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THE

SOUTHERN PLANTER,

DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

VOL. XXI. [JANUARY.] NO. 1.

EDITED BY

DR. J. E. WILLIAMS AND PROF. WILLIAM GILHAM.

AUGUST & WILLIAMS, PROPRIETORS.

RICHMOND, VA.
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THE

SOUTHERN PLANTER,

OFFICE

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A few Doors below the Exchange Bank,

RICHMOND, VA.

THE SOUTHERN PLANTER

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J. E. WILLIAMS, M. D., PROF. WILLIAM GILHAM. } EDITORS.

{ AUGUST & WILLIAMS, PROPRIETORS.

VOL. XXI. RICHMOND, VA., JANUARY, 1861. No. 1.

From the Christian Intelligencer.

"Peruvian Guano, and Phosphates."

With no sort of propriety can it be said, that Peruvian guano is a *stimulant* to vegetation, in the common sense of the word—1st, because it has almost no stimulating property whatever; and 2nd, because if it had, vegetation itself is not, and cannot be the subject of *stimulation*. We very properly call alcohol a stimulant, simply and only for the reason, that when it is brought in contact with the sensation nerves, and blood-vessels, of an *animal*, it produces in them a peculiar irritation or excitement, called *stimulation;* but as guano is almost devoid of any stimulating principle of any kind, and as plants have neither nerves, blood-vessels, nor sensation, nor any thing else precisely analogous thereto, of course it would be simply absurd to liken the action of the one, on the vegetable organism, to that of the other on the animal economy.

Equally true and demonstrable is it, that guano does not *stimulate* plants in any manner or sense whatever. No doubt there are many very credulous farmers, who, making it a point to believe every thing they read in the advertisements of interested manure *manufacturers*, very dogmatically assert the contrary of this, and talk very flippantly on the subject, who have no definite views of any kind, as to the action of guano. There are others, however, who make a sort of figurative application of the word *stimulant*, and with some show of plausibility contend, that as guano (because of its relatively large per centage of ammonia) uniformly and invariably causes a rapid and excessive growth of the stalks and leaves, and corresponding extention of the roots of plants, its constant and inevitable tendency, is to drain the soil of the mineral constituents of plants, and that a frequent application of this fertilizer, to the same land, will sooner or later—surely—effect a complete and hopeless exhaustion of the soil, by depriving

it of one or more of the minerals in question. But this whole theory is false, because its premises are false, and so the conclusions derived therefrom, are entirely fallacious. The fact is, the aggregate amount of mineral matter applied to the soil in any ordinary application of guano, is nearly double, and of *phosphates* in particular, more than double that abstracted from the soil in any ordinary crop, say of wheat; and besides, there is *no sort of proof, chemical, agricultural, or otherwise, that a generality of soils, no matter how worn and exhausted by continuous cropping, do not contain, naturally, an ample sufficiency of every mineral necessary, to meet in any judicious rotation the demands of any ordinary cereal crop for many centuries to come.*

Those who so confidently rely on the evidence which chemical analysis affords, of a deficiency of mineral matter in the soil, should know that in a single acre, cultivated to the depth of one foot, there is of arable soil by weight, nearly five millions pounds, and that in the usual analysis of a mere *thimbleful* (100 grains) of such soil, the *trace* of the chemist of a mineral, as of lime for example, would doubtless be found to be, could it be weighed, and then computed for the entire acre, quite enough of that *earth*, as mere plant-food, to grow successive crops of wheat for a thousand years! and that a soil exhibiting of *phosphates almost no trace at all*, that the most delicate *tests* can detect, might yet after all, contain phosphoric acid, sufficient to feed abundantly, crops of corn and wheat for ages to come!

But in point of fact, there is abundant proof of the presence, in a generality of soils, however exhausted of every necessary *mineral*, in the fact, that when such soils are turned out to rest, they invariably cover themselves with a natural vegetation of some kind. That the amount of mineral matter naturally present in these soils is even considerable, is demonstrated by the heavy growth of pines, which quickly appear on an old field which has been turned out, and that the amount is at least often ample for many years has been fully established by the very elaborate and complete experiments of Mr. Lawes, and other eminent practical farmers of England, who on a great variety of exhausted soils, grew crops of wheat for many years in succession, on the same land, with *ammonia alone*, and with a marked increase in the yield each year.

It is idle then to suppose that a single application or any number of applications of Peruvian guano would tend to impoverish the soil, by exhausting its supply of mineral matter; and it would be equally irrational to conclude that the All-wise Creator ever designed that the farmer should be able by any means at his command, to effect a complete exhaustion of the soil. He could not do it, if he would, for the very simple reason that the various mineral constituents which enter into the composition of soils are controlled by fixed and immutable laws which forbid it. They are not left wholly to the caprice of the farmer, and when he has done his best, or his worst to waste and ruin his *inheritance*, there still remains in the soil all the elements of its own renovation, for the

promise is, and it cannot fail, that while "the earth remaineth, seed time and harvest shall not cease." P. B. P.

Louisa County, October 10th, 1860.

For the Southern Planter.

Phosphates Generally.

Experience alone determines the value of a manure, and from its decision there is no appeal; but then the *experience* to be valid, should be based on a series of experiments, conducted with the utmost care, on a great diversity of soil, and under a variety of circumstances; otherwise it might be, after all, entirely fallacious; for indeed, there is in farming, as in every other profession or pursuit, a great deal of *false experience*, which is often relied on as proof of the value or efficacy of a thing, but which, when strictly analyzed, is found to prove just *nothing at all*. No doubt many an *invalid*, if he was kept in ignorance of the nature of the remedy, might, with the proper diet, etc., very well be cured (or rather get well) of his complaint, by merely swallowing a few "*bread-pills*," *homeopathic* "*pillets*," or the like, and doubtless the *experience* in every case would be, that said pills or pillets had cured the disease; and yet, as therapeutists, we know very well that any such experience would be *false*, because we know there is no medicinal virtue or power whatever in either of the remedies in question; and this perhaps is a fair illustration of the precise relation between cause and effect which exists in much of the experience of farmers in the use of manures.

