rocks, they procured metal of a better quality than was formerly used for ploughs, and we are pleased to see they have succeeded in bringing the grass plough more near to perfection than any which have yet been manufactured.

In proof of this—if any practical man needs proof after seeing the article—we would remind our readers that these ploughs have frequently taken the first premiums at our ploughing matches on account of their ease of draught and their complete subversion of the sod.

At Harlæm in the State of New York, the Prouty & Mears' plough was decided, on a fair trial by the judges there, to be the best plough presented, both for requiring *the least draught* and performing the work *in the most perfect manner*; and a gold medal was accordingly awarded to his firm. This trial was under the direction of the American Institute, which invited competitors from all parts of the Union—and not a few contended for the prize.

The last public trial of the ploughs of this firm was at Worcester, in October, last, where a committee of ten—and Governor, Lincoln was one of them—unanimously awarded the premium of one hundred dollars to this same firm. We are more gratified in witnessing this result, as this is the precise form of the plough which we have for several years past, both in other papers and in this, been recommending to the public.—*Boston Cultivator.*

FIRED. OF FIRE-FANGED MANURE.

Mr. Editor.—When stable manure is thrown in a heap of considerable size from the stable it immediately commences heating, and giving out a steam or gas of a very strong smell. If the heap is large, this operation will continue several days: and if the manure be examined after it has ceased, it will be found of a whitish mouldy appearance, except a thin layer on the surface; and soon it will become dry and hard. Manure in this condition, is called by English writers, "*Fire fanged.*" For brevity, I shall, in this article, call it *fired.*

Manure, when completely *fired*, I have found of very little value; and if applied to plants while in the operation of *firing* it will frequently destroy vegetation; hence it is of much importance to preserve manure from firing.

The best method of doing this, and at the same time securing all its strength, for the soil, is, doubtless, to carry it directly from the stable to the land on which it is to be used spread it evenly on the ground, and immediately plough it in, thus mixing it thoroughly with the soil. But this is not always convenient, or even practicable; hence it is necessary frequently to adopt other means. My plan is this: I generally clear my stables of manure while it is raining, and have it spread out, so as not to be more than 6 inches thick in any part. If the rain continues sufficiently long to wet the manure thoroughly, I then have it thrown into a heap; otherwise I let it remain spread out until I can haul it to the field, or another rain puts it in good order for heaping up. This practice is founded on the principle that manure will not fire *when exposed to the atmosphere in a layer not exceeding 6 inches thick, or in a heap if completely saturated with moisture.* A part of the strength of the manure is evidently wasted by exposing it to the sun and air while spread out, as I have stated above, but this I consider altogether preferable to having it fire in the heap. Care should be taken to have it entirely saturated with water before it is thrown into a heap. This may be ascertained by its beginning to drain. It is then in a suitable condition for heaping.

For want of correct information on this subject, I am convinced much of the value of stable manure is lost by our farmers. Other kinds of manure are not as liable to fire as horse stable manure; and this seldom fires before it is removed from the stable, except when it is allowed to remain in considerable quantity in a stable that is not regularly used; it will then sometimes fire in the stable.

It might be a matter of some importance to know what would be the best method of treating manure that had become fired; but I have made no experiments on this point; I should judge, however, that the first requisite would be to have it thoroughly drenched with water. If any thing would help to restore its quality, that I would think most likely to do it.

F.

Salubrity, S. C. March 13, 1841.

[From the Western Farmer and Gardener.]

SOIL MOST SUITABLE FOR APPLE TREES.

The successful cultivation of the apple depends very much on the suitableness of the ground they are planted in. The size and flavor of the fruit, the general health and duration of trees is most commonly the result of good or bad soil. Climate and situation also affect both trees and fruit; but not in the degree in which the same are affected by the qualities predominant in the land. Of all the different descriptions of soil to be met with, that of a soft hazel loam, containing a small portion of sand, seems to be most congenial to the apple generally. In such soil the tree is seen to flourish longest, is most productive, and remains freest from disease or attack of insects. A great depth is not requisite; eighteen or twenty inches deep being quite enough, provided it be on a subsoil of gravel or loose rock. If the bottom be wet, the trees should be planted high, and every means taken to drain the ground. A wet bottom of gravelly clay should be avoided if possible.

