THE SOUTHERN PLANTER,

Devoted to Agriculture, Horticulture, and the Household Arts.

Agriculture is the nursing mother of the Arts.—*Xenophon.*

Tillage and Pasturage are the two breasts of the State.—*Sully.*

FRANK: G. RUFFIN, Editor. P. D. BERNARD, Proprietor.

Vol. XII. RICHMOND, FEBRUARY, 1852. No. 2.

For the Southern Planter.

PLASTER OF PARIS *vs.* AMMONIA.

The action of plaster of Paris, when mingled with a manure heap, or with guano, is a question of great practical interest to the farmer. If it have no beneficial influence, then, is much money wasted in the purchase of plaster, and much labor lost in effecting its mixture. But if it be salutary, if it really exert a conservative power in arresting and combining with the escaping ammonia, then is much more lost by the neglect to use and profit by so important an anxiliary in fertilizing soils.

This is a chemical question and ought to be susceptible of easy solution by reference to chemical principles and chemical authorities. It may also be decided by well conducted, accurate experiments on the part of the cultivators of the soil. It is unfortunate for the first mode of solution that the dicta of the chemists are utterly contradictory. They do not agree upon first principles. Edward Turner, in his Elements of Chemistry, a Text Book in many of our Colleges, lays it down as an elementary fact, that lime will separate sulphuric acid from ammonia and combine with it. See Turner, page 125. Here is certainly a strong anthority against the advocates of plaster. It is essential to their theory that the reverse should be true; that ammonia should separate sulphuric acid from lime; decomposing the plaster, combining with the acid, and forming a sulphate of ammonia: by this means the volatile alkali which was about to escape from the soil being saved as a food for the crops. And this has been the general idea diffused in the periodical literature.

Boussingault states that gypsum in *solution*, will accomplish this object, but that in a state of moist powder, the gypsum is indifferent towards ammonia; nay more, that the law of affinity is reversed and that carbonate of lime decomposes sulphate of ammonia. "To explain this contradiction he quotes Berthollet and the following singular law: If two saline *solutions*, which will form between them an insoluble salt, be mixed, that *insoluble* salt will be formed and precipitated; but if the two salts containing between them a soluble salt, be mixed in a *moist, pulverulent* state, the *volatile* salt will be produced. Thus sulphate of lime and carbonate of ammonia in *solution*, produce carbonate of lime, which is insoluble, leaving sulphate of ammonia, which is soluble though not volatile. But carbonate of lime mixed with sulphate of ammonia in a state of *moist powder*, acting by an opposite interchange, produces carbonate of ammonia, a volatile salt, and sulphate of lime." (I quote from the American Farmer, page 184, of the present volume, not having a copy of Boussingault by me.)

This author, though differing from the former, is not more favorable in his views to the use of plaster for the purpose suggested. The gypsum* must be in a state of solution to combine with ammonia. That is a mode in which it is never used, either with guano or manure. It is scattered over the heap of the latter, or mixed up with the former in a dry state, or at farthest, a merely moist state, when the affinity of the sulphuric acid for the lime with which it is combined, is much stronger than for ammonia. But is it possible for the combination to take place in the soil, the principles here stated being conceded to be true? They are mingled and interred together, but how long do they bear one another company in the tomb to which they are consigned? The volatile alkali is continually ascending and escaping from its prison house, until rain comes, and then it descends with perhaps equal rapidity. The gypsum lies inert in "cold obstruction," until it meets with five hundred times its own volume of water, when a solution takes place and it seeks a lower depth. Now, wo! unto the tiny gases of ammonia with which it comes in contact, for if Boussingault be true, they will be arrested forever, chained in their dark domain, with no chance of ever seeing the upper air, unless some hungry root seeking about for food should lap them into his stomach and digest them into the world aboveonce more. But is it probable that many arrests of this kind will take place? Let it be recollected that while gypsum takes five hundred times its own volume of water for solution, ammonia only requires one six-hundred and seventieth of its volume. It is obvious they must move from their places at very different periods, and be governed by widely varying laws. What must be the prospect of contact with one bushe

* Plaster of Paris, gypsum and the sulphate lime are the same.

Edmund Cooke

or three-quarters of a bushel of plaster diffused over an acre of land with so many adverse circumstances opposing? To produce any effect, according to our author, the union must occur while the gypsum is in solution.

In justice to our two authors, and that their apparent variance may not invalidate their authority, it should be stated that the affinities of substances, or their order of decomposition, are different under different circumstances. For example: when a stream of hydrogen gas is passed over a bar of oxide of iron, heated to redness, the iron is deprived of its oxygen and water is formed by the union of the hydrogen with the oxygen. It would seem from this experiment that oxygen had a stronger affinity for hydrogen than for iron. Yet, "when watery vapor is brought in contact with red hot metallic iron, the oxygen of the water quits the hydrogen and combines with the iron." From this last result it would appear that the reverse was true, and that iron had a more powerful affinity for oxygen than hydrogen possessed for oxygen. Modifying circumstances often change the results of affinity.

But let us suppose, in opposition to the principles of these chemists, that ammonia will decompose the sulphate of lime, both in a state of powder and solution, and that the muriate of ammonia, the oxalate, urate, phosphate and carbonate of ammonia, all found in guano, are decomposed, their respective acids set free, and the sulphate of ammonia formed in their stead; which would take place, were the sulphate of lime once separated, and these substances brought in contact. What a vast change would you have here? Would the guano be any longer the same substance? These various acids all liberated, and in pursuit of new combinations, the lime also on the hunt for some other mate, the organic matter subject to the action of all these substances, would there not be an upturning, a complete "*bouleversement*" of the guano? The sweet juice of the grape, by the introduction of a little air, forms so many changes, there is so much decomposition and composition, the must becomes wine; a substance as different as sugar is from the beet. It would seem that when such chemical action was once introduced into the guano as that above referred to, we would have cause to apprehend equal changes, but far less salutary.

Not that the value of sulphate of ammonia is to be doubted for a moment. This substance is certainly highly fertilizing. But the doubt is whether guano is the most economical and best material from which to make it. It would seem that it could be bought already prepared on much better terms.

It is now necessary to consider some authorities on the other side of this question. And first, we will introduce Baron Liebig as a chemist of the highest reputation, wielding an influence and enjoying a confidence in the world inferior to no man on questions pertaining to the chemistry of agriculture. He says "carbonate of ammonia and sulphate of lime (gypsum) cannot be brought together at common temperatures without mutual decomposition. The ammonia enters into combination with the sulpburic acid and the carbonic acid with the lime, forming compounds destitute of volatility and consequently of smell. Now, if we strew the floor of our stable, from time to time, with common gypsum, they will lose all their offensive smell, and none of the ammonia can be lost, but will be retained in a condition serviceable as manure.—*Mohr.*

It will be seen that Liebig quotes Mohr as his authority. It may be, and it is not improbable, that he relied exclusively on him, and made no experiments himself. No writer of a chemical treatise can possibly test all his statements himself, and if this be said merely on the authority of Mohr, it is much less to be relied on than if Baron Liebig had investigated the subject bimself.

Apart from chemical authorities, the Hon. P. H. Pusey, M. P. states that he made the experiment here recommended; that he applied plaster on the floor of his stables and that the escape of ammonia was not arrested. Here is fact against theory; and the fact being true goes very far to prove that the theory must rest on some erroneous principle. Mr. Pusey further states that he strewed a bushel of plaster over a few square feet on the litter of a farmyard, from which he perceived that ammonia was escaping and yet the application did not arrest it.* This he tested "by holding near the surface a paper dipped in spirits of salt, which turns the invisible fugitive into a white opaque steam of sal ammonia."

Col. John Taylor, of Caroline, was in the habit of scattering plaster on the soil along with his manure, and ploughing them in together. Many other farmers have also used it with manure, and have testified to the beneficial effects of the application. There is no reason to doubt the good results; but might not the same consequences have been obtained by applying them separately? On some lands plaster exerts a magic influence with or without manure. The same query may well be suggested as to those reported successful experiments in mingling plaster and guano. If the plaster produced no chemical effect on the guano, it would certainly be an important auxiliary on those soils which are deficient in it, or to which it is adapted; but it would be equally salutary in its action alone as in combination.

In introducing the authority of Baron Liebig, we have placed him on the other side of this question. But this is only true as to the effect which ammonia exerts in decomposing sulphate of lime; and here he is in direct opposition to Turner and Boussingault. But his principle, if it be true, seems to be still more unfortunate for the advocates of mingling plaster and guano. According to the two former, there would be very little, if any chemi-

* See American Farmer, page 184, last volume.

cal action resulting from the mixture—it would be only useless. According to the latter, those consequences would result, of which a glimpse has been given—before, when tracing the effects that would ensue on the supposition that ammonia would under ordinary circumstances, decompose the sulphate of lime. In short, according to the two chemists, the mixture would be innocuous, but it would result from the principle of the latter that it would be destructive. What would be the end of the decomposition that would ensue, I am not prepared to say.

It is much to be desired that some of the learned chemists in our Colleges, with the aid of their laboratories, would give this subject a thorough analysis.

W. B.

December 26, 1851.

The subject of the following essay is a very important one, and we wish its author had made it longer. We invite him to renew it at his earliest leisure.

For the Southern Planter.

FENCING.

Mr. Editor,—In the last number of the Planter, I observe a communication over the signature of Mr. Walker Timberlake, on the proper construction of corn cribs, a very useful and valuable article, and one which will be of great benefit to your building subscribers. I hope Mr. T. will give us a description of his stable and pens for making manure. Information on the subject of farm buildings and fencing is of especial interest to the farmer; and the object of this communication is to furnish a few hints on the latter subject, which, I hope, may lessen this onerous tax among your subscribers. No man looks forward with any hope to any modification in the law of enclosures, and it is a matter of the greatest importance to land owners to lessen the labor and expense of keeping out neighboring stock, by consulting both economy and durability in the future construction of their enclosures.—My farm contains two long lanes of fencing, crossing each other at right angles, and furnishing a promenade for a large number of very *industrious and enterprising* cattle from a neighboring village. The large amount of fencing rendered necessary to keep up the fences along the public roads, leading through my farm, with the tax of keeping up cross fences, has turned my attention to the cheapest and best modes of enclosing lands; and I give below the result of my observations and enquiries on the subject:—Stone constitutes the best, and, in the end, the cheapest material for fencing where the hauling is from adjacent arable ground, which they encumber, or where there is no quarrying to be done, and the wall is constructed by the labor of the farm. But few farms furnish stone in sufficient quantities, and of the proper description, to enclose any large proportion of their arable surface; but it should be remembered, that if the farmer has it in his power to construct only one hundred yards of good stone wall, that much is done for him and his successor. Most of the highlands on the James river farms, contain great quantities of small, round stone, which, if properly used, would become a valuable fencing material. No wall constructed entirely of such stone, it matters not how broad the base, promises much durability; but a permanent enclosure may be made by inserting posts—say eight feet apart—along a row of such stone, piled to the height of three feet, and two planks nailed on the posts above it. It should, however, be observed that, along such fences all kinds of noxious briers and weeds seem to find a congenial home, and it is impossible to get at their roots to eradicate them, without removing the fence. Where but a moderate quantity of such stone is upon the soil, they should not be removed, as they contribute, by the moisture which they retain, to the productiveness of the land; and any surplus quantity of them can be more advantageously employed in constructing under drains than fences.

Next to stone, live fences are the most permanent, and when properly kept are highly ornamental. The plant best adapted to our soil, is the Osage orange, which can be obtained either from the seed, or in plants large enough to set out from the Northern nurseries.* The price of plants is about eight dollars per thousand, and of the seed, three dollars per quart. This plant grows luxuriantly on any strong clay or loamy soil, and forms a hedge so dense that nothing can penetrate it. For cross fences, yard, garden, or orchard enclosures, it is invaluable. The only hedge of this description that I am acquainted with, is a very perfect one on the farm of Doctor Thomas Massie, of Nelson county, who recommends it highly. I would advise any one designing to set out a hedge, to consult a very able article on the subject, in Stephens' "Book of the Farm." Of other enclosures—post and rail, with each rail inserted into a mortice in the post, makes an excellent fence; the construction of which, however, is tedious, and I much prefer a fence constructed of good locust posts and strips sawed one and a quarter inches thick, by four inches wide. Seven strips of these dimensions (which should be braced by a plank nailed upright on each panel, between the posts,) make a fence that will turn stock, and where the panels are sixteen feet long, require only thirty-seven feet of plank, running measure, to the panel, which is a great saving of timber over the common method of constructing plank

* And of as good quality from Gen. William H. Richardson, of Richmond, whose care and integrity we warrant to the few who may not know him personally or by character.

enclosures. A still farther saving of timber and labor may be accomplished by putting the fence on a bank, where, practicable, and it should be borne in mind, that, under such circumstances, it is not necessary to construct a fence as high as when made on level ground; yet among the very tallest fences I have ever seen, were some elevated on a bank, or running on the side of a hill!

The common worm, or rail fence, is the pride of Virginia, cherished, under all circumstances, by Cuffee, to whom it affords a fine supply of fuel, as well as by his master, and I shall say nothing in condemnation of it.—Where it is designed to make a permanent rail fence, on the line of division, for instance, the following is the best plan I have ever seen of constructing it:—A bed six feet wide is thrown up, along the proposed line of fencing, by a three horse plough; on this is laid the bottom course of rails, to form the base. Hands, with broad hoes, then get upon the bank, and pull the earth over the rails, thus changing the bed from a straight one, as formed by the plough, to a shape corresponding with the position of the rails, which have been previously laid down, to mark the course of the fence; upon this bank a fence is then constructed, staked and rided, and seven rails high. Stock are prevented from getting to this fence, to break it, by the embankment, and ditches which will be formed each side of the bank by subsequent rains, and, in all respects, it makes the best fence, for general use, where it is intended to be permanent, that I am acquainted with. I am admonished that my communication is getting as long as some of my fences; so I will defer to another opportunity a farther consideration of the subject.

M. C.

Nelson County, Virginia, Jan. 1, 1852.

For the Southern Planter.

THE FARMERS' CLUB OF NOTTOWAY.

Mr. Editor,—The Farmers' Club of Nottoway, at its last meeting, ordered that the following petition should be presented to the General Assembly of Virginia. A resolution at the same time was passed, ordering it to be sent on to the Southern Planter for publication, with the earnest request that all the clubs and societies in the State co-operate with it in the petition—if in favor of its object—and if not, that such club or society send one, in accordance with its wishes. It is also the request of the club, that farmers, and others interested, publish individually their views, pro or con.

The object of this resolution and request is to agitate the subject, and elicit information in relation to the wishes of the farmers in the eastern section of the State.

The club would also be under obligations to you, Mr. Editor, if you would, as you see proper, further an object deemed second to none other in importance, as it regards the prosperity of agriculture in eastern Virginia.