Perhaps it is true to say that farmers are, as a class, more credulous, or at least more confiding and gullible, as well as more honest and ignorant, than other people: and hence it is no wonder they are often the ready and willing victims of any imposture, however transparent and absurd. The same easy credulity and mistaken ideas of economy which prompt the afflicted every where to fly to some one of the thousand boasted *Catholicons* of the *patent pill maker* to get purged away all disease and bad humors from the body, often constrain the farmer to expend his money freely on some comparatively worthless mixture, under the full conviction it will prove a sovereign balm for all the ills of his soil—provided only it be heralded by a flaming advertisement, is well be-praised by some half dozen good certificates, and is besides honored with a chemical analysis; and then again, progress and improvement being now the order of the day, and farmers everywhere having caught the spirit of the age, of course each one despises the thought of being an *old fogy*. In truth the farmer likes to be in fashion even in the thing of manures, and as *phosphates* are all the *go* now-a-days, he of course goes in for them freely. True between the hosts of those compounds, *whose name is legion*, each one claiming to be as potent a rejuvinator as ever was the famed Hellebore of the ancients, he is often as much puzzled to decide which is the true and *genuine renovator*, as was the public a few years since to determine whether "*Old Dr. Jacob Townsend*," or "*Young*

Dr. Jacob Townsend," was the inventor of the matchless and inimitable *"Townsend Sarsaparilla!"* But as he is clearly of the opinion they are all good, he concludes it best to try them all, by throwing all the different kinds into *pi*, and making a sort of *pell-mell* application, like a physician I've heard of, who in an obscure case, gave his patients *a dozen different kinds of medicine at once, in order, as he said, that Nature might choose between them which she'd prefer.* Being anxious, however, to test the merits of each fertilizer, he of course reserves small portions of each for separate experiments, but being much surprised and *taken aback* to find little or no difference in the crop, is puzzled to solve the mystery much in the same way of the school-boy, who, in working a sum in *substraction*, insisted it must be a mistake in the arithmetic to say *"Naught from naught and nothing remains,"* for somehow or another, *"Naught certainly does remain."*

But one very desirable quality claimed for *phosphates* is, that while they do not very sensibly promote the growth of the *straw*, they do invariably produce a *marvellously fine effect on the grain*, both as to the quality and yield, that the heads of wheat have more grain in the mesh, and are besides longer, fuller and plumper than those grown from Peruvian guano, and other forcing manures. Possibly this may be so, and that in process of time some hopeful and public spirited farmer, who has faith in them, will greatly improve our breeds of wheat by lengthening the head and shortening the stalk, (much in the same way that the short horn breeder, by careful breeding, improves the form of his cattle,) so that the tall, rangy, shanghai stalks of the Poland variety shall at last come to be decidedly dwarfish and duck-legged in their proportions. But while the *theory* is that *phosphates* produce an astonishingly fine effect on the grain, the general *experience is, that when used alone, they produce little or no effect of any kind.*

But since the necessity of applying *phosphates* to all worn and exhausted soils, is generally admitted and urged by chemists, it has been deemed advisable to mix Peruvian and Phosphatic guanos together, *half and half*, by a peculiar mixing and grinding process, called *manipulation*, by which is produced a fertilizer, finely powdered, convenient to handle, and several dollars in the ton cheaper than the Peruvian, and no doubt it is a good thing. But after all it is questionable whether the mass is a great deal *enriched* by the addition of the *Phosphates.* Indeed the idea of *improving* Peruvian guano by any such means, reminds me of an anecdote I have heard told of an *old toper*, who one day being quite *thirsty*, as well as quite out of money, went to a neighbor who had some good cider, and told him if he would give him a pitcher of cider, he would advise him how to fatten his hogs very cheaply. The cider was brought and drunk, and the *recipe* demanded. "Take," said he, "one bushel of saw-dust and one bushel of meal; mix the same well in a barrel, and then add water sufficient to cover the whole; let it stand till cool, and then feed of the mixture to your hogs, plentifully, three times a day, and they will fatten astonishingly

fast." The neighbor was delighted; but just when the old toper had drained the pitcher, and was about leaving, he dryly remarked: "I forgot to tell you, neighbor, that instead of a bushel of saw-dust, it would be *better* to use only half a bushel, *and upon the whole, I dare say it would be better still not to use any at all.*"

And yet every farmer should be willing and anxious to give these *manipulations* an extended trial. It is only by a series of the most careful experiments that he can determine their value, and he should regard it his bounden duty to try them fully and fairly. In the mean while, I would advise him to preserve his *equilibrium*, and not suffer himself to be carried away by "every wind of doctrine." "'Tis a base abandonment of reason to resign his right of thought," and he ought to think and act calmly, dispassionately, and impartially, not taking anything for granted, but questioning everything; and while it is right to respect chemistry and to honor the chemist, who has done, and is yet doing very much to elevate and advance the noble art of agriculture, he should recollect that the chemical and physiological *laws* which regulate and control vegetable assimilation and nutrition are as yet but little understood by the chemist, and that in truth it may well be said of him, as Hamlet pithily remarked to his friend, Horatio: "there are more things in Heaven and earth than he ever dreamed of in his philosophy."

P. B. PENDLETON.

Louisa County, October 25th, 1860.

From the British Farmer's Magazine.

The Forces used in Agriculture.

A paper by MR. J. C. MORTON, *read at the Society of Arts, Wednesday, December* 7, 1859. J. BENNETT LAWES, Esq., *in the Chair.*

The three forces to which I shall refer are steam-power, horse-power, and manual labour. Each of them has employment in our present English agriculture, and one object of this paper is to point out the extensive fields open, especially to the first and last of them, in the agriculture of the future. For there are three classes under which all the operations of the farm may be arranged, and they correspond exactly to these three forces which we have at our command.

In the first, where the greatest uniformity of process obtains, the greatest power is needed, and a purely mechanical force, acting through levers, wheels and pulleys, is in this way sufficiently under our control for their performance, and this class of operations increases in extent and in importance with almost every permanent improvement of the land, *i. e.*, with everything which tends to the uniformity of its condition. In the second class as much force is needed; but rocky subsoil, awkward hedge-rows, crooked roads, and scattered produce, interfere with any possibility of uniform procedure. Some machinery, more pliable than cranks and rods, is needed by which to carry out the purpose of the mind; and here, therefore, it must work by means of the teachable and powerful

horse. This class of operations diminishes in extent and importance with every permanent improvement of the soil, *i. e.*, with every removal of those obstacles to which I have referred. In the third class, the care and cultivation of individual life, vegetable and animal, are concerned; no great power is needed, but there is need for the constant and immediate exercise of the will, varying, it may be, at every successive moment; and here, therefore, the human mind can work only by its most perfect instrument—the human hand. It is plain that everything by which, on the one hand, land is brought to a uniform condition, and by which, on the other, the quantity of its living produce is increased, will extend the first and last of these three fields of agricultural operations, and will diminish the necessity of employing horses.