Deep rich soils in sheltered situations are not the most proper for the apple, for it is often seen that apple trees succeed well in any kind of loam, though it be not more than one foot in depth, so as the bottom is sound and dry. the roots take an extensive horizontal range, the young wood is always of more moderate growth, and better ripened than when roots strike deep into the ground.

Although local circumstances often control the works of the planter, compelling him to fix on a site where the soil may not be recommended above; he must in this case, endeavor to make the soil by trenching, draining, and by addition of the qualities wanting, bring it is as near to the ssandard as possible.

Situation and aspect for planting Apple Trees.

The situation of an orchard should neither be in the bottom of a narrow valley; nor on the top of a hill: in the first, the young wood is never so well ripened, the buds are often too early excited in the spring, and their frosts are always more intently felt: in the second, fruit-bearing trees are always too much exposed to the winds. The most desirable site is the side of a hill which slopes gently to the southeast, that being the most sheltered situation in this western country. But when the violence of the west wind is broken by an intervening rise of ground, a southwest aspect has been found equal to any.

From the National Intelligencer.

PRESERVATION OF WOOD.

Hawthorn Cottage,

Roxbury Mass. Feb. 15, 1841.

Gentlemen: Enclosed is an account of a discovery which has been made in France during the past year, in relation to the preservation of wood from decay, and enduing it with other valuable qualities. It was transmitted from Paris by the Hon. G. W. Erving to Governor Winthrop of this State, who put it into my hands with a request that it might be translated and published, from the belief that the discovery would excite a deep interest in this country, where wood is so extensively used for ship-building, steam and canal boats, as well as for architectural and an infinite variety of other purposes in the economical and ornamental arts.

This State is not only under the greatest obligations to its illustrious founder, but to the gentleman who, as his direct descendant, has for many years honorably upbore the dearly cherished name of Winthrop. There are but few men now living who have done more to encourage and foster letters, science, and the arts, promote the interests of all branches of national industry. For the advancement of agriculture he has, in a special manner, devoted unwearied attention for more than half a century, and his distinguished services in all the departments of intelligence and political economy have placed him high on the roll of public benefactors.*

Mr. Erving having filled the stations of Minister of the United States at the Courts of Stockholm and Madrid, is well known to his fellow-citizens, and while on a visit to Europe, as a private citizen, has evinced, in the most efficient manner, the solicitude he feels for the improvement and prosperity of his native land.

How often has it been verified, that the transmission from other distant nations of a single seed, plant, fact, or newly discovered invention, however, unimportant it may have appeared at the time, has been productive of immense advantage to the country in which they were received. A few seeds of the mulberry tree and eggs of the silkworm, which were brought from China and presented to the Emperor Justinian, in Constantinople, have rendered the culture of silk one of the most profitable branches of rural industry in Western Asia and Southern Europe, and may become quite as beneficial throughout the whole extent of this Republic.

A small bag of seed rice, which was obtained by the Governor of South Carolina from the cook of a vessel from Madagascar that had been wrecked on the coast of that State, and a sample of cotton seed which a planter received a few years before the Revolutionary war, have rendered their products two of the chief agricultural staples of the United States.

From one cherry tree, which was brought from the southern coast of the Euxine, by Lucullus, on his return to Rome from the Mithridatic war, has that delicious fruit been extended over Europe and America.

To the arrival in England of small communities of the persecuted Protestants of Holland and France may that kingdom date the establishment of her woollen and silk manufactories.

A glass tube, which was sent by a gentleman of London to the Library Association of Philadelphia as a mere philosophical toy, first excited the attention of Dr. Franklin to the subject of electricity, and induced him to make those experiments which resulted in his brilliant discoveries in that science.

May every American citizen who visits foreign climes imitate the example of Mr. Erving, and remember that it is in their power to subserve some department of knowledge, or some branch of science or art, if whatever that is observed, which is indigenous, and is deemed either valuable or interesting, no matter how minute or seemingly inconsequencial, is obtained and sent home. It is by such infrequent acquisitions that civilization has been advanced, national prosperity accelerated and the bounds of intelligence enlarged.

Extracts from Mr. Ervings letter to Gov. Winthrop and a French periodical publication.

Paris, January 1, 1841.

"I enclose a very interesting account of the session of the Academy of Science, on the 30th of November, in relation to the discovery of Dr. Boucherie of a process by means of which wood is rendered more durable, preserving at the same time elasticity and its bulk, unaffected by changes in the temperature of the atmosphere, while its combustibility is diminished, and such durable colors and odors given to it as may be desired. Be so good as to communicate this to Gen. Dearborn. If you think that the discovery may be useful in our country, it may be well that it should be published forthwith."