With respect, yours, truly,

Richard Irby.

The Petition of the Farmers' Club of Nottoway County, to the Honorable the General Assembly of Virginia, now sitting:

Your petitioners, after a full and careful examination of the present system of enclosure in the eastern section of Virginia, beg leave, respectfully, to represent: That, in their opinion, it originated with the necessities of the earlier settlers of the State, under circumstances that rendered the law at that time both expedient and proper; but since the face of the country and our social and agricultural wants are now essentially, and, in many respects, radically changed, we deem the alteration of the system to be as strongly demanded as was its original institution. The farming interest, now that judicious improvements are opening new markets, as well as new and valuable sources for obtaining fertilizing agents, they believe, has but this great and oppressive impediment to shake off, to rise to a degree of prosperity, unprecedented in its previous history. This being the great and paramount interest on which every other mainly depends, your petitioners, for many reasons, regarded as both cogent, and, in fact, unanswerable, believe that your honorable body could render no more acceptable service to the community at large, than to grant their prayer, and substitute some system, better adapted to the present condition and requirements of the country, especially one prohibiting the roaming of stock at large.

Richard Irby, *President.*

J. M. Hurt, *Secretary.*

For the Southern Planter.

A PLAN FOR THE FORMATION OF AGRICULTURAL SOCIETIES;

WITH AN APPEAL TO THE FRIENDS OF AGRICULTURE IN VIRGINIA.

Mr. Editor,—No arguments are needed to prove the utility of agricultural societies and of cattle shows, when they are properly managed, and a spirit of emulation is excited in the community. Such a spirit may sometimes be spread over a limited space, and be so active as to manifest itself by the formation of a county society, and by a few annual exhibitions: and then, for want of adequate support, and sufficient rivalry, languish and expire.—Again, it may be equally strong in individuals sparsely scattered over an extensive region, and be active enough to show itself by similar means; but not having the sympathy of the community, it soon dies from want of concert,

want of mutual encouragement and want of pecuniary contributions to defray expenses, and to attract attendance from a distance, by adequate inducements. Could a history be obtained of the societies that have existed in our State, something like the above would probably be found to be the causes of their decline. If such be the case, we can only expect to erect *permanent* and *useful* ones, by arousing the *people* of *large* districts to concentrated action, by diffusing a feeling of emulation and improvement among the *whole* of them. And how is this to be effected? It is feared that individual exertion would be in vain.—The memory of the past is too discouraging for many to attempt it with heartiness and determination. The following plan, then, which calls in aid the permanency and the resources of the State government, is respectfully submitted for consideration to the farmers of Virginia. If they approve it, and will act, it will succeed; if they are indifferent, it will fail.

It is proposed that they shall influence the next Legislature, either before or after its election, to pass a law enacting,

1st. That whenever a society shall be formed in any Congressional District of this State, it sball be authorized to draw from the treasury, every two years, a sum equal to its contributions, provided, it does not exceed one thousand dollars. The whole to be used for the encouragement of agriculture and the manufacturing and mechanic arts within such District, by prizes and otherwise; *e. g.* the employment of a chemist and geologist, for a year or more, to analyze the soils and investigate the mineral resources of that District, beside delivering lectures. It shall be incumbent upon such Society to make reports of its transactions to a Central or State Society, when one shall be organized, as follows, viz:

2d. That whenever a majority of the Districts shall have organized their societies, the members thereof may constitute a State Society, which shall be authorized to draw one thousand dollars, every two years, from the Treasury, to be used, with the funds below, for the purposes mentioned in 1st section—and each District may, of right, contend for premiums at its fair, provided, its own Society shall have contributed three hundred dollars for that exhibition; but no article, viz: essay, animal, implement, &c. shall compete, without having previously taken a District prize, or, unless it be imported into the State, or invented subsequently to the last fair held in its District. The State Cattle Show and Fair shall be held in alternate years with those of the other Societies—and also, at some convenient place, alternately east and west of the Blue Ridge. It shall also be incumbent upon this Society to furnish to the Legislature, for publication, a report of its transactions, with a compendious synopsis of the District transactions.

The above is a brief outline of the plan—the organization and details of which could be readily supplied—and be perfected by practical experience. The Congressional Districts have been assumed, as probably most nearly equalizing the agricultural interests of the State.

This scheme is very similar to one that has been in successful operation, with beneficial results, for several years, in New York. The chief differences being in the provision for District instead of County Societies—the provision that none but prize articles shall contend before the State Society, and the provision for biennial instead of annual fairs.

The District system would be better with us, because the comparative paucity of our population and the smallness of our counties would afford but little competition; and from their great number, the quota of means that could be supplied to, and by each, would scarcely sustain a Society at all—whereas, in Districts the reverse of this would hold—the means would be ample to command a noble fair, and to bring together a great assemblage by arousing emulation to a higher degree in individuals, and by exciting in the counties a healthful rivalry to bear away the honors of the District.

These feelings would be farther augmented, and the interest in, and importance of these fairs would be still farther increased by the provision, allowing only their prize articles to be exhibited for competition in the great fairs of the State, since each District would have to prepare in the former to contend for the highest agricultural honors of the Commonwealth, as awarded by the latter. What a laudable ambition and generous contest for pre-eminence would thus be excited in individuals, counties and districts throughout our broad land! And who can estimate the advantages thence resulting?

The biennial system, too, is preferred, because, with the same means the exhibitions may be made doubly interesting and attractive; nor are two years too long a time to prepare worthily for such a fair as Virginia ought to desire. Freshness and originality might then be expected, instead of annual editions of the same show, with but small additions and slight improvements. But, in fact, an annual anticipation and gratification would not be wanting. These would be supplied by the State Fair alternating with the others, and furnishing the inviting spectacle of all the prize animals, &c. in the entire Commonwealth assembled at one point, after a year's training, to contend for honors and prizes, worthy of a great State and a great cause.

Is this scheme premature? Not if every influential farmer—*if every subscriber to this paper*—will act in the premises, and that without any farther appeal in person or by letter. At least, let the Legislature try the sense of their constituents on this subject, by passing a provisional law, as above. If it be premature, it will remain inoperative, by their inaction. But, from the spirit of improvement we

all have heard of, as being abroad, and from the practical improvement many of us have seen, there can be no doubt that every District would gladly avail itself of such preferred advantages.

As the next Legislature will be the first to assemble under the new Constitution, may it signalize itself by the enactment of a law for the promotion of the greatest and best interests of the State, viz: agriculture, with its attendant aids, the manufacturing and mechanic arts—nor is commerce forgotten, for as these increase, that must grow; and as another Legislature will not assemble for two years, may the friends of these great interests exert themselves in time, and with an energy and perseverance not to be resisted.

"ANON."

November 19, 1851.

For the Southern Planter.

SOUP.

Mr. Editor,—Of all the dishes served at our tables, soup is the most economical, the most wholesome, and ought to be the most palatable, and yet to see the little care bestowed upon it, one would suppose it either positively deleterious or wholly innutritious. "Why," says one of your lady readers, "I never trouble myself about soups, because none of my family like them." And are you quite sure, my dear madam, that they have ever tasted soup? for, pardon my bluntness, the tureen of lukewarm, greasy stuff, black with pepper and reeking with cabbage and onion, which your cook daily serves up to them under that name, is little better than a very happy imitation of dish-water. Truly you tax their politeness too far if you do not expect them to commit that terrible breach of good manners, "decline soup."

With the French, who of all people in the world understand best the gastronomic, and what is quite as much to our purpose, the economic, art, soup is ever a prelude to dinner. And from the pauper, who pays his *sous* for one dip of the iron spoon with his chance for one of the bits of meat floating in the immense caldron, to the would-be emperor, I doubt whether a man in France ever willingly takes his dinner without his soup, margre or vegetable.

That it is wholesome, all will allow; that it is economical, is equally true; for the bony shin, and even the tail of the ox, so often thrown away as worthless, are, from the quantity of gelatine they contain, particularly adapted to soup-making; and I have eaten most delicious soup made from the carcass of a turkey which had dined a family consisting of three grown persons and two children for three days. And that it is palatable, I think you will agree, if you follow the accompanying excellent directions taken from a newspaper. In addition to these, I will, with your permission, send you, from time to time, such recipes for soups as I may deem acceptable to the readers of the Planter.

W.

"MAKING SOUPS.—The delicate and proper blending of savors is the chief art of good soup making. Be sure and skim the grease off the soup when it first boils, or it will not become clear. Throw in a little salt to bring up the scum. Remove all the grease. Be sure and simmer softly, and never let a soup boil hard. Put the meat into cold water, and let it grow warm slowly. This dissolves the gelatine, allows the albumen to disengage and the scum to rise, and diffuses the savory part of the meat. But if the soup is over a hot fire the albumen coagulates and hardens the meat, prevents the water from penetrating, and the savory part from disengaging itself. Thus the broth will be without flavor, and the meat tough.

"Allow two table-spoonfuls of salt to four quarts of soup, where there are many vegetables, and one and a half, where there are few. Be sure not to leave any fat floating on the surface. A quart of water, or a little less, to a pound of meat, is a good rule. Soup made of uncooked meat is as good the second day, if heated to the boiling point. If more water is needed, use boiling hot water, as cold or lukewarm spoils the soup. It is thought that potato water is unhealthy, and, therefore, do not boil potatoes in soup, but boil elsewhere, and add them when nearly cooked. The water in which poultry or fresh meat is boiling should be saved for gravies or soup the next day. If you do not need it, give it to the poor. Keep the vessel tight in which you boil soup, that the flavor be not lost. Never leave soup in metal pots, as sometimes a family is thus poisoned. Thickened soups require more seasoning, nearly double the quantity used for thin soups."

NUMBER OF FARMS IN THIRTEEN STATES.—The following census statistics, showing the number of farms in the States enumerated, will be read with interest by the farming community:

New York,	174,234
Pennsylvania,	127,733
Ohio,	146,821
Indiana,	101,973
Virginia,	76,704
Illinois,	71,062
Kentucky,	77,290
Maryland,	21,950
New Jersey,	24,504
Delaware,	6,225
Michigan,	34,690
Wisconsin,	22,062
Iowa,	15,500

From the Boston Journal of Agriculture.

AGRICULTURAL EDUCATION.

The phrase "practical man" has been allowed to express simply "one who works with his hands"—a hand-laborer at any calling; and this definition has been the bar to a good understanding between adverse parties on many questions. If the usual definition—the one given above—be the true one, then in a lawyer's office the copying clerk is the practical lawyer, instead of the lazy old hunks who do nothing but read books, and afterwards talk to the judge;—the practical sailor is he who is stretched on the yard-arm furling sail in a storm, and not the quarter-deck loafer, who merely gives orders;—the practical machinist is not that thoughtful, anxious looking student, who watches a score of workmen, while they file, and turn, and hammer the iron and brass under his direction, to complete that wonder of the world—a steam engine; to be "a practical man," he should be at work with his hands, and if his face is smutted with the soot of the forge, and iron filings set in sweat, he is a little nearer the definition. And by this same definition, the sturdy Irishman who holds that plough, is the practical farmer, in preference to the scientific individual who is insisting against him, that three inches is not the best, though the easiest depth to which the soil should be disturbed.

We have gone thus at some length, in this and a previous article, to demolish this definition of "a practical farmer," because it has so often done duty as "a Cock-Lane Ghost," in agricultural meetings, to scare the trembling "Book Farmers," who "could n't begin to mow a swarth with our Sam, he'd give 'em a sweater, the whole posse of them; president, secretaries, and all." Let an individual with any appearance of science about him,—say a black dress coat,—announce at a meeting that his experiments (these are heretical practices, by the way,) have convinced him that from sixty to eighty per cent. of the ordinary farm-yard manure is mere water, and that in consequence from three to four-fifths of the labor and strength expended in hauling it to the fields is positively labor and strength wasted,—let him dare to announce so strictly correct a statement as this, and instantly some hobby-riding individual, who finds it easier to join the clamor against science, than to stem the tide of prejudice,—instantly he crams down the throat of the daring experimenter "a dozen practical farmers in my neighborhood who have worked a farm, man and boy, for forty years." What can the book-worm say? Here are four hundred and eighty combined years of practical experience opposed to him, and they agree that he knows nothing about it! Why, he is necessarily choked by the "dozen practical farmers."

Now, readers of this journal, and farmers of New England, having endeavored to demonstrate who are not entitled to monopolize the honorable name of "practical farmers," we will proceed to show who have a claim to it. A Practical Farmer, in our view of the case, is one who reduces the Science of farming to actual use. This knowledge he must possess, and we do not care a copper whether he reduces it to actual use by the agency of his own hands, or those of hired laborers, so long as he knows, and can show others what is to be done, and how it is to be done. We will even go one step further, and agree with Hon. Mr. Brooks, of Princeton, who declared that he "could farm it the best from the top of a stone wall." The old adage is a good one—that "the owner's eye is worth more than his hands." The only exception that now occurs to us, is in the case of a large field of grass or grain, when it happens, as it rarely does, that the owner is the best mower or cradler on his farm; he can then to advantage lead the gang. But in almost every other operation of a large farm, while the farmer is sweating like a bull at one extremity of the farm, his more prudent "hands" are lying under the shade of a tree; or discussing interesting topics in the corn-field, with a halt every three minutes to gesticulate and to lay down the law on their side a little stronger. This is no fancy sketch. Every farmer knows how great a difference it makes, with the best help he can hire, whether he himself is in sight or out of sight.

We are assured, then, that in farming, (on a large farm, of course,) as in every other business, where we are obliged to employ the labor of others, as in a mill or a machine shop, it pays to superintend the hands employed, and to see that their labor is rightly divided, and that no working time is idled away. If this be admitted, as we think it must be, the last rag is removed from the bugbear which has so cruelly frightened us, and it stands exposed—a subtle fiction—a broom handle and a pumpkin-head ghost. The hand as rough as a nutmeg-grater, and the pantaloons of the last century, cut in scorn of fashion, are not necessarily the uniform of the practical farmer.

It may be thought that we are taking much trouble to little purpose, in proving who are, and who are not practical farmers. But let any one attend an agricultural meeting in any State of the Union, and attempt to laud science, and he will soon find with what staggering force "a practical farmer" is flung at his head.