And this is no mere speculation: it is the principal lesson of the agricultural experience of the past few years. If we knew for several successive years exactly the employment of our agricultural labourers, its nature, its quantity, and its reward on each of the farms which make up the surface of Great Britain; and if we also knew the quantity and the manner during all these years of the horse-labour of all these farms, its cost per acre and its effect; and if, in addition to all this information, we had the full experience, now very considerable, of the use of steam-power upon the farm, not only for threshing and grinding and cutting, but for cultivating the soil, we should certainly learn from it how rapid has been the extension of those circumstances under which steam cultivation becomes possible, and how perfectly along with it the demand for agricultural labour has been maintained. Such a review of agricultural experience, would, however, teach us more than this, for by a comparison of the experience of different farms we should learn the most economical mode of obtaining these powers, and the best way of applying each within the field thus open to it. We should learn how to ensure the most economical and efficient condition of our steam engine and its machinery; we should learn how to obtain the most economical and efficient horse labour; and by so large an experience those circumstances would be pointed out under which the best farm servants are to be procured and retained.

The forces used in agriculture, thus considered, form, therefore, a very extensive subject, and it is only two or three illustrative remarks under each of these several aspects of it that can be made within the hour.

In the first place, then, let me attempt a more particular comparison of steam power, horse power, and hand power for the cheap performance of mere labour. In describing steam engines, the term "horse power" is used as a unit of force. The power exerted by a horse is assumed, on the authority of experiment, equal to the pull or lift of 33,000 lbs., 1 foot per minute; and to this agricultural experience agrees, for if a pair of horses draw a plough along with an average pull of 300 lbs., at an average rate of 2½ miles per hour, *i. e.*, of 220 feet per minute, it is the same as if those 300 lbs. were pulled over a pulley, *i. e.*, lifted that height in that time, and 300 lbs. lifted 220 feet per minute is just the same

as 66,000 lbs. lifted 1 foot high per minute, which, as the performance of a pair of horses, is exactly the 33,000 lbs. apiece, at which their force is valued by the engineer. Now, it is not on a comparison merely of the *cost* of horse power in the animal and in the engine that so great superiority of the latter will appear as really belongs to it. In addition to this, the performance of which they are severally capable must be taken into account. An ordinary 10-horse power locomotive agricultural engine will, according to the Chester judges of the work done by Fowle's steam plough there, cost in coals, oil and water, and attendance, and tear and wear of implement and engine, but excluding interest on capital employed, nearly 45s. a day, or about 4s. 6d. an hour, which is 5½d. per hour for each nominal horse power exerted, but as the real force exerted is more often that of 20 horses in the case of a 10-horse power engine, we must really divide this by 2, and call steam-produced horse power worth 3d. per hour. Now, the cost of horse labour on 21 farms, in different parts of this country, of which the particulars have been kindly given to me, did not exceed 5d. per horse for each of the working hours of the year. Those farms employ 282 horses, and they cost for food, for depreciation of value and saddler's and blacksmith's bills, £7,815 a year; their implements need £870 a year to keep them good; and the ploughmen and boys employed about them cost £4,241 a year in wages—about £13,000 in all, or £46 per horse per annum; and supposing that there are 2,500 working hours in the year, this is rather less than 5d. per horse per hour.

Besides this, the estimated expense of Fowler's engine was, I believe, excessive, and the nominal power of it was certainly below the actual force at which it could be worked with the estimated quantity of coal consumed; for of 30 engines tried at Chester only one consumed the 11 lbs. of coal per hour for every horse power produced, which is the consumption named for Fowler's engine, and the majority did not consume more than 6 to 8 lbs. during that time.

A horse at plough with an average length of 120 yards of furrow loses one-third of his time on the headland in the mere act of turning the plough. At the dung-cart not one-third of his time is employed in the actual conveyance of the load, two-thirds are lost standing at the heap and in the field and returning with the empty cart. Or rather, let me say this loss of time is a necessary part of his employment, however he may be engaged. He can pull 33,000 lbs. 1 foot high in a minute, but he cannot keep that performance up for 10 hours at a time.

On six farms the details of which I have so ascertained as that all the ploughing, scarifying, harrowing, rolling, horse-hoeing, carting—all the horse labour in fact on each—is converted into lbs. lifted so many feet per minute throughout the working year, I find that the actual performance per hour through the year is not 33,000 lbs. lifted 1 foot per minute, but more nearly one-half that quantity, varying from 14,000 lbs. in the lowest case, to 19,000 lbs. in the highest.

No doubt, even in the case of steam power, there must be periods of waste labour—ploughs must be turned upon the headland even if it be done by steam; but these occasional periods of comparatively fruitless work are no necessary con-

dition of steam power; *it* is better if maintained continuously, and machinery will be invented to reduce this waste time to a minimum with a positive advantage to the efficiency of the engine. Whereas in horse labour, the waste time is necessary for the maintenance of the power itself. And it is plain that, along with the 5d. per hour for every horse, which on the average it may cost, there has to be taken into account a performance on the average of the year of only 19,000 lbs. lifted by it 1 foot high per minute as its best result; whereas in the case of the steam engine *its* 3d. per horse per hour has to be taken along with nearly twice as large a performance as *its* best result.

And the relative cost of the two forces is affected not only by the question of time during which each can be continuously maintained, but also by the quality of the performance of which each is capable. In thrashing, uniformity of speed is a condition of good work; it is more easily maintained by steam power than by horses. In ploughing, the avoidance of trampling and of pressure generally is almost a condition of good work; it is more easily obtained by steam-drawn machinery for the purpose. But to this I shall recur.