ACADEMY OF SCIENCES.

Meeting of the Thirtieth of November.

Industry has acquired a grand and admirable discovery. Wood, which, of all the materials of construction, is perhaps the most useful, and yet the most changeable, is about being transformed, in the hands of science, into an incorruptible and unalterable substance, which is neither affected by humidity or dryness, and is rendered indestructible by insects as well as incombustible; and yet retaining its elasticity. By this marvellous operation, the most ordinary woods become susceptible of being polished and impregnated with the richest colors and most delicate odors, by which they are elevated to the rank of the most precious of those varieties which are used in the useful or ornamental arts; and these various and beautiful results are obtained by a very simple and cheap process, as the substances which are employed are obtained at a very low price, and no other power is required than that which Nature herself developes.

[*This eminent and venerable citizen has since this letter was received, paid the debt to nature.—*Nat. Intell.*]

We have already announced this important discovery by giving an account of Dr. Boucherie's memoir on the preservation of woods; but were not able, at that time, to express any thing more than our hopes of his success. Now we can speak with entire confidence, as the report which the Academy has approved authorizes us to do so. A numerous commission, consisting of Messrs. Arago, De Mibrel, Poncelet, Gambey, Audion, Boussingault, and Dumas, have attentively examined Dr. Boucherie's process, and given to it their unqualified approbation.

We cannot betser subserve the Public than by textually publishing a statement which is so highly interesting to the industry of the country.

It is stated in the report "that the Academy had already seen, with deep interest, the mode in which the author had conducted his process, and has now in its possession specimens of the result, which are so remarkable that the labors of the commissioners have been very much diminished."

Dr. Boucherie is enabled, by his process, to render wood much more durable, to preserve its elasticity, protect it from the variation of volume by the dryness and humidity of the atmosphere, diminish its combustibility, augment its tenacity and hardness, and finally to give to it various and durable colors and odors."

All these exigencies have been satisfactorily illustrated, and by new, unexpensive, and simple methods; this, too, has been accomplished by the aid of common and cheap substances."

"For the purpose of penetrating an entire tree with the preservative, coloring, and other substances the author does not resort to any complicated or expensive mechanical means. All the power required is the aspirative force of the vegetable itself, which is sufficient to transport from the bottom of the trunk of a tree to the whole of the leaves at the summit the liquors with which it is desirable to impregnate it, provided they are kept within certain limits of concentration."

"Thus, if a tree in full sup is cut down and plunced in a vat containing the liquor which it is desired should be inspired, it will ascend in a few days to the most elevated leaves and all the vegetable tissue will be filled except the very centre of the tree, which in aged trunks resists the penetration of the fluid. It is not necessary that all the branches and leaves should be retained upon the tree, for those of the summit are sufficient to induce the aspiration."

MODE OF ANALYZING LIME, AND INTERESTING FACTS IN RELATION TO ITS APPLICATION.

"In eastern Pennsylvania, lime is the great source of improvement; and of this we have all the different varieties, I suppose, that can be named. We want some plain simple rule, by which any farmer may analyze lime, and be able to judge which of the different kinds is most useful to agriculture. We have primitive and secondary lime stone, also that which contains large quantities of magnesia, which we find very injurious to vegetation, and which I should like to detect before using it. Send us rules, in the Cultivator, to try lime, and you will oblige yours, &c.

"BENJ. F BADOLET.

"*Pugstown, Chester county, May* 25."

Before we reply to our correspondent, we cannot but repeat our regrets, that chemistry, so important in all the arts of productive labor, is not made a branch of instruction in the schools of farmers' boys, as in Germany, France, and elsewhere; and that we have no schools of instruction for them, in the theory and practice of husbandry, like those of Hoffwyl, Moegelin, Templemoyle,—of France, and of most of the German states. The benefits that would result alone from teaching the young farmer, scientifically, to determine the qualities of his soil, its defects, and the proper means of improving it by lime, marl and manures, would more than remunerate the public for twenty agricultural schools; or for suitable books of instruction in these matters, to every school in the nation. Science is almost indispensable to good and successful husbandry. See our *extracts* to-day. Orfila says—

"It is impossible to lay down any general rules respecting the fitness of lime for the purposes of agriculture, because much must depend upon the peculiarities of soil, exposure and other circumstances. Hence a species of lime may be extremely well adapted for one kind of land, and not for another. All that can be accomplished by chemical means, is to ascertain the degree of purity of the lime, and to infer, from this, to what kind of soil it is best adapted. Thus a lime which contains much argillaceous earth [clay] is better adapted than a pure one to dry soils generally; and stiff clayey lands require lime as free as possible from the argillaceous element.