The opposing parties have both set up their standard of a practical farmer; the one claims it to be the hearty and honest, but prejudiced and obstinate character, now almost obsolete, who will do as his father did before him, and desires his own sons to continue the course after him, because old folks have experience, and ought to know. This old gentleman shuts his eyes to the light which science is pouring upon agriculture; he ridicules, without examination, the improvements which are made in his agricultural implements, and they are

sweepingly condemned under the terrible name of "new-fangled notions." This is the tough old codger who is chucked into your teeth at agricultural meetings, and busy men must they be who bring him forward on these occasions, for through the length and breadth of New England, there are not a score alive. It is a figure of the past, brought forward to frighten the present. While on the other hand, the really practical farmers are those who are sought to be intimidated by this phantom; they are the active men of every neighborhood—they are the men who are not ashamed to learn what others have done, even if forced to obtain this information from a book; they are the men who believe that the nineteenth century finds the world more advanced in useful knowledge than did its predecessor, and who are determined to hand it over to the twentieth, the wiser for their having lived in it. These are the men who, rightly appreciating knowledge, are determined that their sons shall possess it; and they demand that a suitable provision shall be made by the State, to supply those branches of education required in their calling. We will see who dare deny them.

INFLUENCE OF GYPSUM ON VEGETATION.

BY M. C. MENE.

Ever since Franklin's great experiment, gypsum, or sulphate of lime, has generally been considered as possessing much fertilizing power, and as being of great importance in agriculture. Having paid some attention to this substance, I make known my results, in the hope that they may be found of value to the public.

1. I filled two zinc boxes with pure sulphate of lime obtained from the double decomposition of sulphate of soda and chloride of calcium; in one of these boxes I sowed some grass seeds, in the other some wheat. The two boxes were then placed under glass shades, in order that all external influences might be avoided: the seeds were watered every other day. At the end of a few weeks plants had come up green and healthy, as in common soil; but as they developed, their fine appearance diminished, and at the end of a fortnight they look dried and withered.

2. In boxes similar to the first, I placed a mixture of equal quantities of pure sulphate of lime, obtained as before, and clay, and sowed the same seeds as in the last experiment; the plants came up but not nearly so well as in an unartificial soil, and they did not ripen.

3. In boxes, and under circumstances the same as before, I sowed the same seeds on dung covered over with a layer of sulphate of lime three-tenths of an inch deep. At the end of a fortnight the plants had come up and grown wonderfully; they ripened well and were magnificent specimens.

These facts, though of considerable practical importance, would not have shown in what way sulphate of lime really acts, had it not been for the following accident:

I happening to have a glass of muriatic acid in my hand one day, when looking at box No. 3, I accidentally spilt some of the acid on one of the boxes, and to my great suprise the lime effervesced, and on further examination I was satisfied that the sulphate had become changed into carbonate of lime. I conclude from this fact that the carbonate of ammonia, given off by the decomposition of the dung, being volatilized by the heat of the sun, came in contact with the sulphate of lime, when double decomposition ensued. [Forming carbonate of lime and sulphate of ammonia.]

To ascertain how far this was true, I got some zinc pots, with bottoms pierced like a sieve; in the pots I placed some dung, then some sulphate of lime, and then I sowed some grass seeds.

When the plants had appeared and become tolerably developed, I watered them abundantly for a quarter of an hour, and in the liquid which flowed from the bottom of the pots I found sulphate of ammonia, whilst on the surface of the pots there was evidently carbonate of lime. This confirmed the view I had adopted.

I then made other experiments, which do not, however, bear upon the last mentioned facts. For example, I watered grass seeds sown in manure, in pots with pierced bottoms, with water containing one of the following substances, viz: sulphuric acid, muriatic acid, nitric acid, acetic acid, sulphate of iron, sulphate of potash, chloride of manganese, phosphate of soda, sulphate of magnesia, nitrate of soda.

With all these substances the grass grew well, and from the bottoms of the pots I obtained salts of ammonia, which are not volatile at the ordinary temperature. From all these facts I think we may conclude.—

1. That gypsum has by itself no fertilizing power, and is alone useless as a manure.

2. That gypsum only is useful in agriculture when mixed with substances containing ammonia; in which case there is a double decomposition, and the ammonia is stored up for the use of the plants.

3. That for gypsum may be substituted any other salt which will fix ammonia, and render it not volatile at the ordinary temperature.

It is my intention next year to repeat these experiments on a large scale, in order to ascertain their real practical value.

COMPTES RENDUS.

While a man liveth he may mend; count not thy brother reprobate.

From the Gardeners' Chronicle.

PHILOSOPHY OF MANURES.

It is an excellent custom in certain foreign countries, and one which leads to very valuable results, to send from time to time scientific men to travel in the various neighboring kingdoms; they are sent with a specific object, they carefully investigate the matter to which their attention is directed, and on their return, they make a report to the government who sent them, embodying the facts which they have collected in their travels. and the conclusions at which they have arrived; these reports, which are generally drawn up by men eminently well qualified for the task, often present better and more impartial views of the particular manufactures of the kingdoms so visited, than could possibly be prepared by any one residing in them. There is a good illustration of the truth of this, in the skilful reports lately drawn up by M. Payen, by desire of the Minister of Agriculture and Commerce of France, on drainage, the use of peat, and the employment of artificial manures in England.—These reports, written by an excellent observer, one who is intimately acquainted with all the various departments of scientific agriculture, and the economy of vegetation in general, are of the highest interest and importance.

If, however, a stranger visiting England for such a specific purpose comes with the advantage of an unprejudiced and unbiassed judgment, he has, at the same time, the disadvantage that he does not always know in how far he may safely rely on the statements which are made to him, and he therefore runs considerable risk of being misled by false or erroneous information. The conclusion which M. Payen appears to have arrived at, from a very careful study of the present state of the manufacture of artificial manure in England, and of the results of numerous experiments on the practical application of those manures, might probably be expressed as follows: A dozen years ago it was stated by Liebig and his followers that the great object of all artificial manures was to supply certain inorganic matters to growing plants. It was asserted that soils became exhausted from the abstraction of potash, phosphoric acid, and soluble silica, and it was, therefore, said that manures were chiefly valuable in proportion to the quantity of those substances which they contained. The experience of the last few years has, however, shown that this is not really the case, for the most careful and satisfactory experiments have proved, that soils are very seldom wanting in the inorganic elements of plants, such as phosphoric acid and alkalies; but that they are often deficient in nitrogen, in a state capable of being assimilated by plants. In other words, that ammonia and nitric acid are far more important components of manure than phosphoric acid or alkalies.

That Liebig did, at one time, attribute very great importance to the earthy and alkaline parts of manure, no one will deny: and, indeed it is evidently proved, by the fact that he even became the originator of a patent mineral manure, which, as Payen remarks, has for the most part been found of comparatively little real value. If, however, it is acknowledged on the one hand, that the value of these inorganic manures has been overrated, it must, however, at the same time be admitted that there are circumstances under which they produce very remarkable effects; and that even though it is proved that they are not the only things necessary to the growth of plants, or the only things which the cultivator has to add to the soil, it does not, therefore, follow that they are of no value at all; and we ought to take care that in acknowledging our error, we do not fall into the opposite extreme.

It has been all along known, that the very best manures were those which contained a mixture of organic and inorganic matters; substances such as common farmyard manure, consisting of decomposed and decomposing animal and vegetable materials, intimately mixed together. The error which has been committed consisted in the attempt to compare perfectly different and opposite things; and to decide which of the two was the most important. The alkalies and phosphoric acid are, no doubt, quite essential to the growth and well-being of plants; but so also are ammonia, nitric acid, and the various other sources of nitrogen. To attempt to compare the kinds of food is pretty much as though we were to try and compare together meat and bread, as articles of animal food; both are valuable, and the two taken together are more valuable than either taken alone. So it is with plants; it is of no use attempting to determine whether ammonia or alkaline phosphates are the most important, as constituents of manure; they serve very different objects in the nutrition of plants, and when the

one is required, it is certainly idle to attempt to supply its place by giving more of the other.

There are a number of curious experiments which have at times been quoted, as proving that the organic part of common yard manure is of no value; and that its virtue consists entirely in the inorganic salts which it contains. Thus, for example, it has been stated, that on manuring two equal pieces of ground, the one with a certain weight of good farm-yard manure, and the other with the ashes of an equal quantity of the same manure, no difference could be subsequently observed between the crops raised on the two fields. The truth of this, again, has been called in question by other experiments, the results of which were just the reverse; and those who attempted to draw general conclusions from the two experiments, were at last fairly puzzled how to reconcile two apparently diametrically opposite statements. The real cause of the difficulty, however, was simple enough; it arose merely from the attempt to compare together dissimilar things, which, from their very nature, could not fairly be contrasted with one another. If we admit that which is now pretty well generally acknowledged, namely, that all plants, in addition to certain other substances, require both ammonia and also alkaline phosphates, it is very easy to perceive, not only that a manure containing both these substances must be generally valuable, and therefore more certain in its effects, than a manure which contains only one or the other; but also that such a manure would act in a very different manner on different soils, and applied to different plants. For example, good farm-yard manure, applied to a soil rich in earthy phosphates, and abounding in bone earth, will, nevertheless, be found to do good and cause the plants cultivated in it to grow with increased vigor and luxuriance; not because of the phosphoric acid which it contains, but chiefly from the presence of a certain quantity of ammonia, nitric acid, and matters capable of yielding those substances by their putrefaction.—Nevertheless, the same manure applied to a soil containing no phosphoric acid, but artificially supplied with salts of ammonia, will also be found to act beneficially; in this case it is not the ammonia, but the phosphoric acid of the manure, which is of importance. Or, if in place of applying a mixed manure, such as we have imagined, to these two soils, we were to take simple chemical manures—say phosphate of lime and sulphate of ammonia, we should probably find, that upon the one soil the phosphoric salt was the best manure, whilst upon the other the salt of ammonia would produce the best effect. It is plain, then, that the value of these different elements of manure must depend on the wants of the plant, and on the capabilities of the soil.

In concluding his report, M. Payen well observes, that there is one thing wanting which would be a very great aid to the cultivator, and that is, that all artificial manures should be designated by plain and simple names, expressing their real nature, and that their exact chemical composition should be honestly stated, as their purchasers would be no longer deceived by mysterious names, or misled by vexatious uncertainty as to the real value of the manures they buy. On this point there can be no doubt as to the evil, though the remedy may not be quite so clear. Perhaps the best advice which can be given is this—buy only of respectable dealers, and do not be deceived by cheap manures: if you are tempted by what is termed a bargain, you are pretty sure to suffer in the end; good manure is well worth its fair market value; the trash which dishonest dealers sell you is often not worth having as a gift.

"There is nothing," said Sir Sam'l Romilly, "by which I have through life more profited than by the just observation, the good opinion, and the sincere and gentle encouragement of an amiable and sensible woman."

From the Cultivator.

SUGGESTIONS FOR EXPERIMENTS

TO DETERMINE THE MODE OF ACTION AND VALUE OF GYPSUM AS A MANURE.

Messrs. Editors,—Few substances used as manure have produced more widely different results than gypsum, or have given rise to more numerous and discordant attempts to explain their mode of action.

In some districts, farmers have derived little or no benefit from its use; in others it has proved highly beneficial to a certain class of plants—while in others again, it seems to have been applied to almost all crops with advantage. If it is a difficult matter to arrive at any satisfactory general conclusion regarding the action of gypsum on plants, from a study of facts recorded

by practical men, the inquiry becomes much more perplexing when we consider the explanations which have been advanced by chemists and others, with a view to account for the eccentricity of the action of this manure. Some have supposed that gypsum does not, of itself, afford food to plants, but that its fertilizing power depends upon the influence which it is said to exercise on other substances; that it merely improves the physical properties of the soil—that it hastens the decay of organic matter—that it fixes ammonia which would otherwise be dissipated in the air. Others contend that some one of its constituents is the sole active agent,—water, sulphur and lime, having each their advocates. While by others, gypsum is considered to be an essential constituent of some plants, without which they cannot grow in a healthy condition.

The experiments and observations which have hitherto been made, do not seem to have been sufficiently extensive or accurate, to enable any one to point out with certainty, the means by which gypsum contributes to the growth of different plants, nor to which plants, on which soils, or in what manner, it can be applied with the greatest advantage. Our knowledge on these important points being so unsatisfactory, I have thought it may be well to invite the attention of the readers of the Cultivator to the subject, in order that they may see that the inquiry is an interesting one, and likely to afford useful results, and that it stands much in need of, and well deserves a more extended chemical and practical investigation.

The least plausible of the hypothesis mentioned, seem to be those which ascribe the action of gypsum to its supposed power of decomposing organic matter, altering the physical constitution of the soil, or of affording water to plants.

Sir Humphrey Davy and others, have proved that the decay of animal substances was not hastened by being mixed with gypsum; if it had possessed this property, and by this alone, it was useful to plants, then it should prove most efficient on soils rich in organic matter, and add to the luxuriance of *all* plants.

The quantity usually applied, from two cwt. to four cwt. per acre, is obviously too small to exercise much influence on the physical constitution of a soil; besides its beneficial effects have been observed on soils varying in texture from sand to clay.

Vegetable mould, clay and other substances in the soil, are known to have a much greater capacity for absorbing moisture from the air than gypsum. In two cwt. unburned, about forty-seven lbs. only of water are added to the soil, and supposing roots had the power of abstracting the water of combination, and that this could be continually replaced, then if the supply of moisture afforded by gypsum was the chief cause of its influence, its effects should be most observable on the driest soils, and it should be of great benefit to all crops on most soils in dry seasons; but the facts at present known do not warrant any such conclusion. A crop has been doubled by the use of gypsum, on the western coast of Scotland, where much rain falls, as well as on the sands of Holkham, in Norfolk, where the climate is comparatively dry.

Liebig has stated that the influence of gypsum on the growth of grasses, depends on its fixing in the soil the ammonia of the atmosphere. There can be no question that gypsum has the power of fixing ammonia, or that the sulphate of ammonia produced by the mutual decomposition of gypsum and carbonate of ammonia, is readily soluble in water, and a valuable food for plants. Before, however, it can be admitted that this is the sole, or even the chief cause of its influence, it should be proved to have the most decided effect on soils which contain least of other matters capable of combining with or condensing ammonia, and that on these soils, a dressing of charcoal, or chloride of calcium, or substances containing ammonia, are equally efficient.

Sir Robert Kane considered that the peculiar action of gypsum consists in its supplying lime for the rapid growth of clover and other leguminous plants, which its moderate solubility in water enabled it to effect better than any other compound of that earth. It is probable that gypsum may, in some cases, act chiefly by means of its lime, when sulphuric acid and an abundance of other matters required for the growth of plants, excepting lime, are present in the soil. But it seems somewhat paradoxical, that the rapidity of the growth of a plant should be in proportion to the slowness of the supply of one of its chief constituents. If lime, in the state in which it is usually applied, were so easily soluble as to be washed out of the land, or beyond the reach of the roots, before the plants had completed their growth, then a compound affording a more lasting, though limited, supply of lime, might in the end prove

more useful; but a dressing of ordinary lime is seen not only to carry through one crop, but to exercise an influence on crops for years after; and if the action of gypsum depended solely upon its lime, then it should follow that it would be an useless application to calcareous soils, where this material already abounds. The reverse of this, however, seems to be the case, for some of the most decided instances of the beneficial action of gypsum, have been observed in chalk. In "British Husbandry," it is said "experience has prove gypsum to be beneficial when laid upon limestone soils, or upon land which had been dressed with chalk or lime. It is used extensively for clover, sainfoin, &c. on the chalk formations in Kent, Hampshire and Berkshire. At Tanstall, near Sittingbourne, in Kent, situated, I believe, upon the chalk, a portion of clover was dressed with gypsum, at the rate of four cwt. per acre, and the aggregate produce was three times as great as the other portion of the field, to which no gypsum was applied. It can hardly be conceded, then, that the lime supplied by gypsum is the sole or main cause of its fertilizing power.

