

THE RALEIGH STAR AND NORTH CAROLINA GAZETTE.

THOS. J. LEMAY, Editor & Proprietor.

"North Carolina—Powerful in intellectual, moral and physical resources the land of our sires and home of our affections."

[THREE DOLLARS PER ANNUM, in Advance.]

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SODA SAL ERATUS.
THE Undersigned, the only manufacturer of Soda Sal Eratus, beg leave to call the attention of the public to an article made in imitation of the genuine, by several manufacturers who have been induced to this course by the great favor our article has met with, and those who are unacquainted with our article, have only to say, that a single trial according to the directions, (which are placed in each package,) will manifest its superiority over any other kind of Sal Eratus in market, and we warrant it to be pure and perfectly free from impurities. The genuine article can be obtained of any of the wholesale grocers or druggists in this city, Boston, Philadelphia, Baltimore, and New Orleans. Purchasers are particularly requested to see that our brand is on each package.
JOHN DWIGHT & CO.
New York, March 20, 1849. 13-17L.



AGRICULTURAL.

What I Know of Farming—Deep Plowing.

BY PROF. J. J. MAPES.
NEWARK, N. J. April 25.

H. GREENLY, Esq.—Dear Sir: In my last communication, I promised to give your readers some account of my experience in Deep Plowing. Before entering immediately upon the advantages to be derived from Deep Plowing, it may be well to give the reasons why plowing at all is necessary for encouraging the growth of plants.

The offices assigned by Nature to the soil are—

1. The mechanical sustaining of the roots of plants and necessarily of the plants themselves, in proper position; and at the same time that the mass of soil should be pervious to the increasing length of roots.

2. The reception and retention of those gasses, fluids, &c. which Nature's laws supply to the soil, until the requirements of growing plants shall appropriate them.

3. Such mechanical condition of particles, as shall best tend to the ready parting with excessive quantities of moisture and soluble excrementitious matters arising from vegetation.

4. Free admission of such components of the atmosphere as, by combination with the constituents of the soil, cause them to undergo changes beneficial to their general properties.

It is well known that if soil is disintegrated—but to slight depths, the roots of plants, on reaching the compact or disintegrated portion, cease to be healthy, and refuse to sustain the plant—thus meadows, when seeded down with the surface only, and not properly plowed will soon run out—for the under-soil from not receiving the influence of the atmosphere, remains sour, and unfit for supplying the necessary aliment at the termini of the roots, consequently the plants die. If meadows be deeply plowed they will last much longer without reseeded; and, when both sub-soiled and deep surface plowed, the instance has not yet occurred where re-seeding became necessary. Lucerne (French Clover), will grow for one, two and sometimes three years, on shallow-blown land; but if the soil be deep and free, as in some parts of France, it has been known to flourish with increased vigor for fifty years. When Lucerne fails the close observer will find that its roots have reached soil that has not been disintegrated.

This effect is common to most plants, and no error is more common than to mistake the length of roots of plants. Those of the ordinary Corn stalk will average 5 to 6 feet in length; and if a field be planted with Corn in hills 4 feet apart, no portion of the soil, to the depth disturbed by the plow, of one inch cube can be found that does not contain roots. Many of them are too small to be discerned by the naked eye, but still they exist, and their termini are only part capable of receiving nutriment. Even the common Onion has roots 18 inches long, and many of them will descend to their full length if the soil has been sufficiently disintegrated. The roots of most plants descend generally an average of two thirds their length, a portion only maintaining the horizontal position.

Soil has no power to absorb and retain many of the gasses found in the atmosphere until required by the growing plant, and this retention is just in proportion to the quantity of surfaces of particles exposed; and therefore, an unplowed surface cannot avail of this action, nor can shallow-plowed land receive as much benefit from this cause as that more deeply disintegrated. The rationale of this action I will explain in a future letter.

Compact soils will not permit the water resulting from rains to enter them, and shallow-plowed land will hold a large quantity of water near its surface, when from deeper disintegration, it might pass downward to a subsoil capable of freely receiving it. Heavy judgment of water about the roots of most plants is detrimental to their growth, while large quantities passing over their surfaces without being received will carry off the more soluble portion of the manure.