Let us now estimate the cost of manual labour engaged in what I call mere work, *i. e.*, where the least degree of skill is called for. I have four facts in illustration of this point:

1st. A man will dig 8 perches of land, or say 2,000 square feet, nearly a foot deep, in a day. In doing so he lifts probably three-quarters of it through at least a foot in height; that is to say, he lifts 1,500 cubic feet, weighing at least 150,000 lbs., 1 foot high in ten hours' time, and to do it therefore he must maintain upon the average a lift of 250 lbs. per minute all that time. Of course, in addition to the mere lift, there is the labour of cutting off this earth from the firm ground to which it was attached. In my second case, then, this portion of his labour is very much reduced. 2nd. Three men will lift—I have often paid them for doing it—100 cubic yards of farmyard dung, and fill into carts in 10 hours' time. The 33 cubic yards which fall to each man's share, or about 14 cwt. apiece, weigh 50,000 lbs., and this is lifted over the hedge of the cart, or 4 feet high—equal to 200,000 lbs. lifted daily 1 foot high, or 330 lbs. per minute. This is one-fourth more than in the last case. Now take one where there is no labour in detaching the weight from any previous connection. 3rd. A man will pitch in an hour's time—I have often seen him do it—an acre of a good crop, tied in sheaves, to an average height of full 6 feet, on the cart or wagon. Straw and corn together, such a crop will weigh more than 2 tons, say 5,000 lbs. In doing this he therefore lifts 300,000 lbs. 1 foot high in 10 hours' time, or 500 lbs. per minute. 4th. My fourth case is much the same kind. One man and five boys, or women, equal as regards wages—and I will therefore assume equal as regards power to three men—will throw into carts upon an average, of swedes and mangel wurzels, 3 acres of a good crop, say 70 tons in all, in a day of 9 hours' length. They lift, then, 150,000 lbs. 4 feet, being, say 600,000 lbs. 1 foot; being 200,000 lbs. apiece in 9 hours' time, or about 370 lbs. a minute.

These four cases indicate the mere force of a man, then, at a cost of, say 3d. an hour, as equal to a lift of 250, 330, 500, and 370 lbs. per minute; the two former being cases where the load has to be detached as well as lifted, and the third being performed under the influence of good harvest fare.

But now compare this, even in the best case, with the duty of a steam engine, or 33,000 lbs. 1 foot high per minute for 3d. an hour, and compare it with the actual average performance of the horse, 16,000 lbs. lifted 1 foot per minute for 5d. an hour. In order, at the best rate named, to do the work of the steam engine, 66 men would be required, at a cost, not of 3d., but of more than 15s. per hour; and in order to do the work of the horse 32 men would be needed, at a cost of 8s., instead of 5d., an hour. It is plain that if we can take much of the mere labour of the farm out of the hands of the labourer, and put it into the hands of steam power for its performance, there is an enormous amount of saving to be made in the cost of agricultural production. It is plain that it is mere folly in the labourer to think that, as regards the *mere* labour of the land, he can compete with either steam power or horse power. Strength of body is desirable, and sinew hardened by long practice in hard labour has a considerable marketable value; for that, however hardly it may sound, is the aspect of the matter in which the interests of the labourer most directly appear; but it is plain that for sheer lift and the mere putting forth of force, horse power, and still more that of untiring steam, must grind the soul of anybody that shall pretend to competition with them. It is in the cultivation, not so much of mere strength of body as of skill and intelligence, that the safety of the labourer lies, and in his capability of education he is perfectly secure.

As the matter at present stands, then, and confining ourselves to that large and increasing class of operations in which the power required is great and the process almost uniform, and looking only to the cost per unit of work done, we have seen that steam power stands decidedly first in the race; horse power is a tolerably good second, and the agricultural labourer is literally nowhere. There are, however, two considerations which greatly affect the position of horse power in this competition, and place it much further back than it would at present seem to be. They both affect its fitness for those acts of cultivation where it is plain that there is the greatest room for an extended use of steam power. I refer, first, to the injury done to the land by the trampling of draught animals; and secondly to that irregularity of employment on the farm for horses during the year, which in effect makes you keep upon a large farm several horses all the year round for the sake of their work during a few weeks of spring and autumn. If a steam engine, which costs nothing when it is idle, can be used to take this extra work, and so reduce the horse labour of the farm to an uniformly monthly amount, then its cost has to be compared, not with that of the horses which it has displaced only during the few weeks in question, but with the cost of those horses throughout the year. It is this fitness of the engine for the cultivation of our stubbles in autumn, and so its power to displace so many teams throughout the

year which would otherwise be kept just for the few weeks of most laborious time, that greatly heightens the economy of its employment. And as to the superiority of its work of cultivation, I will just quote the statement of a ploughman on the clay land of the oldest steam-cultivated farm in England—Mr. William Smith's farm, of Little Woolston, in Buckinghamshire—that in turning back the wheat stubble in the autumn with the horse-drawn plough, he used often to uncover the foot-prints of the horses' shoes which had trod there at that depth when turning in the bean stubble for the seed twelve months before. Of course it is no part of good agriculture that all the produce of the land is to be made out of a particular layer called the soil, which has to be cultivated, turned to and fro, and stirred and mixed upon an impervious floor hardened by a perpetual trampling, below which lies the subsoil. All recent improvements of the soil have proceeded upon the idea that there is no essential or necessary distinction between it and the subsoil—that *thorough* drainage and deep cultivation both increase fertility, and that the existence of anything like a pan within thirty inches of the surface is injurious. The ability of steam power for the deepest cultivation, and its applicability at the same time to the thorough cultivation of any depth to which it may be desired to stir or turn the soil without any pressure on it except by the wheels of the implement employed, must ultimately obtain for it the preference over horses for all mere ploughing and stirring, especially of clay land. And a very large share of the horse-labour of ordinary agriculture will thus be handed over to the steam engine.

Let us consider how much. I will refer to three instances. On a farm of 675 acres, occupied by Mr. Melvin, at Bonington, near Ratho, in West Lothian, the whole horse labour of cultivation and carriage being converted, as I have already said, into weight lifted, amounts to upwards of 100,000 cwt. pulled, *i. e.*, lifted one mile per annum. Of this the ploughing and scarifying alone amounts to 27,000 cwt., or more than one-quarter; the harrowing, rolling, and drill cultivation amounts to upwards of 20,000 cwt.; and the carriage of dung, crops, and produce amounts to 60,000 cwt. lifted one mile. The carriage is here an enormous proportion, more than one-half of the whole horse-labour of the farm, and much beyond its average amount in ordinary experience; but still even here one-quarter of the horse-labour goes in mere ploughing, which can all be done by steam-power, and *so* done as that an eight-horse-power engine shall displace more than eight horses, and do their work much more effectually.