Sir Humphrey Davy concluded that gypsum is an essential constituent of some plants, as it was always most beneficial to those which afforded it on analysis, and he considered that it might naturally exist in some soils in quantities sufficient for the wants of plants; consequently a special application of gypsum to these soils, would be attended with little or no benefit. Other writers, as Russel, Johnson, &c. coincide in the opinion of Sir Humphrey Davy that the benefit to be derived from an application of gypsum, will not only depend upon the kind of plant, but on the abundance or scarcity of gypsum or sulphates in the soil. That sulphur contributes to the growth of plants, seems to be proved by the fact that sulphuric acid alone has in many instances proved beneficial. Vegetation has been observed to be luxuriant in the neighborhood of sulphurous springs. Natural or artificial waters which have a sulphurous taste, are said to give birth to a peculiarly luxuriant vegetation when they are employed in the irrigation of meadows. (Johnston.) In France, sulphuric acid has proved to be a good manure when poured upon land after the removal of the crop. (Liebig.) Sulphur has been applied with advantage in Germany, as a top-dressing for clover and other crops, to which gypsum, in that country, is usually applied. (Cuthbert Johnson.) In experiments made on two fields by a Scotch farmer, sulphuric acid afforded a greater increase of hay than gypsum, and an excellent crop of turnips has been raised by means of sulphuric acid in Fifeshire.

Again, the experience of farmers generally favors the conclusion that gypsum acts most energetically on sainfoin, clover, lucerne and turnips, all of which contain a considerable proportion of sulphate of lime. Thus at Holkham, an application of four bushels per acre on sainfoin layers, is said to have doubled the crop. On a clayey soil in Hampshire, two and a half cwt. per acre were strewn on two year old sainfoin; the extra produce of hay at the first cutting was one ton per acre; in October the gypsumed part afforded one and a quarter tons of hay, yet there was scarcely any on the rest of the land. In the next year the former was twice mown, while in the latter, it is said there was nothing to mow. On clover the influence of gypsum seems in some instances to be very decided. In an experiment made at Highstead, the simple soil produced one ton of clover hay and twenty pounds of seed per acre; a portion of the same soil to which gypsum, at the rate of five bushels per acre, had been applied, yielded a crop equivalent to three tons of hay and one hundred and five pounds of seed per acre. In British Husbandry, gypsum is said to have increased crops of clover and lucerne, on some soils in Kent, at least three fold. In Ayrshire, part of a crop of turnips was nearly doubled by the use of gypsum. In the same neighborhood, no perceptible effect was produced on turnips by two cwt. of gypsum; but the entire crop was excellent—a circumstance which should not be lost sight of when experimenting with special manures. There is a limit to the growth of plants; if a soil is already so rich in vegetable food as to be able to produce a great crop, a dressing of any manure to a soil in such a state, would be useless.

There are also many observations on record which seem to show that the growth of plants in some instances was checked, owing to the want of gypsum in the soil, and that it acts much more powerfully on some plants than on others. Thus, if land is clover-sick; if the plants spring up and die away as summer advances, this is considered by many to be an indication of the absence of gypsum. A crop of sainfoin which began to decline in the fourth year, became as productive as before by an application of

gypsum. (Brit. Hus.) In the fifth year after sowing lucerne, the natural grasses appeared to be gaining ground, when a dressing of gypsum produced such a smothering crop that the grass could no longer make head, till after the third cutting. In another instance, an old grass field became gradually less and less productive in spite of all applications, when a quantity of peat ashes containing about two cwt. of gypsum, was afterwards applied, and a similar result followed,—the grass not only grew with greatly increased vigor, but a quantity of white clover made its appearance in the part dressed, in so marked a manner as to attract the notice of the farmer. In both these cases the gypsum had evidently a much more powerful effect on the clover and lucerne than on the grass.

So far, then, as my gleaning of facts and opinions extends, it seems to me that all we can be said to know with any degree of certainty regarding the action of gypsum on plants is, that it does not depend upon the moisture it contains, or is capable of attracting from the atmosphere; nor on its supposed power of decomposing organic matter. We may also infer that it is most beneficial to clover and other leguminous plants, and that it probably acts more powerfully on them in consequence of the great proportion of sulphur they contain. If this be so, it is easy to understand why in some soils it may add to the growth of most plants. If a soil contains all other substances required for the perfect nourishment of plants excepting sulphur, then a dressing of gypsum would have a visible effect on wheat, oats, &c. which require a comparatively small supply; and it should follow that if the quantity naturally existing in a soil were so small as not to suffice for the wants of these plants, that clover, lucerne or sainfoin, which contain much sulphur, could not, previously to the application of gypsum, grow in a healthy condition. A difficulty, however, arises here; if this were the case, if the exhaustion of the sulphur of a soil, were the only reason why gypsum is so beneficial on some soils, why clover and turnips cannot be repeated at short intervals with advantage; why do not these soils produce a similar effect on the potato and cabbage, for the analysis of the ashes of these plants indicate that they require a very considerable quantity of sulphuric acid? yet there are few or no districts where the potato, at least, is not frequently repeated on the same land, but we do not hear of lands being tired of potatoes or potato-sick.

The points on which more precise information seem to be required are the following:

1. Does analysis show a deficiency of sulphate of lime in soils where an application of gypsum is efficient, and an abundance in those soils in which it is inert?

2. Is gypsum on all soils beneficial to plants in proportion to the smallness of the quantity of sulphate of lime they contain?

3. Does gypsum act by different means in different soils and on different plants?

If it should be ultimately proved that the action of gypsum is chiefly due to the sulphuric acid which it contains, then a question will arise, whether other sulphates or sulphuric acid, can be profitably substituted for gypsum on some soils or for some plants, as dilute sulphuric acid on chalk and limestone soils, or sulphate of potash for wheat, on land with sufficient lime. It would also be desirable to ascertain what are the chief causes of the difference in the quantity of sulphuric acid in the soils—whether it is to be traced to a difference in the composition of different rocks from which soils have been derived, and consequently whether a knowledge of the geology of a district will enable one, without the aid of analysis or experiment, to pronounce whether an application of gypsum will be profitable or otherwise. Or, may the difference depend partly upon the mode of cropping pursued in different districts; to the presence or otherwise of sulphurous springs; or is gypsum conveyed to the land in unequal quantities in different localities in the ordinary dressings of lime?

The following experiments seem likely to throw some light on the main questions. I propose that they should be tried in at least three districts. 1. Where gypsum is known to be of the greatest benefit. 2. Where it acts on certain plants only, as clover. 3. Where it is of little or no use to any plants. A field should be selected in each district, well drained, nearly level, of uniform quality, free from the shade of trees, and which had been manured and cropped throughout alike, for three or four preceding years. A complete analysis must be made of the soil of each field, previously to the commencement of the experiments. The same variety of each plant should be grown in the three districts; it is desirable, indeed, that all should be supplied from the same sample. The culture of each plant must be alike throughout; all kept free from weeds;

the land accurately measured and the entire produce of each patch carefully weighed. Notes should also be taken daily, of the weather during the trial of these experiments—and, as will be seen hereafter, it is especially desirable that the time the gypsum remains on the leaves should be carefully observed. I propose that a patch of most of our arable plants should be grown and top-dressed alike—say in the first week of June, with the following substances:

1. Clover.	Lime.
2. Wheat.	Gypsum.
3. Oats.	Sulphate of Soda.
4. Beans.	Carbonate of Soda.
5. Peas.	Nothing.
6. Carrots.	Carbonate of Ammonia
7. Potatoes.	Sulphate of Ammonia.
8. Mangel Wurzel.	Sulphuric Acid.
9. Corn.	Nothing.
10. Ruta-Baga.	Gypsum.
11. Turnips.	Charcoal.

The burned lime used, should be slaked by exposure to the air; when reduced to powder, it will be partly in the state of hydrate and partly of carbonate of lime; as carbonic acid, sufficient for the wants of plants, exists in the soil and air, I propose that carbonates of lime, soda and ammonia, should be tried with the sulphates, with a view to determine how much of the extra growth of the plants is due to the action of these substances, and how much to the sulphuric acid. By a comparison of the produce of the different patches of any one plant, we may be enabled to conclude whether gypsum acts chiefly by means of its lime, its sulphuric acid, or its power of fixing ammonia.

A comparison of the produce of all the plants will indicate whether gypsum acts differently on different plants, growing under the same circumstances, and whether it is probable that other substances may be used with greater profit than gypsum, in certain localities. The advice of a professional chemist would be required as to the quantities of these substances to be used, and how they should be applied; it will be necessary, I apprehend, to consider what quantity of each would be required to afford an equal quantity of sulphuric acid; what is the degree of solubility, and the tendency to form fresh compounds when in contact with the soil.

A consideration of this subject, suggests another interesting inquiry, viz: how can gypsum be most advantageously applied to plants? One might have supposed that it would have been of little moment whether it was worked into the soil previous to sowing, or strewn on the plants early in the spring, or if there was any difference, it would be in favor of the former practice, as by that means the gypsum would be more thoroughly mixed with the soil, and be useful to the plants from the commencement of their growth. The experience of farmers, however, points to a different result, and seems to indicate a peculiarity of action not yet understood, and which, therefore, requires to be cleared up by experiment.

Many have supposed that gypsum exercises the greatest influence when strewn upon plants in spring; some, indeed, consider that it increases the growth of plants in proportion to the length of time it remains on the leaves, and that if rain falls immediately after it is applied, it produces little or no effect. Cuthbert Johnson says—"he has noticed that the weather, at the time of spreading gypsum, has a very material influence on the result of the experiment. Its effects are never soon apparent when sown in dry weather, but if the season is damp, so that the powder adheres to the leaves and stalks, the effect is immediate." This, he says, has been observed in England and the United States. It is also said to be a well known fact with the sainfoin growers of Berkshire, the clover cultivators of Surry and Kent, and to the growers of lucerne in Essex and Middlesex.

In other instances, I find it has proved of great use to wheat, when strewn on the plants in spring, and it is said to produce immense crops of peas, if applied when the plants are "looking up." At Wellwood, in Ayrshire, gypsum and salt were strewn on a mixed crop of oats, beans and peas, which, by some means, had been much injured. The effect is described as like magic; the plants assumed a deeper color, and grew wonderfully. On the same farm, a similar dressing was applied to a portion of a crop of beans when coming into flower. The beans at the time were very weak, but they ultimately became as good a crop as other portions to which manure had been earlier applied.

Again, it is said in British Husbandry, that gypsum never appears to produce better effects than when it has been laid upon red clover already so far grown as that the leaves nearly cover the soil, "for there seems no doubt that it acts with the greatest force when it adheres to them, and that the longer it remains upon them the better."

These observations derive great support from a comparative experiment made by Professor Korte, who found that gypsum applied to clover, at different periods, produced the following results:

Undressed,	100 lbs.
Top-dressed, 30th of March,	132 "
" 13th of April,	140 "
" 27th of April,	156 "

Thus the benefit derived seems to have been in proportion to the extent of the foliage on which the powder could be spread. The plants most advanced in growth when the gypsum was applied, having, with the same materials, accomplished the most work in the least time. It is, doubtless, of importance to ascertain by further comparative experiments, whether gypsum is invariably most efficient when it remains some time on the leaves; and if so, what is the cause of this special influence. Does the gypsum act immediately on the plant, while in contact with the leaves, or does it acquire some property by being exposed to the air, which afterwards renders it more efficient when mixed with the soil? Gypsum, when spread on the floors of stables, is known to purify the air by abstracting ammonia, and it is not improbable that gypsum may, in like manner, attract ammonia from the atmosphere, when exposed thinly on the leaves of plants. It would in that case prove a more efficient manure. If a small quantity only of ammonia exists in a soil, and if there were present vegetable mould and other matters to prevent its escape, then gypsum would probably act by means of its sulphuric acid and lime only; but if before entering the soil, the gypsum had abstracted a certain quantity of ammonia from the air, the soil would obviously become richer in this essential food of plants. But if this is not the reason why gypsum is more efficient when strewn on the leaves of plants, is it probable that leaves have the power of disengaging and absorbing the sulphuric acid and water of the powdered gypsum? As sulphuric acid is an essential constituent of those plants to which gypsum is generally most useful, may not the presence of sulphuric acid in the plant, in a more concentrated form, and greater abundance than it would be if obtained from the soil only, cause a more energetic absorption and assimilation of alkaline bases from the soil, hence a more rapid building up or growth of the plant.

In "Lectures on Agricultural Chemistry," it is said Peschier has observed that gypsum laid on the leaves is gradually converted into carbonate of lime. If this invariably happens, then the change is effected by one of the two causes mentioned; either the sulphuric acid unites with ammonia, or it is absorbed. If it does unite with ammonia, then what becomes of the sulphate of ammonia formed? Is it gradually dissolved by slight rains or heavy dews, and so washed off the leaves, or is it in this state absorbed by them?

Experiments like these, I fear, will be considered by many uncalled for and likely to be attended with too much expense. It is high time that a different mode of experimenting should be entered upon than has hitherto prevailed; it must be done, sooner or later, before any rapid or sure advance can be made in farming—and I cannot but think that there is wealth and energy enough in this country to prosecute such experiments now. If six hundred dollars can be given by an individual to listen, for a brief hour in most delightful raptures, no doubt, to the warbling of the "Swedish Nightingale," surely it would be no difficult matter for the farmers of a State to raise at least an equal sum, to conduct an inquiry which would tend to benefit them individually, add to the resources of the State, and, I may say, confer honor on the country. It has been said of the distinguished Von Thaer, a man who seems to have combined within himself a greater amount of practice with science than almost any other writer on agricultural matters, that "the first care of all societies formed for the improvement of agriculture, should be to prepare the forms of experiment, and to distribute the execution of them among their members." One State is distinguished for the growth of wheat, another for its dairy produce, another for raising cattle, and so on—let each State Agricultural Society consider what question it would be most for its interest to thoroughly investigate; then let the chemist, the vegetable physiologist, and the practical farmer, unite together in order to determine how the experiments should be conducted and what precautions must be observed in order to avoid the influence of disturbing causes, or of receiving evasive or erroneous answers to the questions it is desirable to solve. There is no nation on the face of the earth which should enter into such investigation with greater zeal than the United States. In Europe, and especially in Britain, great improvements have been made in agriculture of late years—and how have these improvements been effect-

ed? Chiefly by the skill and enterprise of the tenant farmer. On the strength of a lease, he has been ready to adopt suggestions, showing good ground for concluding that a profitable return would be obtained for money expended. He has laid out his capital freely, and although he may, during the time of his occupation, win back his capital with a liberal interest, yet many of the improvements he makes are of a permanent character; consequently when his lease expires he has to pay a considerably higher rent for improvements which he himself has effected, or give way to another who will. Now in the United States, where the majority of the farmers are owners of the land they cultivate, the case is very different; they have the prospect of reaping the full benefit of any improvements they may make.