Growing plants not only receive but throw out matter from their roots, for they reject certain portions which are termed excrementitious; these in well disintegrated soils are got rid of, but when shallow plowed they remain on the impervious soil, and from their proximity to the roots, injure the plants.

All soils are improved by continual contact with the atmosphere and many constituents of the soil are useless to plants until they have been thus operated upon; the particles of soil have also the power to absorb the resultant gasses of the decomposing manures, but only after disintegration; and as these gasses, if not absorbed will be carried off by currents of wind, it becomes necessary in economical culture to prepare as much soil for their reception as may be required, and this quantity is found to be greater than can possibly be rendered pulverulent by surface plowing even when performed to the full depth of ordinary surface soil. I have proved this fact fully; for such parts of my farm as were plowed to the full depth of the loam, say seventeen inches, did not give as good crops as other parts where the subsoil had been disturbed to a still greater depth by the sub-soil plow run in the bottom of the furrow left by the surface plow.

The advantages of sub-soil plowing I shall reserve for my next letter; but to return to those of deep surface plowing.

No farmer can doubt that a deep soil can yield better crops than a shallow one, let us suppose, then, a soil to be eight inches and underlain by clay, and that the farmer should plow to the depth of 8-12 inches, and thus bring up half an inch of clay to be acted upon by the atmosphere and rendered into good soil; that the clay will undergo this change even in a single year, we cannot doubt if its proportion be no greater than stated above. Let this practice be continued four years, and the soil will then be 10 inches deep, and when at that depth, an inch instead of half an inch of clay may be added each year without his discovering that his land is any more cloggy than before he commenced the deepening; but his power to produce plants will be materially increased. If the plowing be done in the Fall, and so performed by back trowling as to ridge the land two inches of clay instead of one may be safely thrown out on the surface of these ridges, and the frequent freezings and thawings of Winter will render it perfectly pulverulent by Spring, and charge it with the necessary constituents of ammonia and carbonic acid from snow-water to enable the clay so changed to form a valuable addition to the mass. The farmer should bear in mind that the ultimate constituents of plants are never destroyed; for when a plant is consumed, decays, or is even burned, its ultimate particles are thrown again on the face of Nature for appropriation. The consumed crops of 1849 will supply the raw material for the manufacture of those of 1850; and he should have his soil in a condition to receive his share of Nature's bounties.

I remain, Sir, yours, respectfully,
JAS. J. MAPES.

From the Marlboro' Gazette.
CLOVER, PLASTER OF PLASTER OR GROUND GYPSUM.
BY PATENT PLANTER.

MR. WILSON:—The request that you make, that I should answer the queries of your correspondent "W. R. B." has induced me to employ this, my first leisure moment, in preparing such an answer as will, I hope, be satisfactory to W. R. B., and all my fellow farmers. Although I may not succeed in establishing any new theory, I will have the satisfaction of knowing that I bestowed labor and research upon a subject in which all feel deep interest, and am seeking information, and therefore that I have contributed my mite to the common weal.

About 1768 or 1770, plaster was first introduced as a fertilizer in this country, and a few years after, it was used quite extensively in Maryland and Virginia. It elicited then a great deal of discussion as to its effects whether great or all at all! What crops it acted best upon, and the soil it best suited? And in what way it acted,—what was the modus operandi of its effects upon the soils or the crops. All this is to a certain extent still dubious, and remains still undisclosed among the arcana of Nature's wonders. But after all the discussions upon this subject, founded upon chemical analysis made by the greatest chemists of the world, and the theories of Philosophers, as also the facts which have from time to time been furnished by intelligent and practical farmers like Mr. W. R. B., the beneficial effects of this substance as an ameliorator or fertilizer is admitted, and the crops on which it acts best have been ascertained, and the best form of its application and many of its mysterious ways in improving both soil and products have all been developed by the active observation of the farmer aided by the penetrating eye of Science.