Again, on a farm of fen land of 790 acres, occupied by Mr. Atkin, near Spalding, Lincolnshire, where the horse-labour of the farm is nearly the same as in the last instance, or equal to 100,000 cwt. lifted one mile per annum, the carriage does not exceed much more than a quarter of the whole, while the ploughing is nearly 40,000 cwt., 4-10ths of the whole labour, and the harrowing and rolling about 35,000 cwt. per annum.

On Lord Ducie's farm at Whitfield, Gloucestershire, 260 acres, the horse-labour amounted to 37,000 cwt. lifted one mile per annum; and of this 12,000

(one-third) was carriage, nearly 15,060 (or 4-10ths) was ploughing and cultivating, and the remainder harrowing, rolling, and drill culture. This seems to be a pretty ordinary division of the labour; and if it applies generally to arable land, it would appear that though farm-carriage and all the lighter work of harrowing, drilling, and rolling continue to be done by horses, there are still 4-10ths of the horse-labour of the farm which may be done by steam. I know that a great deal ought to be said of the great advantage of this substitution, owing to the more thorough performance of the cultivation which steam-power will accomplish. Ample evidence exists on steam-cultivated farms in this country on this point; but I will leave it to be adduced by others who may follow me, and I will continue to speak merely of the saving of the expense which is thus effected. It appears, then, that on arable land two-fifths of the horse-labour of the farm can be handed over to a power which is capable of nearly twice as much duty for about one-half the expense. One other remark on this point, and I have done. On examining the horse-labour of a farm of 240 acres of arable land under alternate husbandry, it will be found that it does not much exceed 500 days of a pair of horses in the year, and that need for it is distributed among the months extremely unevenly. Not more than 35 days of a team per month are wanted in December, January, and February; about 45 days a month are wanted in March and April, May and June; about 15 days are wanted in July, about 60 in August, 90 in September, and 55 in October, November, and December. August and September stand highest; and as there are not generally more than 24 working days in each of these two months, there must be a provision of at least 3½ pair of horses all the year, in order that the work of August and September may be done. Now the two-fifths of the horse labour, which is proper for steam power, is not going merely to displace two-fifths of these seven horses through the year; for the ploughing and cultivating, being done by steam, will take, not two-fifths, but more than half of the labour of the incumbered months of March and April, May and August, and September and October, and so reduce the amount to something like 35 days' work during each month of the year, which two pairs of horses will more than easily accomplish.

I believe, then, that by steam-power at least three out of every seven horses on arable land may be dispensed with all the year, at a cost not exceeding the cost of these horses during the three or four months when alone they are really needed on the land.

The first-class of operations then upon the farm, which includes the ploughing and turning of the soil, will be taken by steam-power out of the field of horse labour, just as threshing, and cutting, and grinding have been taken by it out of the field of hand-labour.

To the second division of farm work I shall refer but very shortly. It includes such cases of ploughing and cultivation as are taken, by very rocky subsoil and very crooked hedgerows, out of the scope of the steam-driven plough; it also includes the lighter class of horse-work, such as harrowing and horse-hoeing, which

however might very well be done by steam; and it more especially includes the work of carriage, which, considering the scattered position of the produce to be collected, and the crooked roads along which it must be drawn, I see no probability, as long as these remain, of getting done except by horse-power and manual labour in the usual way. Mr. Halkett does, indeed, propose to remove these obstacles, and is therefore able to accomplish all by steam. The third class of operations includes the lighter work, requiring skill and thought as well as labour. The planting of seed equidistantly within the land may be done by machinery, but the culture of the young plant, much of the hoeing of the land immediately around it, and its treatment during growth according to its condition, must be left to the hand. When ripe it may be harvested by horse-drawn implements: our corn crops are reaped, our potatoes may be dug, and roots cut from the ground by horse-drawn machines—they must however be gathered into bundles or heaps, and ultimately removed by the help of manual labour.

When stored they are threshed, and ground, and cut, and steamed by steam-driven engines, but they must be administered as food by manual labour. Leaving the vegetable, which, even when living, may be treated to some extent by machinery, and when no longer growing becomes at once the subject of steam-driven processes, we come to the treatment of the animal which it feeds, and here we leave altogether the region of machinery actuated by steam, and are confined to the hand, directed by intelligence.

Is it not a remarkable thing, however, that agriculture, which was once wholly the work of men's hands, but which has long since given up the tillage of the soil, and the carriage of the manure, and the sowing of the seed, and three-fourths of the hoeing of the crops to be accomplished by the horse—which has lately given up the threshing of the grain and the cutting of its straw to be effected by steam-power—which is rapidly abandoning the work of reaping to the former and of cultivation to the latter—should nevertheless require more labourers than ever?—that steam being first, and horse-power second, and the agricultural labourer nowhere in the race, considering the three merely as economical producers of power, the last should nevertheless be wanted more than ever?

The explanation lies in this: that agriculture is more and more becoming the work of intelligence and skill as well as power—those parts of its processes, where intelligence and skill are wanted, are becoming a larger portion of the whole. Cultivation is more perfectly performed, and over a greater extent of land—the crops cultivated require more labour and are more productive—the stock consuming them is proportionally larger and needs proportional attendance. Probably each acre cultivated in 1759 employed more manual labour in its cultivation then than each acre cultivated now; but how many more acres are there under cultivation now than then? Each bushel of wheat grown half a century ago involved so much more labour then, that 8s. was the lowest price at which it could be grown with profit; but how many more bushels per acre does land upon an average yield at present? Each pound of beef and mutton cost more in wa-

ges 33 years ago than now; but we have a double and triple store of food for stock; we have two crops of fattened sheep and cattle where formerly we had one, and each supplies a double quantity of meat.

But, whatever the explanation be, the fact is certain, that the use of steam-power on a farm is a part of that system which employs most labourers in agriculture. Mr. William Smith, of Woolston, who has an 8-horse engine for 110 acres of arable land and 70 acres of pasture, and works this engine only 14 days a year in cultivation, and not more in threshing, employs regularly throughout the year seven men and four boys, equal to nine men upon the whole, or one to every 12 acres of arable land and 8 of grass—"more than any farmer in the neighbourhood employs." His steam cultivation, he tells me, costs him, on the average, 10s. 10d. annually per acre on his clays, and 8s. 3d. annually per acre on his lighter soil. It has displaced exactly the two-fifths of the former horse-power which I had anticipated that it would; and he says that 70 per cent. of the cost of engine-work is manual labour, and only 30 per cent. engine-food, while of the horse-work displaced only 20 per cent. is manual labour, and 80 per cent. is horse-food.