JOHN TOWNLEY.

Port Hope, Wisconsin.

Java coffee, we learn from the Milton, (N. C.) Chronicle, has been successfully grown near that town. It was produced by a shrub only two years old, which sprouted from a grain of coffee planted on the north side of a house, and the fruit is described as looking in all respects like the imported article.—*Ex.*

Can this be so? It is very important if it is, and we will thank some of our North Carolina friends to inform us.—EDITOR.

For the Southern Planter.

SHEEP HUSBANDRY.

"One ton of hay will winter from five to seven sheep."—*Southern Planter.*

Mr. Editor,—Sheep husbandry will probably form a very important branch of the agriculture of Virginia, within a few years,—at least, such is the hope of many persons, both for its immediate pecuniary profits and its ulterior benefits, in the improvement of her lands. It is desirable, therefore, that no statement should be made, calculated to discourage its prosecution and extension, especially under the authority of the Southern Planter, if that statement be inapplicable to her situation and climate; and that the above extract is more appropriate to a Northern than a Southern latitude, will appear in the sequel.

The quantity of provender necessary to winter sheep depends upon: the length and severity of the winter—the amount and protection from weather—the size or weight of the sheep—and whether they are to be kept in a fattening, or merely in a healthy, thriving condition. In the latter case, we have reliable authority for saying that two and a half pounds of good hay per day, or its equivalent, with proper shelters, will be sufficient to support one hundred pounds of flesh and wool, in any of the different breeds—suppose, now, that Merinos be taken at an average of ninety pounds—South Downs at one hundred and ten pounds—and Bakewells or Cotswolds, or their cross, at one hundred and fifty pounds, as the basis of a calculation; it will result, that one of each kind can be fed as follows, viz:

	Merino.	*So. Down.*	*Cotswold.*	*Days.*
With	67½ lbs.	82½ lbs.	112½ lbs.	30
	135 "	165 "	225 "	60
	202½ "	247½ "	337½ "	90
	270 "	330 "	450 "	120
	337½ "	412½ "	562½ "	150

Or, in other form—and in order to use whole numbers, by cancelling the smallest fractions practicable, it may be stated that, instead of one ton, ten tons of hay will subsist:

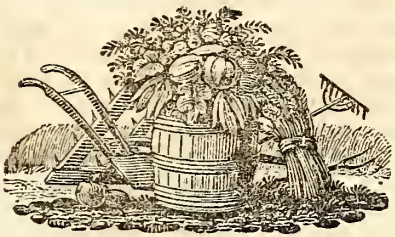
Cotswolds.	*So. Downs.*	*Merinos.*	*Months.*	
35	48	59	5	
44	61	74	4	
59	81	99	3	x
89	121	148	2	x
178	242	296	1	

But the average weights of the sheep may have been placed too high; if so, the same quantity of hay would support a larger number.

These breeds are selected as being probably the best representatives of the large, medium and small sheep—or, the long, middle and fine woolled varieties—and (let it be remarked,) it is sincerely to be desired that Virginia farmers, in commencing or enlarging their flocks, will not be satisfied without either perfect purity of blood, or very high—the very highest grades in each kind.

The climate of the United States is such that the Northern flock-master has to feed full five months annually—whereas it is confidently believed that similar feeding could only be necessary in a very small portion of the Northern or the mountainous parts of Virginia—that a large portion of the State would not require more than four months; a still larger portion not more than three months; and, perhaps, one-half of the whole not more than thirty to sixty days of winter feeding—when the shortness of our winters, and the absence of snow for so considerable a portion of them—with the consequent ability of late fall, partial winter, and early spring grazing, are considered, this will not be regarded as too favorable an estimate. One ton of hay, then, will winter from six to fourteen sheep of the best quality in Virginia, and from four to seven in the Northern States, having due reference to situation and breed. What a contrast is here presented for our encouragement! And if sheep husbandry be found profitable there, (as it undoubtedly is,) how much more profitable might it be here, if judiciously managed? ANON.

November 12, 1851.



THE SOUTHERN PLANTER.

RICHMOND, FEBRUARY, 1852.

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One Dollar and Twenty-five Cents per annum, which may be discharged by the payment of One Dollar only, if paid in office or sent free of postage within six months from the date of subscription. Six copies for Five Dollars; thirteen copies for Ten Dollars, to be paid invariably in advance.

☞ Subscriptions may begin with any number.

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☞ Office on Twelfth, between Main and Cary Streets.

☞ Communications for the Southern Planter, upon *other than business matters*, may be addressed to the Editor, Frank: G. Ruffin, Esq. at *Shadwell, Albemarle Co., Va.*, which will insure their being more speedily attended to.

Business letters will be directed as heretofore to "The Southern Planter," Richmond, Va.

☞ Postage prepaid in all cases.

TIMELY WARNING.

All subscribers who do not order a discontinuance before the commencement of the new year or volume, will be considered as desiring a continuance of their papers, and charged accordingly.

POSTAGE ON THE PLANTER.

The following are the rates of postage on the Planter, *per quarter*, for the distances annexed—to be paid quarterly in advance:

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STATE AGRICULTURAL SOCIETY.

We invite attention to the "Plan for the Formation of Agricultural Societies," which will be found in another part of our paper, and which we fully intended to have published last month. Not desiring to commit ourselves to any particular scheme until we shall have examined all that may be presented, we yet cordially recommend the one to which we refer, to the consideration of the friends of this important movement. It proposes a moderate outlay, which will, no doubt, be a recommendation to the Legislature, disposed as that body must be to economize as far as possible: and it allows time to get ready for the exhibitions we shall have, which can certainly take place in two years.

We have not yet seen much evidence of interest in the proposed Convention to organize the Society, but we have not heard a voice raised against it, and have no reason to expect, out of the Legislature, any other opposition than that ominous shake of the head which expresses rather despondency than disapprobation. When we call to mind that the law authorizing our late State Convention was passed with only one petition for it, and was afterwards ratified by an immense majority, we see no reason to augur a failure from the general indifference to our present enterprize. Such things are rarely spontaneous, they must originate somewhere, and we see no insuperable objection to having a Society organized at the instigation of one single man, provided it be done on proper principles. All that is necessary is to convince the Legislature of the expediency of the thing and the impossibility of wresting it from its sphere for mere private advantage, and we take it for granted they will do it. Then, when the frame is provided, it will become the men of public spirit to build up to it; and if they are not cheered on by popular sympathy or the co-operation of numbers they must find their spring of action within, and reflect that

The fewer men the greater share of honor.

We have every confidence that the Society can be established; with more or less labor, perhaps; but labor which will bring with it its own reward, even should it fail to secure the gratitude of those who reap its fruits. The

thing is so reasonable in itself, so moderate in its requirements, and will be so beneficial, in its influences, to the whole State, but especially to the farmers, if they can be brought to view it in its true light, that we cannot permit ourselves to anticipate a failure. Let us look at some of the considerations which should weigh with us in this matter.

Farmers should be united for their own benefit in a compact mass whose energy can be wielded by a few as the representatives of all. In that way more can be accomplished, and more effectively, than if left to individual exertion. Forty horses could never transport a train of freight cars, but one locomotive of twenty horse power can do it easily and economically. And as steam in the material world is nothing more than a vast amount of repellant power condensed into convenient space, so voluntary association, the steam power of the moral world, is but concentrating the diffused will of many into one focus of effort, and directing it upon a given point. Its force is resistless to those who employ it, and its effects beneficial; but it requires skilful officers to set it to work and control its movements.

We know it is the fashion with some to decry agricultural societies, to call them humbugs, and conclude their unsuitableness to our condition from their uniform failures hitherto. But when we look to their histories we should infer nothing from the past against the present. We have no time now to review them, but we may state that no Society in Virginia has yet been organized upon proper principles, and *no general system of auxiliary measures has ever been pursued.* And should we admit, for the sake of argument, that, so far as professed objects are concerned, such Societies are humbugs, yet it may happen, as in the case of some other public institutions, that their indirect advantages will greatly overbalance the defects in their constitution. Look, for example, at the county courts of Virginia. Though their decisions are generally just, because law is but the expression of natural justice, yet they are so tardily rendered as to amount in many cases to a denial of right, and would have been long ago supplanted by a 'prompter tribunal, were it not that the genius of our people, eminently just, honest and peaceful, has rendered such a reform unnecessary. In matters of police their inefficiency is universally admitted. Yet we have always regarded them as a most useful institution. They bring men together who would otherwise never meet, and by that means alone, directly and secondarily, diffuse an amount of general information far greater than is conveyed by the boasted free schools of the North. So these Societies, if made attractive, shall assemble people from all parts of the State, make them intelligent by the mere force of contact and attrition, enlarge their sympathies with their fellow-citizens as it shall extend their acquaintance; and thus rid us of our local conceit, and show just grounds for State pride. In New York where the prodigious throng at their Annual State Fairs is measured by *acres*, and can only be enumerated by conjecture, such an effect has attended their exhibitions; and that most utilitarian State, after an experience of more than twenty years, appropriates eight thousand dollars annually to agriculture. The efforts of her State, and affiliated County Societies are perceptible everywhere. Their enterprizes, carried out by the Legislature, when they have not the power, have achieved such tangible results as the improvement of stock, and farming generally, a geological survey, the foundation of an agricultural college, and the establishment of an agricultural literature, not very good to be sure, but better than ours, *i. e.* better than nothing. Another very important consideration is that such an institution is a ready nucleus of combination for defence against any adverse influence of the body politic. For instance, in New York a society of madmen, or worse, has sprung up, whose only tenet is that every man shall be restricted to a certain small quantity of land, and shall not purchase or inherit more. Should the State Society choose, they can crush that faction at any time, as by their general course, they weaken it at all events. True, such a faction is not possible here at this time, and bodes no serious danger *there* at present: but nobody can tell when men are going to run wild, and we *may* become "cossack" in our very republicanism. Be that as it may, it can hardly be denied that the general tendency of laws is in favor of the very rich and the very poor. We standing between them and bearing the burdens of government, should become "a law unto ourselves." It is practicable to do this without

treading upon "the debateable ground" of politics.

The economics of agriculture are rarely studied or understood by legislative bodies, composed as they generally are of lawyers. They would be very willing to make an informal surrender of all such matters into the hands of a society not inclined to abuse the trust. Suppose such a society, imposing from its size, and influential from its respectability, should request a heavy premium to be offered for the best wheat-reaper to be furnished at reasonable cost. The request of such a body would go much farther with the Legislature than the most convincing petition from an individual. It certainly should, because it divests them of much responsibility. So of any important modification in the laws relating to agriculture, or the passage of any law in regard to that interest. In the general field of politics men will not quit their party even for uncommon special advantages. But here all such matters can be arranged as under a flag of truce.

It may also extend its sphere abroad. Thus at present certain people at the North, whether from enthusiasm, from the imagined popularity of the measure, or from hopes of plunder, are striving to create an agricultural bureau at Washington—a Patent Office humbug on a gigantic scale. It is to be feared they will succeed. But were State Societies formed and confederated, they might, as they probably would, remonstrate and expose the perniciousness of this scheme, whose greatest effect will be to supplant their solid usefulness by costly delusions.

Other arguments rise to view, but we forbear to urge them lest we weary the reader. How a society shall operate directly, powerfully, and speedily to improve all our breeds of stock we will explain hereafter, and state a plan for this purpose,—which can be commenced at once,—so simple, so obvious, so cheap, and so sure that it has struck us with surprise that none of the farmers of Virginia have ever suggested it to the public or adopted it themselves.

For the present we conclude with the remark, that two or three very promising societies in Virginia have been badly hurt, if not killed outright, by Presidents! It is too much our habit to seek *distinguished men* for such offices. Now we have as much respect for those gentlemen in their proper places as others have. Sometimes they may happen to be our personal friends, whom in a proper manner we would treat with great consideration. But as an agricultural journalist we must say, that if they have been all their lives professional men, it cannot be expected that they should know anything of agriculture, who, as we know, to our cost, is as jealous a mistress as the law is said to be. To suppose otherwise is not so much to compliment them as to disparage ourselves. The President of the new Society, if we have one, will have work on his hands. We, therefore, want for the office a man of leisure, zeal, activity, energy, tact, address, and a knowledge of his profession. Such men can be had. We have our eye on two such now. Doubtless there are more. With such, we succeed, without such, we fail again.

Finally, we beg that we may have at least respectable delegations from all Farmer's Clubs, and from all counties which shall be warned by this notice in time to appoint them.

The Convention meets in the Capitol at Richmond on the 19th of February in the evening.

AUGUSTA FARMERS.

We have the pleasure of a goodly list of subscribers in Augusta, and most of them pay in advance. They are a ready money, if not a "hard money," set of fellows, and good fellows too. We like that people. But in one thing they should not be imitated—they don't keep their other promises as well as they do their promises to pay. Several of their best farmers promised to write an occasional essay for the Southern Planter; and not a scrip of the pen have we had from them yet, not a word. Why so? They farm pretty well in that section we know. Bashfulness is not one of their failings either, as we know quite as well. When we go over there sometimes on a little cattle expedition, it does our heart good to hear them brag over us. They raise more and bigger horses, more and fatter cattle, more and better woolled sheep, more and larger hogs, more and richer milk, more and sweeter butter, more and heavier wheat, and corn, and rye, and oats and hay, ranker clover and richer

grass, bigger chickens and better eggs, sweeter honey, stronger whiskey, clearer water, and vastly finer men and prettier women than we poor Tuckahoes. They can out-trade us, outwork us, (know better than we, at least in Rockingham, which is nearly the same, the difference between *a "long-handled and short-handled hoe,"* some think Powell's Gap might have been tunnelled with "a short-handled grubbing hoe,") outplough us, outdrive us, outpull us, outride us, whip us; "dive deeper and come out drier," as the Kentuckians say, "than any man in *these* parts." In short, they bang us out at every thing, from a trade to a sermon.