"W. R. B." states many facts that are familiar to us all; and among them, that the effects of Plaster are now rarely seen, and clover is seldom sown with success, when some twenty years ago the reverse was the fact. Then he asks "why is all this? Is the land tired of cultivation? Is the gypsum adulterated, and its properties useless to the application of clover?" Surely the reason is not such as is indicated in either of these queries. Mother earth never tires of cultivation, unless you rob her of every thing. Look at the garden which is worked every year for a century, producing annually an average crop.—Gypsum cannot be adulterated, for gypsum is the stone from which man makes Plaster, and the same immutable laws of Nature's God, that caused plaster to fertilize clover twenty years ago being unchanged, must render it still beneficial to the same extent. The pure article itself still retains all its original properties, but may be rendered powerless by other causes or from

the absence of a co-operating cause. Before I proceeded in my attempt to explain this, I would here say that plaster may be adulterated, and that no doubt there are isolated cases where great frauds are practiced, but a farmer can easily ascertain the general character of the article he buys by this process:

"Put a quantity in a dry pot over the fire and when heated it emits a sulphurous smell. If the ebullition (arising from whatever cause, be it the escape of air, or the dissipation of its water of crystallization) is considerable, it is good. If it be small, it is indifferent. If it remain an inert mass, like sand, it is worthless."

Before we proceed to show how Plaster acts and why its effects are not as visible as formerly, I had better dispose of my answer as relates to clover, for in that will appear a strong reason why the effects of plaster are not now as palpable always as formerly, and it will show how plaster often meets with counteracting causes that destroy its usefulness upon clover.

There are many reasons why clover does not succeed as formerly—not that the land is tired of it, but our climate has changed; and our system has not kept pace with it. The hot summers, preceded by long droughts of spring, have all combined to prevent much clover sown at that season of the year, from vegetating, and has destroyed much that did vegetate.

Those who have of late years sown in the Autumn, in the winter have succeeded in having a fine set of clover, but it is true; it did not grow so tall and luxuriant as it did in former times, or as it is sometimes in some places seen now to do. Why so? For two reasons. One is that the food on which clover feeds has been exhausted in the soil, and thus for want of sustenance, it has dwindled. New and rich lands, especially rich loams are filled with lime or phosphates on which the clover feeds, together with what, by the aid of these and Plaster, it is enabled to gather from the atmosphere. A series of crops of clover being fed off and carried off, would assuredly deprive the soil of all that amount of food so necessary for the clover, and it would have to live on what the scanty supply of Plaster could attract from the atmosphere, unaided by these salts and phosphates which crop after crop had abstracted from the soil, without the former ever returning in the shape of manure or concentrated fertilizers. Again, it is poisoned by its own excrement. By being constantly kept in the land unaided by chemical means of rendering it innocuous, the excrementitious matter will destroy the clover, therefore time must elapse between the crops of clover, sufficient for it to pass off, or become by decomposition innocuous, or it must be neutralized by such chemical properties as will at the same time supply abundant food for the new clover crop. In this way alone can a succession of fine crops of clover be realized, as will be more reasonably explained, by the following extracts which I have selected as fully sustaining my views and which explain the reason that clover only sometimes now-a-days succeeds well; that is—after a long rest or interval between crops, when the land itself replenishes its exhausted resources, or when the industry of man has supplied it with what is required for the production of an abundant crop of that useful but voracious consumer of phosphates.

"Every 1000 lbs. of hay or straw are supposed to extract from the earth so much phosphoric acid as can be supplied by 8 lbs. of bones."—Ed. Amer. Far. Vol. IV. page 297. The opinion deduced from Derzelius' analysis is, that 8 lbs. of bones contain as much phosphate of lime (bone earth) as 1000 lbs. of hay or straw abstract from the earth." Same art. same author.

Clover is of all grasses the great consumer of phosphate of lime.

"During an interval of rest the soil in a great measure, regains its original fertility."—Leibig's Agricultural Chemistry, ch. VIII.

"Certain plants, such as peas, clover and flax, thrive on the same soil only after a lapse of years.

"Decandolle supposes that the roots of plants imbibe soluble matter of every kind from the soil, and thus necessarily absorb a number of substances which are not adapted to the purposes of nutrition, and thus subsequently be expelled by the roots and returned to the soil as excrements.—Now as excrements cannot be assimilated by the plant which ejected them, the more of these matters which the soil contains the more unfruitful must it be for the plants of the same species. These excrementitious matters, may, however, still be capable of assimilation by another kind of plant, which would thus remove them from the soil and render it again fertile for the first. And if the plants last grown also expel substances from their roots, which can be appropriated as food by the former, they will improve the soil in two ways."—Leibig—ch. 8.