Mr. Pocock, who farms 300 arable acres and 300 acres of grass-land, near Farringdon, employs regularly 22 men, eight women, and ten boys, equal to 30 men in all, or one for every ten acres of arable and ten acres of grass. He, too, uses steam-power for thrashing, grinding, and cutting, and employs one of Fowler's steam-ploughs.

Another gentleman, occupying 410 arable and 190 pasture acres, on the fat land below the chalk hills of Wiltshire, and who does all his cultivation by steam, says

"Steam cultivation will lessen horse-labour, I think, one-half, and in some cases two-thirds. A neighbour of mine, who has a steam plough, told me that he usually kept 18 or 20 horses: he now hoped to do with six. Another, who occupies about 2,000 acres of arable and pasture, hopes to do with 13 horses. My own impression is, that there will be more manual labour required where steam culture is adopted, and that a more energetic class of men will obtain higher wages."

Mr. Randall, of Chadbury, near Evesham, who cultivates 500 acres arable and 200 acres of pasture, employs, with slight variation, 30 men, seven women, and 12 boys throughout the year, with 70 additional men for three weeks in harvest-time—in all, equal to about 42 men regularly throughout the year, or one to every 12 acres of arable land and five of pasture. He too uses a steam cultivator, and says steam cultivation makes no difference in the manual labour needed on the land. All these, more or less, are instances of the cultivation of clay land, on which, if by force of *character* labour-giving crops are cultivated, of course the labour of cultivation must be greater than on lighter soils. It is these lighter soils, however, generally, which are devoted more especially to the growth of what are called fallow crops; and, taking the ordinary rotation on each class of soils into account, we may, therefore, fairly compare the experience of the steam-cultivated farms, as to the labour they require, with the labour-bills of

other farms, though not quite so heavy. This "one man to every ten or twelve acres of arable land, and eight to ten acres of grass," deducting 10s. per acre for the latter, is equal to a labour-bill of 50s. per acre per annum on the plough-land; and it is unnecessary to say that this is a very unusual amount.

On a number of farms in Gloucestershire, whose management I examined many years ago, where the pasture formed from one-tenth to five-tenths of the whole, the labour-bill reached 50s. per acre very rarely indeed. It was more generally between 30s. and 40s.

On a fen farm near Spalding, of which a most elaborate account of the labour used upon it has been kindly given me by the tenant, Mr Aitken, I find that on 790 acres almost wholly arable, the actual wages paid had during the last three years averaged £1,260, or about 32s. an acre. On another similar farm, near Chatteris, on 900 acres arable and 120 pasture, the last year's wages were £1,556, which is about 35s. per acre on the arable.

On one of the crack farms of East Lothian, of 630 acres wholly arable, 22 men are kept regularly, and 35 lads and women, besides 25 or 30 people for three or four weeks in harvest; and the wages, therefore, must be about £1,200—not £2 an acre—though potatoes, one of the crops requiring most labour, are very largely cultivated.

The wages on the College farm, near Cirencester, of 400 acres arable and 40 pasture, are £700 a-year. or 30s. an acre on the plough land. Mr. Stratton's farm Manningford, Bruce, near Pewsey, Wilts, 590 acres arable, 65 acres pasture, and 160 down, costs about £1.200 a year in wages, or £2 per acre on the arable land. Mr. Dods, of Anick Grange, near Hexham, occupying 310 acres arable and 100 pasture, employs 7 men and 9 women annually, and extra for a month, 7 men and 7 women. His wages cannot amount to more than £500, or not much more than 32s. an acre on the arable.

And, as a last instance, I will take the farms of Mr. Edmonds, of Eastleach, near the Leachlade, Wilts, 2,000 acres arable and 430 acres pastures, employing on the average, and taking harvest into account, about 120 men and 20 to 40 women. His labour bill must, I should suppose, from his rates of wages, which he has kindly given me, amounted to at least £3,200 a-year, which is 32s. an acre. It must be admitted, then, that on a comparison of these figures, the labour paid for upon steam-cultivated farms is even more than on farms where steam-power is used only to drive the threshing mill.

Agriculture is, in fact, experiencing the truth taught in the history of all other manufactures—that machinery is, in the long run, the best friend of the labourer. This truth is taught even more impressively by a review of agriculture generally. than it is by the case of any individual farm. Here are we, twenty-one millions of people, producers and consumers, living in this island. on a great farm which we may, by the help of such statistics as we possess, describe as nearly 19,000,000 arable acres, and probably nearly as much grass, employing as farm labour, in-door and out, about 950,000 men and 120,000

women, besides 300,000 lads, and 70,000 girls, or averaging them by their probable wages, as has been done before, let us say equal in all to 1,150,000 men, or one to every 17 acres of arable land, and nearly as much pasture. We feed and use some 1,500,000 horses, of which probably 800,000 are strictly for farm purposes. We are annually inventing and manufacturing labour-saving machines at an extraordinary rate, and every year at least 10,000 horses are added to the agricultural steam-power of the country, certainly displacing both animals and men to some extent. We have taken the flail out of the hand of the labourer, and the reaping-hook is going; on many a farm he no longer walks between the handles of the plow—he no longer sows the seeds—he does but a portion of the hoeing and the harvesting—and yet, so far from being able to dispense with his assistance, he is more in demand than ever he has been.

I have had returns sent to me by all the leading manufacturers of steam-engines for agricultural purposes. Within the past ten years upwards of 40,000 horse-power has been added to the forces used in agriculture in steam alone. If I may single out Messrs. Clayton and Shuttleworth, of Lincoln; Garrett of Saxmundham; Hornsby, of Grantham; Ransome, of Ipswich; and Tuxford, of Boston, they alone are furnishing 10,000 horse-power annually to the farmer. Messrs. Tuxford, among the first to start the locomotive agricultural steam-engine, inform me that for the earliest suggestion of it they are indebted to Mr. John Morton, of Gloucestershire, then agent to the late Earl of Ducie, who twenty years ago recommended them to put these little engines upon wheels, thus foreseeing the fitness of these powers made locomotive to the circumstances of English agriculture. Messrs. Ransome, of Ipswich, were, I believe, the earliest to receive the commendations and the prizes of the Agricultural Society of England for their engines, and now the leading manufacturers of them, Messrs. Clayton, of Lincoln, send out ten of them each week, or 4,000 horse-power per annum.