All this we have often admitted. But why don't some of them tell us how it is done? There is a secret in it, we know; for, in the several pleasant visits we have paid them, we never found it out, though looking with all our eyes. Nay, so close are they, that when an occasional *quo'he* does emigrate to this side, he seems to lose his superiority, and becomes all at once no better farmer than we are—hardly so good. He leaves his secret behind him. But when several of their crack farmers promised to write, we thought we should certainly have it. Won't they tell us? We know that some of them can, if they only will.—Will our friend, Mr. Cochran, go after them "with a sharp stick," and see that they do? We want to hear from them.

Seriously, gentlemen, won't you write?—Your subscriptions are a considerable item, but a communication from any one of you who know how to farm so well, will be worth more than ten times your dollar. And then there is Rockingham with its thousand farmers—but we don't like to speak of Rockingham. Out of those *thousand* farmers, we have only about THIRTY subscribers. We must go there again. "Lehigh must do better."

HOT BEDS.

In the January number of this paper we published a short and sensible essay on hot beds from the New England Farmer. We refer to the subject again to say that the use of glass is an unnecessary expense which may be easily avoided. We have about as good luck as common, neither better nor worse, with our hot beds, and we never covered one with glass. The substitute has been a piece of cotton cloth—an old sheet is as good as anything else—made somewhat larger than the frame of the hot bed, so as to lap well over its edges in covering. At the upper and lower ends sticks are sewed in the cloth its whole length to give it weight enough to keep it stretched, and prevent the wind from blowing it off. In addition, for the sake of security, we generally lay a few sticks, pea sticks or bean poles, according to the size of the frame, across the cotton: then it can't be moved. It is recommended that the cotton be oiled, which makes it semi-transparent. But we have not thought that indispensable. The hot bed is then managed just as if you had it covered with glass; and we think the plants succeed quite as well. Our old friend, Quintin Blain, a very experienced market gardener, near Richmond, saw ours last spring, and approved it.

The great difficulty in hot beds is not so much in the covering as in keeping up a uniform heat in the bed and preventing the fermentation from being completed before the season or the plants are far enough advanced to dispense with the warmth thus engendered. We do not know any better directions on this head than are given in our last number. By personal attention and observation, experience will teach the gardener better than any minute direction, and even with that guide, we have sometimes known the most skilful fail with hot beds.

A mode of growing tomatoes that we have seen recommended, and shall try, is this: At the usual time of sowing the seed, dig holes where you wish to plant, a foot deep; fill them up half with fermenting manure and half with rich soil well mixed with well rotted manure and therein plant the seed. Then have box frames made larger than the area of the hole, say eighteen inches square and tack cotton over the top of it. Let these set over the tomato plants, removing them occasionally after they have come up, to give air, until all danger of frost has passed. This saves the risk and loss of time from transplanting, and is said to answer as good a purpose as hot beds. Twelve plants thus treated, taking good care to have but one in a hill, will suffice for a moderate sized family.

VOTE OF THANKS.

Our thanks are due to a large number of friends, both in our own State and North Carolina, for a considerable addition to our subscription list. We do not generally notice these things—not because we are ungrateful for such favors, but because we really have not room. Our paper is so small, and we are so anxious to fill it with valuable reading matter that we begrudge even the space given to advertisements. Our January number was pretty full of original and valuable communications. The present issue has quite as many and as good, and we have a good supply of capital articles for March, and "more a coming." We hope, therefore, that our failure to make acknowledgements will not be thought to arise from indifference.

HOLLOW HORN.

At our instance Dr. Minor of Charlottesville reported for the last number of the Planter a case of what is commonly called hollow horn, including his treatment of the patient and an account of the *post mortem* examination. We publish now a confirmation of his views by Youatt, which the Doctor has never seen, and which we would have inserted along with his report but for fear of making the article too long. We also add our testimony, though as we are not "professional," it cannot be deemed so conclusive. We had a very fine work ox, in excellent order, taken with some affection of the head which caused him, whether standing up or lying down, to turn in a circle, and constantly to the *left* as long as he was able. The attack was preceded by a nasal gleet, which accompanied it, throughout. The overseer said it was hollow horn, which we did not believe, but, nevertheless, permitted the horn to be bored.—Nothing but a little healthy blood followed the withdrawal of the gimlet. Having no faith in the nostrums usually prescribed, we suffered the case to run, unassisted by the cow doctors, to a speedy and fatal termination. Upon dissection of the head, the *left* hemisphere of the brain, towards which he had inclined was found completely "broken down" or disorganized: the base of the left horn very slightly implicated.

The notion that this disease originates in the horn itself seems to us to be an error resulting from that backward mode of reasoning which confounds symptom with disease. The disorder in that organ should rather seem to be secondary.

Not less erroneous do we deem the opinion held by some that the horn becomes frost bitten, and then putrifies. Though its whole inner surface is exceedingly vascular, yet it is perfectly protected by the almost insensible horny covering in which it is cased throughout, except only a very minute ring at its base, whose pulsations are the most accurate index of the pulse: and that ring, hardly wider than a thread, cannot be affected by cold. We have consulted Youatt and several other veterinary authors at various times, and we have never yet seen even an allusion to such a disease as hollow horn, or any thing like it. When it is considered that it is a substance of lower vitality than the hoof, which never becomes frost-bit, even though chilled by an iron shoe, reason should teach that it cannot be injured by cold.

There is another disease here treated of as palsy, which we commonly call getting *on the lift*, and sometimes tail-slip, which is so often connected with what is called hollow horn, and leads to such absurdities that we insert Youatt's account of it entire.

INFLAMMATION OF THE FRONTAL SINUSES.

The whole of this cavity is lined by a prolongation of the membrane of the nose, and when one part of it is inflamed, the whole is apt to be affected. This accounts for the very serious character which nasal gleet, a discharge from the nostril, sometimes assumes in cattle. In the horse we think little of it, except it has a glanderous character, or is connected with considerable cough or fever; but the sooner a gleet from the nose of an ox is examined into and properly treated, the better; for the inflammation is far more extensive than that which occurs in the horse.

After a little cough, with slight nasal discharge, we occasionally find the beast rapidly becoming dull and drooping, and carrying his head on one side. Either grubs or worms have crept up the nostril, and are lodged in some of the sinuses, and are a source of irritation there; or inflammation, at first merely that of the membrane of the nose, and connected with common cold, has extended along the cavity, and is more intense in some particular spot than in others, or has gone on to suppuration, and matter is thrown out and

lodged there, and generally about the root of one of the horns. The veterinary surgeon does one of two things; he either opens the skull at the root of the horn with a trephine, or he proceeds in a more summary and a better way—he cuts off the horn at its root. More than a pint of pus has sometimes escaped at the orifice, and although there may not have been any suppuration and throwing out of pus, yet the inflammation will be materially relieved by the bleeding that necessarily follows such an operation. The opening into the sinus which is thus made should, however, be speedily closed, or the stimulus of the atmospheric air will render the inflammation worse than it was before.—*Youatt on Cattle, Eng. Ed. p.* 275.

PALSY.

There are many low, woody, marshy situations, the cattle in which are notoriously subject to palsy. It is frequent everywhere during a cold, ungenial spring, and there are seasons in which it assumes the character of an epizootic. Old beasts, and those that have been worked, are particularly subject to it; and especially when they are cruelly turned out to gather their scanty food during a cold night, after a hard day's work. It is lamentable to think how many of the diseases of our quadruped servants derive their origin from our negligence or cruelty. A damp and unwholesome cowhouse, from which the litter is rarely removed, but putrid effluvia mingle with the aqueous vapor that is continually rising, is a fruitful source of palsy, and especially if to this be added the baneful influence of scanty and bad food and stagnant water. Old cows, whose milk has been dried, and who cannot be made to carry much flesh, are very subject to this complaint.

Palsy is usually slow in its progress. There appears to be a general debility; perhaps referable to the part about to be attacked more than to any other; and it will be afterwards recollected, that there was a giving way, or trembling of that part, and sometimes, but not always, a coldness of it. The hind limbs are the parts which are most frequently attacked. It is at first feebleness, which increases to stiffness, awkwardness of motion, and at length to total loss of it. We have seen a few instances in which the fore limbs have been the principal seat of the disease, but then the hind limbs have always participated in the affection. In no case, however, have we seen any affection of one side of the animal and not of the other; this is a difference in the symptoms of palsy in the human being and the brute, for which we are not able satisfactorily to account.*

* It may be a very rare thing for a cow to be affected with *hemiplegia*, as we believe physicians call that sort of paralysis which attacks one side only of the patient. But we well recollect a case of a cow of Col. Randolph of Albemarle, which did have just this form of palsy, and died of it.—Ed.

In many parts of the kingdom this complaint is traced to a most ridiculous cause.—The original evil is said to be in the tail; and all maladies of this kind, involving the partial or total loss of motion of the hind limbs of the animal, are classed under the name of *tail-ill*, or tail-slip. Our friend, Mr. Dick of Edinburgh, has taken up this subject in a very interesting point of view, in the fourteenth number of the Quarterly Journal of Agriculture; and the public are much indebted to him for dispelling a false and injurious and cruel superstition. The farmer and the cowleech believe that the mischief passes along the cow's tail to the back, and that it is on account of something wrong in the tail that she loses the use of her legs; and then some set to work, and cut the cow's tail off; while others, less cruel, or more scientific, make an incision into the under surface, and allow the wound to bleed freely, and then fill it up with a mixture of tar and salt, and we know not what.

In some parts of the country, the practitioner is not content with this treatment, but, supposing there is witchcraft in the business, he has recourse to some charm in addition to the cutting and dressing. This charm consists in binding a small piece of the rowan tree on the extremity of the tail, and making a black cat pass three times round the cow's body, over her back, and under her belly, which (if it happens to be a strange cat, as is often the case, from the necessity of the color being black) so enrages the animal, that she mews and scratches with all the fury to which she is so easily excited, until she escapes from the hands of the necromancers, leaving them convinced that the Devil has got into the cat.

Mr. Dick, with a kind consideration, for which he deserves much credit, condescends to reason the case with these foolish people, and what he says is so much to the purpose, that we cannot refrain from introducing it here. The disease, in ordinary cases, is said to consist in a softening of the bones about the extremity of the tail, and is to be distinguished by the point of the tail being easily doubled back upon itself, and having at this doubling a soft and rather a crepitating kind of feel. But what is the real state of the case? The tail is lengthened out to the extent of about three feet, and is formed like a common whip. Towards the extremity, the bones terminate gradually, becoming insensibly smaller as they proceed downwards. At this part is said to be found a soft space—the *tail-slip*. Beyond this, again, a firm swelling cartilaginous portion is found, covered with hair to brush off the flies within its reach. Now why have we the long column of bones; the termination with a soft space of a few inches; this thickened, hard, cartilaginous part, at the very extremity, and that extremity covered with hair, but with a view to form a whip to drive off, and with the greatest possible effect, the insects which wound and torment the animal?

"Here the column of bones forms the shaft

or handle of the whip, the soft part, the connexion between the handle and the thong, while the thickened extremity may be easily recognised to represent the thong, and the hairs to form the lash, or point; so that we have a whip to drive away the flies, and so complete a one that the coachman may borrow a lesson from its construction."

We trust, therefore, that our readers will never be found again looking at the tail of the cow for an explanation of palsy, or any other complaint; (for this *tail-slip* is supposed to be connected with various other maladies;) but we will allow them to examine it once more, in order to admire its adaptation to the purpose for which it is required, and the peculiar contrivance of this supposed diseased part, for the more effectual accomplishment of this natural purpose. It may, however, be asked, is not relief sometimes given by these operations on the tail? Very probably. We do not know what would make a cow get up and use her limbs, if the punishment of the knife, and the rubbing in of the tar and salt failed; and we can very readily conceive that the loss of blood would often be beneficial, but not more because taken from the tail than from any other part.

The most frequent cause of palsy is the turning out of beasts of every kind, but particularly of cows, too early to grass, after they have been housed during the winter and first part of the spring. We have known one-fourth of the stock completely chilled and palsied behind in the course of two or three nights. The general health has not been much affected, except that, perhaps hoose has come on; but the beasts have lain three or four weeks (we recollect one that lay three months) before they recovered the use of their limbs.

The treatment of this disease would be half summed up in one word—*comfort*. The cattle should, if possible, be immediately removed into a warm, but not close, cow-house, and well littered up, and perhaps a rug thrown over them. It has been proposed to sling them, but they are rarely comfortable in the slings, and very frequently galled. If they are well littered up, turned twice in the day, and so laid that the fæces and urine will flow from them, they will be much better without the slings.—*Youatt, p.* 301.

ANALYSIS OF SOILS.

It will be seen, in our advertising columns, that Professor Gilham of the Virginia Military Institute offers to analyze soils. The subject of analysis of soils is a very important and interesting one, and we should be pleased to see it liberally patronized by the State. We see by our exchanges that some of our farmers are sending their soils out of the State to be analyzed. They need do so no longer, as we have now an analyst at home. A very favorable indication with us in behalf of Professor Gilham is that he *does not state his charges* for analyzing soils. This looks honest. We assure our readers that when any man offers to analyze their soils for *five dollars!* that he is either a fool himself or trying to make fools of them. We know this fact on the testimony of a distinguished chemist in whom we have great reliance. We, therefore, warn them distinctly against patronizing any of the quacks who profess to do in *all cases* for five dollars what is often worth double, sometimes more than double, and never as little as "the regular fee." Let them beware of all such pretended chemists.

FARMING IN TIDE WATER VIRGINIA.

In a late visit to parts of the counties of Hanover, King William, King & Queen and Essex, a district with which in former times we had been familiar from boyhood, we were delighted to witness the improvement which ten years had made in the whole face of that country. It is drained by the waters of the Pamunkey, the Mattaponi and the Rappahannock; and except immediately upon the rivers and their more considerable tributaries, and occasionally, but very rarely, in "the forest," as the uplands are there called, it was formerly, and until within a few years, very inferior in the quality of its soil, and in many places actually sterile; as it still is where no improvement has been attempted. Even the river flats, where not naturally unproductive, had been rendered comparatively so by improper culture, and many spots, sometimes whole fields, which now teem with abundant crops, had been turned out as worthless and appropriated by broom sedge. Where the soil was neutral, it had become exhausted by the two, or at best, the three field rotation, whilst the acid uplands, many of them as level as the river flats, overrun with sorrel and hengrass, were upon the point of giving out altogether. Tillage was rude and slovenly. Drainage, though of the first necessity, had been entirely neglected, or executed in so imperfet a manner, that much the greater part of the labor expended in ditches and water furrows, was thrown away. The water of underlying strata

permitted to ooze to the surface and saturate the soil, collected in many places into natural ponds, and the copious streams were either imperfectly led away, or permitted to form swamps, by the accumulation of drift and the growth of bushes and briers. Thus the fields were poisoned with stagnant water, and the air filled with unhealthy exhalations. Under such circumstances, it is not surprising that barrenness and autumnal diseases were so prevalent as to be thought the natural and unchangeable characteristics of the country.