"To determine the purity of lime, let a given weight be dissolved in diluted muriatic acid. Let a little excess of acid be added, that no portion may remain undissolved, owing to the deficiency of the solvent. Dilute with distilled water; let the insoluble part, if any, subside, and the clear liquor be decanted. Wash the sediment with farther portions of water, and pour it upon a filter, previously weighed. Dry the filter, and ascertain its increase of weight, which will indicate how much insoluble matter the quantity of lime submitted to experiment contained. It is easy to judge, by the external qualities of the insoluble portion, when the argillaceous earth abounds in the composition."

The diluted muriatic acid dissolves the lime. The insoluble residuum is clay or sand.

To detect magnesia in limestone, which, according to Tennant, renders the lime, when applied in large doses, prejudicial to lands, Orfila directs as follows:

"Procure a Florence flask, [a common half pint olive oil flask,] clean it well from oil, by a little soap-lees or salt of tartar and quick lime mixed, and break it off about the middle of the body, by setting fire to a string tied round it, and moistened with oil [spirits] of turpentine. Into the bottom part of the flask, put 100 grains of the lime, or limestone, and pour on it, by degrees, half an ounce of strong sulphuric acid. On each effusion of acid, a violent effervescence will ensue; when this ceases, stir the acid and lime together, with a small glass tube or rod, and place the flask in an iron pan filled with sand. Set it over the fire, and continue the heat till the mass is quite dry. Scrape off the dry mass, weigh it, and put it into a wine-glass, which may be filled up with water. Stir the mixture, and when it has stood half an hour, pour the whole on a filtering paper, placed on a funnel and previously weighed. Wash the insoluble part with water, as it lies on the filter, and add the washings to the filtered liquor. To this solution add half an ounce of salt of tartar in water, when, if magnesia be present, a very copious white sediment will ensue; if not only, merely a slight milkiness. In the former case heat the liquor by setting it in a tea cup near the fire; let the sediment subside; pour off the clear liquor, which may be thrown away, and wash the white powder repeatedly with warm water. Then pour it on a filter of paper, the weight of which is known, dry, and weigh it. The result, if the lime *stone* has been submitted to experiment, shows how much carbonate of magnesia was contained in the original stone: or, deducting 60 per cent. how much pure magnesia 100 parts of the lime contained. If the burnt lime has been used, deduct from the weight of the precipitate 60 per cent, and the remainder will give the weight of the magnesia in each of the 100 grains of burnt lime."

The sulphuric acid dissolves the lime and magnesia, which pass through the first filter with the liquid. The salt of tartar precipitates the magnesia, leaving the lime in the liquid. The magnesia is the residuum upon the second filter.

We add some relevant facts in regard to lime, from the Domestic Encyclopedia.

In burning lime, a ton ought to be reduced in the kiln to 1120 weight; otherwise it is not sufficiently burnt. It will regain two-thirds of the lost weight, by exposure to air for a week or ten days—100 parts of lime absorb [and solidify] about 28 parts of water; and to regain its full proportion of air from the atmosphere, it requires a year or more, if not purposely spread out. All limestone of *primitive* formation, contains magnesia; all white *marbles* contain about ten per cent magnesia. Put less of the magnesian lime upon your land, by about one-third, than of common lime.

The lands most benefitted by lime, are, 1. Rich black or brown friable crumbling loams, which abound with vegetable matter. 2. Low, rich drained meadows, that have formerly been bogs, and the black soil of which abounds in vegetable fibre. 3 Old pastures and commons, which have been under grass for time immemorial, and are first to be converted into arable land; but upon these, lime should not be repeated. 4. On moory boggy, mountainous land, and on black peat earth. 5. On all other waste soils that have been overrun with fern, briars, bushes or wood, and which, though richly stored with vegetable food, have contracted an acidity, in consequence of their long rest, and the spontaneous growth of roots.