We all know corn grows well after clover, but corn not well after corn. In the last quotation we have the reason for the success of this rotation. We never see two heavy crops of red clover in immediate succession; first, because the greater the growth the more phosphate and potash is abstracted from the land; and 2nd, for the reason so admirably explained in the following sentences which I take also from

Leibig's Agricultural Chemistry. "The quickness with which this decay of the excrements of plants proceeds depends on the composition of the soil, and on its greater or less porosity. It will take place very quickly on a calcareous soil; for the power of organic excrements to attract oxygen and to putrify is increased by contact with the alkaline constituents, and by the general porous nature of such kinds of soil, which freely permit the access of air. But it requires a longer time in heavy soils consisting of loam or clay.

"The same plants can be cultivated with advantage on one soil after the second year, but in others not until the 5th or 6th, merely on account of the change and destruction of the excrements, which have an influence on the plants being completed in the one or the other.

"In some neighborhoods, clover will not thrive until the sixth year, in others not until the 12th; flax in the second or third year. All this depends upon the chemical nature of the soil, for it has been found by experience that in those districts where the intervals at which the same plants can be cultivated with advantage are very long, the time cannot be shortened even by the use of the most powerful manures. The destruction of the excrements of one crop must have taken place before a new crop can be produced."

Now from all this we come to these conclusions. Unless there be an abundance of that peculiar food in the soil, on which plants of similar appetites feed—two kinds will not thrive in close proximity, while we often see plants dissimilar in their habits growing luxuriantly side by side—some plants luxuriate on the excrements or exudations of others. "On a soil for example which contains potash; both wheat and tobacco may be reared in succession, because the latter plant does not require phosphates, salts which are invariably present in wheat, but requires only alkalies and food containing nitrogen."—Leibig.

Unless therefore, the soil is full of phosphates or of manures containing the proper salts, clover will not succeed for a series of years with wheat or rye. The wheat crop may be good and the clover bad, because the wheat getting the start—being stronger, exhausts all the aliment before the clover can contend with it for the mastery. Therefore, if "W. R. B." wants a fine yield of wheat and clover, he must use bone dust, or guano, or agricultural salts freely, or a quantity of manure made of or from such substances as contain the varied chemical properties essential to the production of both grass and grain. But if he will work his land two years in succession (provided it be good land) in corn or tobacco so as to rid it of its poisonous excrements; then forego the benefit of a poor crop of grain, and sow clover by itself, not pasture it the first year, but follow the next year, he will secure a heavy clover crop and a good wheat crop unless misfortune befall the latter.

Then follow wheat with tobacco or corn, then clover, and so on, he will find that his land was not at fault, but his old system. This much upon the subject of the clover crop and the probable reasons for its failure of late years.

PLASTER.
Plaster, is technically speaking, sulphate of lime and is a compound of sulphuric acid and lime, and is used for like purposes as the muriate of lime.

To the extent of the quantity of lime it contains, it benefits all soils which lime would benefit, and in the same manner and by the same chemical process. It possesses the valuable property of fixing the ammonia contained in manure and spread upon the land—it fixes the ammonia in the soil which is formed by the slowly decomposing roots and other substances found in the soil. It has been ascertained beyond doubt to attract the ammonia and other gasses floating in the atmosphere, and fix them about those plants which feed principally upon the air, by means of their leaves—hence broad leaved plants like tobacco, cabbage, corn, clover, &c., are more benefited by Plaster than others, particularly spear grasses. It is particularly useful in dry seasons and in dry warm soils, because from its earliest use to this day, all admit that it attracts and absorbs much moisture from the air. Judge Peters, in an elaborate treatise on this subject as far back as 1797, says:—"Whoever be the cause, dew will remain on a grass field plastered an hour or two in the morning, after all moisture has evaporated from the part of the same field not plastered. I have also seen often this effect in my garden beds, which if plastered, will retain moisture in the driest season when there is not the least appearance of it on those beds not plastered. If water be, according to the old, as well as modern opinion, "almost all in all" in the food of plants and vegetables, the plaster attracts or retains abundant supplies." Again: "To many plants it forms a direct food, as by Sprengle's Analyses it seems that in every 100,000 parts of cabbage there are 1822 parts lime, 202 parts magnesia, 744 sulphuric acid. In like number of part there are 584 lime, 70 mag. 94 of sul. acid. 138 phos. acid.