The culture of tobacco had ceased; there were no fresh lands to be cleared, and no grass to support stock from which manure might be made in sufficient quantity for even a small crop of it. Wheat and corn, the former sometimes substituted by oats, and more rarely, by rye, had become the sole staples, and under the scourging rotation then pursued, had reduced the soil to the lowest ebb. The large majority of farmers were thought well off if they could clothe their negroes, and feed them somewhat scantily, and support their families in decent comfort. Few were beforehand, and none made fortunes, except the niggard, the money lender, and the man of superior skill and judgment. Slave property was valuable, more from its marketable increase, than its manual productiveness. Lands were low and plenty in the market—buyers rarely eager. Emigration rolled in a rapid and swelling tide. All but the thoughtless began to despair.

At this stage of lowest depression, the Legislature of Virginia proposed a remedy.—Roused by the negro rebellion in Southampton to look into the internal polity of the State, the Hall of the House of Delegates rang with lamentations over the evils of slavery. The impoverishment of the lands, and the consequent poverty of their owners, was charged to that cause; grave and prudent statesmen, "men of head and thought," pointed to tide-water Virginia as a sad instance of its blighting effect, and boding utter ruin from its continuance, sought speedy riddance of the curse by means which, had they been adopted, were to have commenced some years ago.

Just at that time, and just twenty years ago, to wit, in January, 1832, Edmund Ruffin wrote a modest little book entitled "An Essay on Calcareous Manures." He was a *book farmer*, a term of reproach among some people; and one word in one book, the word "acid," had led him to adopt a *theory*, another term of bad repute with the same class. By continued and persevering effort, extending through a period of fifteen years, he had perfected that theory into successful practice, and now ventured to give the results of his thoughts and his labors to the farming public.

Not in terms, to be sure, but none the less in effect, he took issue with the politicians, and traced the cause of the depression of tide-water agriculture to a matter, entirely independent of slavery, to a want of carbonate of lime in the soil, and to a consequent excess of acid which rendered abortive the best directed efforts at permanent improvement. It were needless, if we had the space, to trace the success of this theory. Slowly and gradually, amid the discouragements of poverty, the blunders of ignorance and the doubts of prudence, that little book did its work. The statesmen were in error—the practical farmer was right. In spite of the *increase* of slavery, tide-water Virginia stands redeemed. The people of that favored land are growing apace in wealth and energy and enterprize; and these, wisely directed, will bring in their train every other element of the highest rural improvement and civilization.

Numerous facts attest the fidelity of this flattering picture. The assessment of the lands of tide-water, showing an increase in their value of something more than seventeen millions of dollars, or twenty-eight per cent. in twelve years, is not a fair index of their improvement, because lands there are generally rated below their productive value; and the valuation made by assessors, we believe, is uniformly less than the cash price of the land. Neither can it be rated by the wonderful increase of the whole wheat crop of Virginia, about one hundred per cent. in nine years; because much of the wheat grown on tide-water seeks other markets than Richmond. And whilst it is known that some farmers there have increased their wheat several hundred per cent. it is believed that nearly all who use calcareous manures have doubled their crops within the last seven years. The best evidence of the rapid advance that agriculture has made in this country is rather to be gathered as matter of sound inference from the individual facts, which every where surprise the enquirer.

Among which, not the least striking is the fact that we find scarcely any lands in market. Better evidence of thrift can neither be asked nor given; it proves that every one is content with his present gains, and the chances of increasing them.

This, then, is the prospect, at present, of the country in question, and we presume of all that lies in the same range. But there is serious reason to apprehend, unless they follow up the improvement so happily commenced, with other appliances, that they will not speedily reach the destined goal. The introduction of lime is a great thing, and indispensable in their husbandry. So is the use of clover and peas. But the art of farming does not consist in employing these agents alone. Their lands are only *improved*, not *made;* and there still remains much to be done before they shall be free from all danger of relapsing into a condition not so bad, perhaps, as they have lately emerged from, but still bad enough to be provided against, as it may be now, by proper means.

So magical are the effects of clover when first grown upon land, that it is not surprising that they have been every where greatly overrated. Yet wherever relied on as the sole, or principal means of enrichment on any, except the most extraordinary lands, as in Clarke and Jefferson counties, for example, it has never failed ultimately to exhaust them. Avoiding the tedious citation of many instances of this rule, let it suffice to refer to Western New York, and parts of Piedmont Virginia, as fair, prominent, and well known cases in point.—In both, large wheat crops, grown in rapid succession upon heavy clover leys, encouraged to such frequent repetition, that now, in each, the yield of wheat has greatly depreciated, and clover has ceased to grow with its former luxuriance. Thirty years ago the philosophic President Madison observed to a neighbor, exulting at the prospect of his rank clover fields, that "clover would make a rich father, but a poor son." The farm on which he made the prediction has ceased to grow wheat. There is no doubt of the fact anywhere, and in England it is so well understood that the land there, save their richest alluvions, which are farmed on a distinct system, are never sowed in clover more than once in seven or eight years. When lime, in any shape, stimulates the growth of clover, the catastrophe will only occur more speedily. Not to go beyond our own or readers' depth into the science of these matters, and yet not to dogmatize, let us state briefly the operation of these fertilizers and exhausters, for they are both. It can be done on principles of common sense with but little aid from that rather mysterious thing, analysis of soils.

A crop of ten bushels of wheat is taken from an acre of land. This gives of grain six hundred pounds, and of straw twice as much, or twelve hundred pounds—eighteen hundred pounds in all. Here then is eighteen hundred pounds of something or other, which has made this wheat and straw. It is evident that all cannot have come from the air, but that a portion at least has been derived from the soil. Throwing out of account the very considerable part which goes off in and with the smoke, when it is burnt, we find the residue, the indestructible part, the *ash*, which remains, equal to about forty-two pounds, or two and a half per cent. of the weight of the whole. This would seem to be too trifling a quantity to effect the yield of a crop of wheat, but we know it does, since there are very few lands that will bear wheat after wheat, unless they have had a very long rest. And when we consider that some of the elements of wheat exist in the soil, at least in an available condition, in very slight quantities, and when we think what effects are sometimes produced by one hundred pounds of guano, or forty of gypsum or ashes, we shall be better prepared to admit its importance. But let this quantity be removed twenty times, as it will by the wheat and corn grown upon a farm in thirty years, according to some rotations, and we have eight hundred and forty pounds of the most valuable part of the soil abstracted; most valuable, because most costly to restore.

Now clover is said, and with justice, to be "the mother of wheat." Independent of its mechanical action in deepening soils by rendering them more porous, and thus affording them the benefits of aeration, and so indirectly operating to increase the crop of wheat, it also, by its decay, affords food for the wheat plant to live and grow upon. But whence comes this food? The ashes tell us, from the soil, and from the subsoil, by means of the sap of the clover, as far down as its roots have penetrated. Now then, we can calculate that clover alone,

repeated indefinitely upon a certain breadth of land must, sooner or later, extract from that land the substances out of which it elaborates the food of wheat.

But the lime comes in aid of this action. Independent of *its* mechanical action, for it has, like clover, a mechanical action, differently exerted on different soils, and happily adapted to remedy the defects of each, and independent too of its power to correct the acids of soils; it is also supposed to dissolve the substances that compose the food of plants, and to dispose them to take on that chemical action necessary to fit them *for* food. By this means the growth of clover is forced beyond what it might be otherwise. Whether this explanation be true or not, all know that lime makes clover grow with greatly more luxuriance than it can do without it. It is then evident that this does but accelerate the rate of exhaustion from clover.

We think the vast majority of the lands of lower Virginia are especially liable to this general law. They are not rich. For the most part light, friable, and easily worked, which requiring less labor to work them, compensates, perhaps fully, for their deficient fertility, they are of that class of soils which, being readily penetrated by the roots of plants in all directions, give up their contents with least difficulty.

This doctrine may be disputed by many farmers, who are deceived by the manner in which their lands have heretofore responded to lime and marl. But we are happy to know that others admit it now upon evidence afforded by their own farms. Expressing our views on this subject to our friend Mr. Hill King, of King William, he said that his land did not now grow clover as well as at first. Yet his tract, near the Court House, is equal to any in its neighborhood, and is, as all know, who know him, exceedingly well farmed. It is probably also occurring elsewhere, but is not yet suspected, and may not be distinctly observed at any given time. Farmers at large are not very remarkable for persistent observation, and in the matter of decrease and failure of crops are rarely candid even to themselves. To those extrinsic impediments must be added the consideration that a process of nature extending over a long period, cannot be accurately measured by the crops of last, this, or next year, but by a comparison of general results at distant intervals. When this is made, we take it for granted that no exception will be found in tide-water to the operation of a general law.

But let not its impendence excite alarm. It is wisely ordained that we shall be checked in wasting the treasures of the earth and forced to restore them by varied culture. Had the tillage of one or two staples satisfied our wants we might have become stagnant and monotonous, and been tempted to forego that ceaseless and eager effort which is the grand characteristic of civilization. Another step must be taken to avoid this danger, one that has been often tried elsewhere and been always found to operate a cure.

That step is the introduction of stock husbandry in some of its shapes. We shall speak of it next month. Whether we can chalk out the mode and manner in which it should be introduced, as clearly as we think we have done, the necessity of it is somewhat doubtful. It is always easier to pull down than to build up. But we shall try. A failure may stimulate some more competent hand to trace out the true plan.

The following letter, for which we thank the writer, settles the question about the Osage orange's living from the slip.—Ed. Pl.

For the Southern Planter.

OSAGE ORANGE FROM THE SLIP.

Mr. Editor,—Last winter I purchased from General Richardson one thousand plants of the Osage orange, which were forwarded by the canal to Buchanan, and reached me about the first of March last, in excellent order.—The roots were wrapped with moss and the tops with straw, and might have been transported any distance with perfect safety. When opened, the roots were as moist as if they had been just taken from the ground. Having cut off the tops, the roots were set out, about six inches apart, and grew rapidly—say from two to three feet in height, notwithstanding the unusually dry season. Not a single one, that I am aware of, perished.

Having seen, in a previous number of the Planter, that a doubt was expressed as to whether the plant could be propagated from the slip, and, at the same time, a request, that any one who had tried it, would communicate the result, I had the tops, after being cut to the length of about a foot, set out in a bed,

prepared for the purpose, from six to eight inches deep, and, contrary to my expectation, (for the drought was excessive during the summer,) nearly all of them lived and grew off finely, attainining as great a height, and presenting as thrifty an appearance, as the plants that grew from the roots. How they will stand the winter, remains to be seen.

Having promised in your last paper, an article on the Osage orange in your next, I thought it might not be uninteresting to you to communicate the fact, that it may be propagated from the cuttings.

Whilst upon the subject of enclosures, I hope you will say something about rock fences. For the sake of experiment, I had, during the past year, about a quarter of a mile of fence built of limestone rock, which abounds in this region, put up. The rock was obtained partly from the surface, worked out with crowbars, and partly from the quarry, by blasting, and the cost, according to the best estimate I could make, counting the labor of my own hands, together with the wages of an experienced workman, hired for the purpose of putting up the fence, was one dollar and ten cents a rod, eqnal to about the cost of the same length of plank fence, which is usually estimated to be worth, counting the posts, plank, nails, holes and putting up, one dollar a panel of fifteen feet. But even if it cost double the other, in the first instance, would not the rock fence be infinitely the cheapest in the end? The one would need constant repair and occasionally require renewal—the other, if well put up, (out of limestone, mind you, which have, in the langnage of the masons, good *faces* and good *beds*, whilst the round rock used in many places, have neither, and are therefore liable to tumble down,) will last forever. Besides, I find that no kind of stock will attempt even to jump over a rock fence four feet high above the grond, except sheep, to whom it is fine fnn. As to the pig, "his occupation's gone."

My fence is two and a half feet at bottom and from one to one and a half feet at top. A good hand (and our farm hands can easily be taught) will put up two rods a day, the rock being handed and put along the line of the fence.

Respectfully, &c.

EDWARD JOHNSTON.

Lauderdale, Boletourt county.

For the Southern Planter.

BREAKING COLTS.

Mr. Editor,—As it has been my fortune to have seen many valuable farm horses spoiled and rendered comparatively useless by bad management in breaking, I think it may prove not unnseful to some of your readers to give them the benefit of my practice in breaking colts to harness, which is by no means new, but has been in use for many years, and only requires publicity to make it more generally practised.

The fall after the colt is two years old he should be bridled and tied securely to a pair of steady horses, and taken to the field and permitted to walk by the side of them for two or three days whilst they are at plough. The gear may then be put on, and the same process gone through for several days, when the colt may be hitched and worked for one or two days. He should then be turned out and not used any more until the next spring when he may be used moderately and again turned out, and taken up again and again throughout the season; after which he may be used as it may suit the owner. The advantage of this mode of breaking is that the horses rarely, if ever, kick, and are easily made to work to any kind of vehicle the owner may desire. In thirty years I have never departed from this practice without suffering more or less from it.

THOMAS GARLAND.

January 3, 1852.

For the Southern Planter.

USE AND PERMANENCY OF GUANO.

Mr. Editor,—From the fact of having used guano to a considerable extent, for several years, I am often receiving letters of enquiry as to its use, and especially latterly as to its permanency. It is surprising from the length of time that farmers have been using plaster, that scarcely two chemists agree as to its action, although all agree in its benefits to the clover crop on land that has lime. So it may turn out with regard to guano. Indeed, men may be very confident in expressing an opinion, and yet change their opinion for another. We have a remarkable instance of this in a discussion going on at this time in the American Farmer. Often have we been told of the danger of exposing guano to the air; yea, that it ought to be covered over, even in a house, unless mixed with plaster, or the ammonia would fly to the upper regions. Now it seems there is no danger, for that ammonia is not formed, but in the act of putrefaction. Again, it was supposed that the smell that every body was sensible of in approaching a bag of guano, was the ammonia flying off. Still, if a bushel of plaster were mixed with a bushel of guano, the smell was not lessened. It would, at this time, be profitable to your readers, to show the power that exists in mother earth to do what plaster will not do.

The Indians cover their meat with earth when they have more than they can eat, and find it preserved. So does the fox after eating a hearty meal, cover over with earth the remainder until he wants again to dine. These and other considerations have led to some very important discoveries within the last twelve moons in England, as to the power of the soil,

to do what plaster cannot do in detaining all fertilizing matters, committed to her trust.—That if ammonia, for example, were mixed with plaster, and both put into the soil, that an application of water to the soil would bring away the plaster and leave the ammonia behind, showing that the ammonia had a greater affinity for the soil than for the plaster. It would, doubtless, be very interesting to many of your readers to see the report made of all the experiments, before the Royal Agricultural Society, by Professor Way, on fertilizing agents, and that once committed to the earth there was a power to detain them for the use of plants; what this power is he does not say, but nothing that was tried could exceed it.—From the extensive use of drains in England, the farmers were unhappy at the thought that manure was carried down into them and escaped, and many of them imagined they could see the manure running out at the mouths of the drains. This unpleasant feeling throughout the farming community, gave an importance to the discoveries made by Huxtable, Thompson and Way, that nothing could exceed it. If you will be kind enough, Mr. Editor, to answer a query which I will state, and it be acceptable to you, I will give a short account of my manner of using guano, with some remarks touching its permanency, in your next number.