Of reapers, again, since 1851 Burgess and Key have sold upwards of 1,900 of their improved M'Cormick's reaper, of which 771 were sold last year; and they now hold four times as many orders as they did twelve months ago. Crosskills have sold 500 of Bell's reaper, and 800 of Hussey's; Messrs. Dray have sold 800 of their improved Hussey's reaper; Messrs. Garrett have sold 600 of Hussey's; 250 of Wood's clever little reaper have been sold last year; and the Cuthberts, of Bedale, who have just begun the manufacture of their equally clever machine, sold 100 before last harvest, and could have sold four times as many. In all probably 4,000 reaping machines were at work last harvest, capable of cutting more in a day than 40,000 labouring men, and yet there never was such a harvest as the last for the difficulty of procuring harvest men. Notwithstanding all this addition to the forces and the machinery of agriculture, more labourers than ever are required, and, as more labourers are not forthcoming, wages rise.

It is, indeed, possible that some of this general rise in wages of the past two

or three years is owing to the labourers in agriculture being, if anything, rather a diminishing than an increasing body; to that I shall refer directly: it is sufficient for the present to declare, what ample experience confirms, that the need of their assistance is increasing. * * * * *

However plain it is that its remedy is to be found in steam-power and reaping-machines and such like, the increase of steam-engines and machines need create no fear for the agricultural labourer.

Here, however, I would say, it is no part of my business to fear or to lament the progress of events, however they may happen to develope. Even if the result should be that agricultural labourers are to form a diminishing class—that at most only one of the labourer's family is trained to take his father's place, it may certainly be doubted whether his lot in future life, or that of his brother who has gone as a carpenter, mechanic, a soldier or a sailor, is to be preferred. The man will do his best to bring up his family for their good and, as he best knows how—and if wages fall, most of them will naturally endeavour to obtain a maintenance in some better way. I confess my belief to be that there are natural safeguards enough in human nature to make the *natural* result within a Christian country, and in a matter so exclusively one of mere maintenance, mere profit and loss, a perfectly safe one, and even a desirable one. Only let the artificial interference between the buyer and the seller be done away with; let knowledge of the state of the market, whether for labour or for its produce, all over the country be general; let the price of agricultural and all other produce be the natural result of simple competition among consumers, and the price of agricultural labour be the natural result of simple competition among employers; let inteligent self-interest—and self-interest in the long run always *is* intelligent—let intelligent self-interest lead to the use of machinery and steam—in fact lead *where it will*—and the greatest happiness of the greatest number will the sooner be attained.

As, however, I have shown, if fears and lamentations have any place at all, it is in behalf of the masters rather than of their men.

One illustration more of the present value of agricultural labour in this country, and on this part of my subject I have done. In the autumn of 1849, just ten years ago, I applied, through the correspondents of a weekly agricultural paper, for information on this subject, and from most of the English counties and many of the Scottish ones I obtained answers to printed questions as to what is the present wages of able-bodied men, what is their weekly wages at harvest-time, what is the ordinary daily wages of women in the field—what is the cost of mowing clover, of mowing meadow grass, of mowing barley, of harvesting a good ordinary crop of wheat—what is the ordinary rent of cottages, and so on. Within the past month I have done the same thing again, and have been told the rate of wages by ninety-three gentlemen, residing in twelve Scottish and thirty-five English counties. There is thus the opportunity of making a very fair comparison of wages at a sufficient interval of time.

Let me quote a few instances, taking the weekly wage of an ordinary able-bodied man as the criterion, and, of course, endeavouring to do it without boring you by quotations from so many separate reports.

In Aberdeenshire, Mr. M'Donald, of Huntly, reported the wages of plowmen in 1849 to be £16 a year, with board and lodging; they are now £22, with board and lodging. Mr. Grigor, of Forres, reported ten years ago the ordinary weekly wages of an able-bodied man to be 9s. to 10s.; now he puts it at 11s. Mr. Bell, of Ferryden Farm, Forfarshire, reported it at 10s.; he puts it now at 12s. in winter, and 15s. in summer. Similarly, Fifeshire wages were 9s. and 10s.; they are now 11s. and 11s. 6d. In East Lothian the wages were worth 10s. a week, or 10s. with coals hauled free; and now they are valued at 12s. to 15s., &c. In Mid Lothian Mr. Melvin reported the annual wages of the married plowmen at 910 lbs. of oatmeal, 12 cwt. of potatoes, two meals daily during harvest-time, the hauling of four tons of coal, and £17 in money; he now reports them at 1,050 lbs of oatmeal, 8 cwt. of potatoes, four weeks of harvest food, coals carted, house-rent free, and £21 in money. Go, now, to the south of Scotland, and in Wigtonshire Mr. Caird reported wages ten years ago at 9s. a week; he puts them now at 12s. A woman's daily wage was 8d., and it is now 10d.

In Northumberland, wages, according to Mr. Grey, of Dilston, were 12s. weekly, with cottage and garden, and carriage of coals free; they now are 15s., with house and garden free; and Mr. Dods, of Hexham, gives to good ordinary labourers 15s. a week in winter, and 18s. a week in summer. Mr. Drewry's wages at Holker, North Lancashire, were 13s. 6d.; they are 15s. to 16s. 6d. Mr. Evans, of Wigan, in South Lancashire, reported wages to be 12s. a week; Mr. Twining, in the same neighbourhood, reports them now at 14s. From Lincolnshire I had four reports of the wages of able-bodied men, and they run thus—10s., 9s. to 10s., 11s. to 12s., and 9s. to 10s. I have four reports from the very same employers now, and they run thus—12s., 12s., 12s., 10s. to 12s.

Mr. Spencer, of Knossington, Leicestershire, told me ten years ago that 8s. to 10s. were the wages of the able-bodied men, and he puts them now at 11s. to 12s. Take, now, the case of Norfolk: Mr. Cubitt, of North Walsham, ten years ago, put the wages at 7s. to 8s, and the carters 1s. to 2s. extra; now it is 9s., and the carters 10s. 6d. In Northamptonshire, Mr. Grey, of Courteen Hall, Northampton, reported 8s. and 9s. as ordinary wages; he puts them now at 12s. weekly.