Now, I hope, I have explained enough ways and means by which Plaster acts, and enough has been said to show that it is almost an

universal assistant to the farmer in increasing his crops, at the same time fertilizing permanently his soil.—Why, then, does it not always act well? I say it will always act well under that peculiar state of soil which it was ordained by nature to act.—Lime, or no other fertilizer, answers the expectation of every one that uses it, under all circumstances and on every soil. Lime will not do well on wet lands. Much is yet, I confess, to be learned about Plaster, its uses and its mode of action, but enough is known to render it an invaluable help to the practical and intelligent farmer. All practical men, and Philosophers, and Chemists, and Judge Peters, Gen. Washington, down to the present age of science, admit that one of its chief means of benefiting the soil and furnishing food converting easily such decomposing agents as it finds in the soil, into ammonia; and rendering it less volatile than otherwise it would be, it is retained longer in the soil, and continues to be slowly evolved, so that the plants receive the greatest benefit with but little loss from what, without the presence of the plaster, would readily escape. It follows, therefore, as a sequitor that there must be something in the land for the Plaster to act upon—some vegetable or animal manure, as food for its acid to act on—some "pabulum" as clover roots, &c., for its effects to be perfectly apparent to the casual observer. This doctrine is supported by Ingenhouse, page 12, in his "Essay on the Food of Plants,"—a very old work.

Judge Peters also says: "Plaster acts most powerfully, when in connexion with animal or vegetable, putrid or putrefying substances." He says in another part of his essay, that "Plaster must come in contact with some animal or vegetable manure, or putrid substances, to give its efficacy. And when so connected a small quantity of such manure or substances, will give its activity. The auxiliaries necessary to draw forth the powers of the plaster, are within the reach of every farmer of common industry and moderate capacity."

All vegetables and plants derive their nourishment from the air and water; therefore, to all; and particularly to the latter class, is plaster beneficial, Chapin and others assert that plants use nitrogen, oxygen and hydrogen gas, and carbonic acid as aliments. Now plaster by means of acid, "disengages all the gasses from the substances containing them," which it comes in contact with, it is evident therefore that the roots or leaves, or vegetation, or animal matter, or manures of either sort, which it has to work on, and the more of these gasses that they contain which it can extract, the more powerful will be its effect and the more apparent its value, shown as it will be in the increased product of the crop. So, if we want to see the full benefit of plaster, we must put it on such land as it suits, and such land as has a proper supply of matter or substances, out of which the plaster, by its chemical action, can manufacture a healthful and agreeable food for the plants that you wish nurtured.

All soils will be benefited upon. But the peculiar soil on which it will not act is rarely seen. As a general rule it acts better on light, calcareous soils than on very stiff soils. General Washington says he tried it on some of his land at various times and in different proportions for one to twenty bushels per acre, and found no benefit whatever from its application, "yet he was a believer in plaster, and thought on some soils it was of immense value."

Plaster, then, is most efficacious when applied to soils filled with decaying vegetable roots or fibres, consequently it is of no use on barren soils. This action of Gypsum is only, after all, but another powerful lesson that nature teaches man, which is, unless he judiciously returns to the soil, in the form of manure, what he has carried off in the shape of grass and grain and provender, or a large portion of it at least, that he need not look to plaster or lime, or guano, for the means of a succession of heavy crops, because they are but valuable aids to the farmer in elaborating from the necessary materials that he should place in the lands such food as the plants or grass may require.

Before I conclude, let me say once for all, that in my judgment no where can plaster be more properly, or more judiciously used than, from time to time, on the manure heap, over the cattle yards, and sheep folds, and in the stables. If it ever is of use it is when thus used.