Mild lime, carbonate of lime, and marl, improve the texture of clays and sands, rendering the first less stiff and adhesive, and the latter more compact and retentive of moisture; and they improve all soils, not already changed with calcareous matter, by fitting them better to hold manures, and constituting a necessary constituent of most plants.

The soils which are not benefited by quick-lime, are those which are poor, light and thin; those destitute of inert vegetable matter; strong stony lands; wet cold loams, and all lands which have not been sufficiently drained; and on stiff clays that are tenacious of moisture. Lime is only a manure of stimulus—not of nutriment.

The preceeding remarks are from vol. 8 of the Cultivator, edited at the time by the lamented Buel. His remarks as to the kind of soil which is most benefitted by lime seem to have been suggested not by *experience* in its use but by a *theory* that a principal action of lime as a manure is the decomposition of vegetable matter. This theory does not seem to be supported by experience. It is even doubtful whether the fertilizing qualities of vegetable matter are at all improved by decomposition with lime; and sandy soil in which there is comparatively little vegetable matter, is improved in as great proportion perhaps as any other. We do not mean that the actual increase of production is as great from the application of lime to poor sandy land as from its application to rich loamy soil. But the increase in proportion to the production before the application of lime is as great, or greater.

We copy below from the same vol. of the Cultivator an article having some bearing on this question.

IN REGARD TO LIME.

To be employed in agriculture, we find somenew suggestions, and we think important ones, in a communication in the Farmer's Cabinet. They satisfactorily explain why ground limestone is not so good for land as effete lime, or lime which has lost its caustic quality, after being burnt, by the re-absorption of carbonic acid, and furnish useful hints for the application of lime in husbandry. The writer remarks on the first point—

"We cannot, by grinding, destroy the attraction of cohesion in limestone; there will be two or more atoms adhering.—While this is the case it never will be converted into a super-carbonate. Destroy the attraction of cohesion, as the result shows is done by burning and slacking, and it will ultimately be converted into super-carbonate, when incorporated with the soil; is then soluble in water, and acts beneficially or injuriously, as the quantity is in accordance with the wants of the plant, or in excess, as other manures do."

Upon the application of lime the writer says:

"I have been in the practice of using lime for twenty-five years; there is little of the land that I occupy that has not had 200, and some three hundred bushels to the acre, applied in that time. In my first applications, it was slacked, spread, and incorporated with the soil as soon as practicable from the kiln. But for more than twenty years I have spread but little that has not lain from three to twelve or more months, and when spread avoided all means that would incorporate it with the soil, that necessity did not urge for the accomplishment of other objects. The change was the fruit of a doubt of the ultimate utility of using lime to hasten the decomposition of vegetable matter contained in soil under regular cultivation, and that this questionable advantage was all I conceived I had to place against the known and certain result, that by so applying it, it would be converted into carbonate at the expense of a material contained in the soil that there was, or in future would become capable of supporting a vegetable; and that so far as it could be converted into a carbonate, before mixed with the soil, was clear gain; and I regard my experience as having fully sustained the conclusion."

TO THE PEOPLE OF THE UNITED STATES.

FELLOW-CITIZENS: Before my arrival at the seat of Government the painful communication was made to you by the officers presiding over the several Departments of the deeply regretted death of William Henry Harrison, late President of the United States. Upon him you had conferred your suffrages for the first office in your gift, and had selected him as your chosen instrument to correct and reform all such errors and abuses as had manifested themselves from time to time in the practical operation of the Government. While standing at the threshold of this great work, he has, by the dispensation of an all-wise Providence, been removed from amongst us, and by the provisions of the Constitution the efforts to be directed to the accomplishing of this vitally important task have devolved upon myself. This same occurrence has subjected the wisdom and sufficiency of our institutions to a new test. For the first time in our history the person elected to the Vice Presidency of the United States, by the happening of a contingency provided for in the Constitution, has had devolved upon him the Presidentia office. The spirit of faction, which is directly opposed to the spirit of a lofty patriotism, may find in this occasion for assault upon my administration. And in succeeding, under circumstances so sudden and unexpected, and to responsibilities so greatly augmented, to the administration of public affairs, I shall place in the intelligence and patriotism of the People my only sure reliance. My earnest prayer shall be constantly addressed to the all wise and all-powerful Being who made me, and by whose dispensation I am called to the high office of the President of this