Query.—Is there no ammonia in guano as we receive it? I mean is it only in the act of fermentation that the ammonia is formed?

JAMES FIFE.

The above article of our friend, Mr. Fife, was mislaid, or it should have appeared in January. We shall endeavor to answer his queries in our next. If we had the report made by Professor Way, we would very gladly publish it. Can our friend furnish us a copy? —ED. PLANTER.

For the Southern Planter.

HEAVES.

Mr. Editor,—An esteemed young friend recently lost a valuable saddle horse that, according to his representation, might have been saved by the operation practised in various parts of the world on *hoven animals*. As this process is yet unknown to many, and the subject of scepticism with others, will you give it notoriety by insertion in your columns?

In a life of no short duration I have owned three coarse, or what would be termed cold-blooded, horses. During the time I had them they were subject, one particularly, to severe attacks of colic which were always cured by bleeding boldly and freely. My blood horses never suffered in that way; nor did I ever have one foundered, though a fox hunter for many years, and no inconsiderable traveller beside. Utterly repudiating the empiricism that introduced physicking generally, bleeding in the mouth, &c. and especially drenching, that has done an infinity of harm, wherever I have heard of the adoption of my mode of treatment it has been successful—and yet I do not claim to have originated it, for when but a boy it was told to me by a fisherman, who had it from his father that had been long employed in an establishment where a number of horses were used. Now I am not to be understood as saying that bleeding alone is remedial in cases where the cavity of the belly is filled with wind, for then, as referred to above, the knife is to be called into coadjutant aid of the lancet. The doctrine once so universally believed in that grubs killed horses by eating the maw is fast going the way of all *notions*, and will in time be entirely exploded.

After parting with you in King William, where I was pleased to find you made such additions to your subscription list, I passed several delightful hours with our worthy friend of Dunluce, who, after showing me several specimens of nice farming on an extended scale, took me to witness the operation of a portable saw mill lately erected for Major Fontaine by that meritorious artisan, Mr. Haw of Hanover. Its cheapness and adaptation to the propelling power of any wheat machine must make it an appendage of no small interest to all large farms. In bad weather, or when not otherwise wanting, the teams can be employed in working it, and if the owner should not keep an adequate supply of timber for this purpose, his neighbors would find it to their advantage to make up the deficiency.

JAMES GOVAN.

December 3, 1851.

It may be that our friend's blood-horses never "suffered in that way;" but we consider his case a lucky exception to the rule. We have never been able to ascertain that blood constituted an exemption, and for the small number we have had think that the per centage of colic was rather greater with such. A half bred mare is the most frequent subject to the attack that we now own. An old brood mare, by Timoleon, thorough bred, was on two occasions attacked at pasture without any predisposing cause that we could see, and a thorough bred Grey Eagle once had a severe attack from grazing in the yard during a smart sprinkle of rain at midsummer. At least, we could not imagine any other reason. We have heard of several other cases, too tedious to mention, of blood-horses that have been attacked, and some of them killed, by colic.—Still we go in for blood-horses of the right sort.—EDITOR.

PAYMENTS TO THE SOUTHERN PLANTER,

From the 1st to the 26th of January, 1852.

All persons who have made payments early enough to be entered, and whose names do not appear in the following receipt list, are requested to give immediate notice of the omission, in order that the correction may be made in the next issue:

Wm. H. Whiting, to January, 1853,	$1 00
Bev. Randolph, to January, 1853,	1 00
Smith Petty, to January, 1852,	2 00
Dr. D. H. Gregg, to January, 1853,	1 00
F. T. West, to January, 1853,	1 00
Richard Cawthorn, to January, 1853,	1 00
T. R. Argyle, to January, 1852,	1 00
Wm. G. Rogers, to January, 1853,	1 00
John Parker, to January, 1853,	1 00
Wm. W. Mead, to January, 1852,	5 00
Jos. Hillyard, to January, 1853,	1 00
Wm. Boulware, to July, 1852.	1 00
Rev. J. Shough, to January, 1853,	1 00
Archd. Pointer, to January, 1853,	1 00
Capt. J. L. Davis, to January, 1853,	1 00
E. J. Hill, to January, 1851,	1 00
L. H. B. Whitaker, to January, 1853,	1 00
Dr. C. Whitaker, to January, 1853,	1 00
Wm. S. Dance, to January. 1853,	1 00
Judge Field, to January, 1853,	1 00
John Grasty, to January, 1853,	1 00
W. R. Hankins, to January, 1853,	6 00
John H. Hankins, to January, 1853,	4 00
James Govan, to January, 1853,	1 00
Wm. Massey, to January, 1853,	1 00
A. L. Winfree, to January, 1852,	1 00
A. J. J. Brown, to January, 1852,	1 00
H. Allen, to January, 1853,	2 00
W. Friend, to January, 1853,	2 00
Dr. B. Dennis, to January, 1853,	1 00
Frederick Butler, to January, 1853.	1 00
Henry Carrington, to January. 1853,	2 00
L. D. Horner, to January, 1853,	1 00
Dr. E. F. Gunter, to January, 1853,	1 00
Fendol Chiles, to January, 1853,	1 00
A. W. Tally, to January, 1853,	1 00
J. E. Smith, to January, 1853,	1 00
Geo. J. Gardner, to January, 1853,	1 00
R. W. Goodwin, to January, 1853,	1 00
Benj. Henson, to January, 1853,	1 00
D. E. Hickman, to January, 1853,	1 00
Dr. M. Pendleton, to January, 1853,	1 00
R. W. Harris, to January, 1853,	1 00
Dr. W. J. Pendleton, to January, 1853,	1 00
Capt. R. Wright, to January, 1853,	1 00
C. G. Coleman, to October, 1852,	1 00
Preston Lipscomb, to January, 1853,	1 00
John Defarges, to January, 1853,	1 00
Wm. M. Turner, to January, 1853,	1 00
J. W. Taylor, to January, 1853,	1 00
Dr. Wm. Gwathmey, to January, 1853,	1 00
W. C. Lalane, to January, 1853,	1 00
George Edwards, to January, 1853,	1 00
John H. Burch, to January, 1853.	1 00
Dr. W. H Howard, to January, 1853,	4 00
James Wilson, to January, 1853,	1 00
Dr. H. L. Jeffries, to January, 1852,	1 00
George R. Trant, to January, 1853,	$1 00
John Sizer, to January, 1853,	1 00
John H. Walker, to January, 1853,	1 00
W. P. Courtney, to January, 1853,	1 00
Dr. Lemuel Edwards, to January, 1853,	1 00
Martin Slaughter, to January, 1853,	83
Geo. W. Major, to January, 1853,	1 00
Richd. T. Green, to January, 1853,	1 00
Thos. Starke, to January, 1853,	1 00
Dr. G. G. Minor, to January. 1853,	1 00
F. H. Mays, to January, 1853.	1 00
Jas. M. Strange, to January, 1853,	6 00
Thos. H. Garnett, to September, 1853,	1 00
John A. B. Thornton, to January, 1853,	1 00
Geo. C. Rives, to January, 1853,	1 00
Thos. J. Massie, to January, 1853,	2 00
T. E. Blount, to January, 1853,	1 00
D. S. M. Crump, to January, 1853,	1 00
Geo. Hairston, Sr. to January, 1852,	1 00
Colin Clarke, to January, 1853,	1 00
Prof. Bennet Puryear, to January, 1853,	1 00
Dr. A. Bryant, to January, 1853,	1 00
Col. W. Simmons, to January, 1853,	1 00
Wm. Smith, to January, 1853,	1 00
M. B. Halstead, to January, 1852,	2 00
J. H. Parker, to January, 1852,	6 00
H. B. White, to January, 1853,	1 00
M T. Campbell, to January, 1853,	1 00
Wm. T. Bowie, to January, 1853,	1 00
John D. Farish, to January, 1853,	1 00
Joseph D. Withers, to January, 1853,	1 00
Patrick Haden, to January, 1853,	1 00
Saml. C. Gatewood, to January, 1853,	1 00
Edward S. Coleman, to January, 1853,	1 00
John W. M'Cally, to January, 1853,	1 00
Robert Garland, to January, 1853,	1 00
Messrs. Boxley & Hart, to Jan. 1853,	1 00
Stephen Dickson, to January, 1853,	1 00
Wm. Meredith, to January, 1853,	1 00
Thos. Watson, to January, 1853,	2 00
Wm. H. Clarke, to January, 1853,	1 00
Walter D. Leake, to July, 1852,	2 00
J. B. Whitehead, to January, 1853,	1 00
B. B. Keesee, to January, 1853,	1 00
R. B. Spratley, to January, 1853,	1 00
Benj. F. Terry, to January, 1853,	1 00
J. T. Hamner, (cor.) to January, 1853,	1 00
Ro. B. Harvey, to January, 1853,	1 00
Andrew J. Carper, to January. 1853,	1 00
Amos Crosby, to August, 1853,	1 00
Kemp G. Holland, to January, 1852,	2 00
A. Phillips, to January, 1853,	1 00
R. L. Rudicilla, to January, 1853,	1 00
Jos. C. Burton, to January, 1852,	1 00
Cyrus Dillard, to January, 1854,	3 00
Col. John J. Prince, to January, 1853,	2 00
J. T. J. Mason, to January, 1853.	1 00
Geo. E. Dabney, to January, 1853.	1 00
Wilson P. Dabney, to January, 1853,	1 00
Richard Baylor, to January, 1852.	2 00
John M. Tupman, to January, 1853,	1 00
Pleasant W. Meredith, to Jan. 1853,	1 00
Capt. Thos. Martin, to January, 1853, Rev. Thos. W. Roberts, to Jan. 1853, Littleberry M Powell, to Jan. 1853,	2 50
I. Irvine Hite, to January, 1853,	1 00
T. C. Goodwin, to January, 1853,	1 00

Morgan Utz, to January, 1853, $1 00
Jas. S. Walrond, to January, 1853, 1 00
Oliver P. Gray, to January, 1853, 1 00
Col. Daniel Ammen, to January, 1853, 1 00
Henry Massie, to January, 1853, 1 00
Geo. W. Macon, to July, 1852, 1 00
James N. Stevens, to January, 1853, 1 00
John F. M'George, to January, 1853, 1 00
Jas. F. Jones, to September, 1852, 1 00
John Shepherd, to January, 1853, 1 00
Philip Edge, to July, 1852, 1 00
B. J. Barbour, (in full) to January, 1852.
W. W. Minor, to January, 1853, 1 00
Richard Dossey, to September, 1852, 1 00
Dr. A. H. Perkins, to October, 1852, 1 00
W. B. Irby, to January, 1853, 1 00
Geo. Rives, to January, 1853, 1 00
A. H. Moorman, to January, 1853,
V. O. Witcher, to January, 1853,
Moses A. Hubbard, to January, 1853,
W. F. Gardner, to January, 1853, } 5 00
John M. Patton, to January, 1853,
A. L. H. Muse, to January, 1853,
Jos. W. Morriss, to January, 1853, 2 00
P. M. Tabb, to October, 1852, 3 00
Nathaniel King, to January, 1853, 1 00
F. W. Connor, to January, 1853, 1 00
J. D. Watkins, to January, 1853, 1 00
Ed. W. Bell, to January, 1853, 1 00
Henry E. Coleman, to January, 1853, 1 00
Aaron Neal, to January, 1853, 1 00
Jas. S. Yarbrough, to July, 1852, 1 00
Jacob Ham, to January, 1853, 1 00
D. D. Ferebee, to January, 1852, 1 00
Wm. Cowherd, to January, 1853, 1 00
F. E. Brooke, to January, 1853, 4 00
Dr. M. Pendleton, to January, 1853, 1 00
Col. J. Peterson, to January, 1853, 2 00
Dr. R. Eppes, to January, 1853, 6 00
Col. S. Downing, to January, 1852, 1 00
John T. Rice, to January, 1852, 1 00
Wm. Smith, to January, 1853, 1 00
Dr. Wm. G. Pollard, to January, 1853, 1 00
John Lawrence, to January, 1852, 5 00
Archer W. Womack, to January, 1853, 1 00
J. R. Depriest, to January, 1852, 1 00
John D. Alexander, to January, 1853,
E. C. Jordan, to January, 1853,
J. R. Depriest, to January, 1853, } 5 00
C. N. Michie, to January, 1853,
Mrs. M. Henricques, to January, 1853,
John Murray, to January, 1853,
Saml. T. Miller, to January, 1852, 2 00
S. F. Hunt, to January, 1853,
Capt. W. S. Gillispie, to Jan. 1853,
James Whitehead, to January, 1853,
J. W. Allen, to January, 1853,
J. W. Womack, to January, 1853,
Edwin J. Redd, to January, 1853,
A. R. Venable, to January, 1853, } 10 00
E. H. Bass, to January, 1853,
E. H. Irving, to January, 1853,
R. H. Gilliam, to January, 1853,
Capt. H. Cary, to January, 1853,
T. T. Totty, to January, 1853,
E. N. Price, to January, 1853,
Edward Tarry, to January, 1853, 1 00

James T. Redd, to January, 1852, $3 00
Jesse B. Lucas, to January, 1853, 1 00
Mrs. Mary T. Moseley, to Jan. 1853, 1 00
Hiram A. Kite, to January, 1853, 1 00
Geo. W. Houston, to January, 1853, 1 50
Jas. Jack M'Bride, to January, 1853, 1 0
Jos. W. Culton, to January, 1853,
Maj. Jonathan Brooks, to Jan. 1853,
Saml. Willson, to January, 1853,
Zacharia Johnston, to January, 1853, } 6 42
James C. Wilson, to January, 1853,
Mrs. F. M'Chesney, to January, 1853,
Dr. Jas. Stuart, to July, 1852,
John R. Miller, to January, 1854, 1 00
W. H. Finch, to January, 1852, 6 00
Wm. Waring, to January, 1853, 1 00
Wm. W. Gilmore, to January, 1853, 2 00
John Tabb, to January, 1854, 3 00
Henry Hughes, to January, 1853, 1 00
Dr. John P. Tabb, to January, 1853, 1 00
Col. J. A. Whitaker, to January, 1854, 8 00
Dr. J. M. Garnett, to January, 1853, 1 00
R. M. Garnett, to January, 1853, 1 00
David Hancock, to July, 1852, 1 00

CONTENTS OF NUMBER II.