MARCH 10, 1840.

MEADOWS.
All meadows which have been nearly run out may be greatly increased in their product by the following management: After being mowed and the hay cured and removed, spread on each acre 20 bushels of ash and 5 of ground bones harrow and cross harrow these in; then sow a peck of timothy seed to the acre; lightly harrow and roll; and you may thus renew your meadow without incurring the trouble and expense of ploughing, with the assurance that it would yield good crops of grass for several years.

Contract your desires, if you wish for independence.

R. TUCKER & SON
I have this day received by Adams & Co's Express, another supply of Printed and Embroidered Mourning Gingham, Black Silk Tissues, Ladies' Colored Kid Gloves, Gentlemen's do. do. Plaid and Fancy Bonnet Ribbons, 1 doz. Grass Skirts, ready made, at 75 cents each, Lyanese Braids, Lace, Buttons, Thread Bobbin Edgings, Blue French Cloth, Marlboro Plaids, Furniture Prints, &c. &c. Also a few Sets of Gothic and Landscape Tea Trays, a very handsome article. Raleigh, May 7, 1849. 19-14.

NEW GOODS BY EXPRESS.
AT
T. R. FENTRESS,
MAY 1, 1849.

THE Subscriber would call the attention of the Public to a beautiful assortment of French Cashmeres, and Fancy Silk Vestings, received this day, which, in addition to the Stock has on hand, selected by himself in person, will make his assortment one of the most varied in the State, and will be found to contain examination, every article for Dress, Comfort and Convenience, for the Season. It comprises Black French and Fancy Cloths and Cashmeres, the best Factors, Black and Fancy French Double, plain and figured white Drilling, plain white and fancy Marcellines, Black and Fancy Ties and Silk Vestings, Black French Drapetes and Black Cashmerette, for Summer Coats, &c. a variety of other Goods.

In the fancy line, he offers Silk Shirts and Drawers, and Gauze under Shirts, Linen and Cotton (good) Drawers, Black and White Raw Silk (a superior article,) Black and White Kid and fancy Lisle Thread Gloves, Suspenders, Black and Fancy Silk Cravats, (something new,) with a handsome lot of Patent Leather Belts, for men.

Also, a complete assortment of Dress Shirts, of the latest style, received this day, and warranted fit.

These Goods are offered, with the assurance that they will be disposed of on as moderate terms as any House in Raleigh.

Gentlemen furnishing their own materials will receive the same attention as though purchased of the store.

Thankful for the patronage he continues to receive, no exertion of his will be spared to merit its continuance.

A suit of clothes made in any specified time, and the goods warranted to fit, or no sale.

N. B. Orders from a distance thankfully received, and will always secure punctual attendance.

T. R. FENTRESS,
Merchant Tailor.
The London and Paris fashions are received monthly, independent of the Plates, twice a year.
Raleigh, May 4, 1849. 19-14.

Town Lots For Sale.
THE Public Lots in the town of Graham, the seat of Justice in the county of Alamance, will be exposed at public auction on the 14th of July. The terms of sale may be known by reference to the 3rd section of the act to lay out and establish a new County by the name of Alamance.

JOHN STOCARD,
W. A. CARRIGAN,
JOHN FOGLEMAN,
GEORGE HURDLE,
JESSE GANT,
JOHN SCOTT,
JAMES A. CRAIG,
ABSALOM HARVEY,
PEYTON P. MOORE,
Commissioners.
The Raleigh Register, Milton Chronicle, Greensborough Patriot and Christian Sun, will please copy until day of sale, and forward their copies to the office of the Recorder.
May, 29. 27-14s.

North Carolina Institution for the Deaf and Dumb.
THE next session of this Institution will commence on Monday, the 10th day of July. Having moved into the new Building, a few more pupils can be received. As pupils will be admitted in their order of application, it is important that application should be made without delay. Any information on the subject will be given by
Wm. D. COOKE, Principal.
Raleigh, May 20, 1849. 23-1m.

JENNY LIND COMING.
A letter received by a gentleman in Charleston, we learn from the Mercury, that this sweet cantatrice intends to pay a visit to this country. Many will be delighted to see this prove true.