In Warwickshire, Mr. Burbury, of Kenilworth, who reported 8s. to 9s. weekly in 1849, reports 11s. weekly in 1859.

In Worcestershire, Mr. Hudson, of Pershore, who named 8s. formerly, now says 10s., or 9s. with two quarts of beer a day, are ordinary weekly wages.

In Oxfordshire, Mr. Druce, of Eynsham, stated 8s. weekly, the carters and

the shepherds having cottages rent-free in addition; wages now are 10s. to 12s., plowmen and shepherds from 12s. to 14s.

In Wiltshire, the worst paid county in the kingdom, wages were, some ten years ago, 6s. to 7s. for ordinary labourers a-week; they are 8s. a-week at present.

In Kent they were 9s. and 10s., and are now 11s. to 12s.

From Sussex I had three reports formerly, 8s. to 10s., 10s. and 10s.; and I have three reports now, 11s., 11s. and 12s.

From Dorsetshire I had five reports, averaging 7s. and 8s. a-week with cider or beer and with cottage free "in some cases." I have two reports now, the one names 9s., and the other says the payments make the money equal to 12s. weekly.

In Devonshire the wages were 8s. to 10s., and they are 11s. to 12s.

In Cornwall they were 8s. to 9s., and they are 10s. to 12s.

All this proves, then, that the labouring force in agriculture is better paid than it used to be, and that the enormous extension of machinery and of steam-power lately has not been to the injury of the farm labourer.

Although, however, one is naturally to know this, yet no one has any right to seek for the labourer any more than that share which falls to him as the natural result of mutual competition. It is for the national interest that food be produced at the least possible expense; and in the second part of my sub-subject, which refers to the most economical provision and maintenance of the forces used in agriculture, the cost of the labour of the farm is as much concerned as is the cost of horses or the cost of steam. It is indeed the first of these to which I most desire to draw attention. The economical application of steam-power, and whether Mr. Fowler's plow, or Mr. Smith's cultivator, or Mr. Halkett's system be the cheaper, will ultimately, by large experience, be determined. Messrs. Howard have, I understand, sold seventy or eighty sets of Smith's apparatus, and Mr. Fowler is so busy that he can hardly keep pace with his orders. Tens of thousands of acres have been this autumn plowed or worked by steam; and it will be quite within the scope of our subject if the means by which this has been done should be the point on which the subsequent discussion turns. It will also be in keeping with the subject as announced, if the most economical provision and application of horse-powers should engage the principal attention; but of all the forces used in agriculture, that of the labourer himself is the one to which I think we can most usefully confine ourselves.

On the question of efficient steam, agriculturists are willing to accept the judgment of engineers and of the outside public. On the question of efficient horses the public are not likely to add anything to the experience or the judgment of the farmer; the question of efficient labourers is one on which wide differences exist, on which the possession of mere manhood is enough to justify independent thought—on which men of different professions therefore do not

feel bound to accept one another's judgment, and on which I believe that the most good is likely to arise from a discussion at a meeting of townsmen with agriculturists. All that I can do in the short remainder of the hour is to indicate the points on which that discussion should turn.

The object is to retain—indeed I now should say to obtain—a sufficient number of well qualified agricultural labourers. The Oxford Farmers' Club met the other day, and Mr. Mein, who is, I believe, agent to the Duke of Marlborough, read a capital paper on this very subject. His method of obtaining more men was none the less sensible for its simplicity; it was just to *offer higher wages*. And this is, I presume, essentially the solution of the difficulty.

He said in effect: We have not provided constant employment nor wages at which a comfortable living can be had, and no wonder that our men have brought up their children to other trades to be better paid; we have not paid young men wages according to their ability; married men have been paid at one rate, and young unmarried men have been paid at another and much lower rate; they have thus been treated as children. But they are not children, and no wonder they have left us. Our remedy is to improve the condition of the labourers in their cottages; to give them more regular employment and better wages (it resolves itself into this, whether a farmer, upon four hundred acres, had better spend £100 more in labour, during the winter, or lose £200 at harvest-time in shed and damaged corn); to give the labourers more task-work, and allow them to earn fair prices at it, simply according to their ability; and lastly, on occasions of unusual pressure, to give unusual wages. "Even at harvest, hitherto," he said, "the prices have not been anything to compare to the daily wages of the tradesman; nay, not enough to induce Paddy to join us in this district."

But there are other points besides the amount of wages to be paid. These will indeed increase—not by the exhortations of our public speakers, but by the pressure of competition among masters, and are high or low just according to the relation between the resident-population and the employment for them, so that in Wiltshire they are 8s., while in some parts of the north they are almost twice as much.

But besides the amount of wages there is the mode of payment, which greatly affects the character and position of the labourer. It may be (1), in money solely; it may be (2), partly in board and lodging in the house; it may be (3), partly in money, along with an immense variety of perquisites. These three include, I believe, all the various systems of payment adopted. Of the last I give two instances from the extremes of the island, Forfarshire and Dorsetshire. Mr. Bell, of Ferryden Farm, Forfarshire, writes to me as follows:

"Our ploughmen receive, per annum, £17 in money, 6½ bolls oatmeal (14 lbs. a boll—present price 17s. 6d.); 1½ Scotch pint warm milk (3d. a pint), during summer six months, 1 pint in winter ditto; 15 cwt. potatoes, and house and garden, at say £3. This for married ploughmen. Unmarried: £20 and £22, 1 pint warm milk daily all the year, 6½ bolls meal, and fire and lodgings in a

bothy. At hay and corn harvest they get two bottles of beer daily, and bread and beer while leading to the stack-yard. Married men get all their fuel driven by their masters."

I value these wages at £34 6s., or 13s. weekly. The daily workers, when getting something like steady work, have 12s. a week in winter, 15s. in summer, with no beer or other allowance.

In Dorsetshire, Mr. Saunders, of Watercomb Farm, Dorchester, writes to me as follows:

"In answer to your inquiry respecting the wages of the labourers of this part, I will give you an account of what I pay my agricultural labourers of different callings. They all live on the farm near their work, where it is convenient for most of them to go to dinner every day. I have 18 cottages for which I never receive any rent, as my men all live rent free, and most of them have good gardens, besides other potato lands free. It is a very great accommodation to labourers to reside near their work, quite equal to 1s. per week to a man not to have to travel a mile to his work morning and evening, and all have their regular pay wet or dry weather, no loss of time except they are working by piece-work, which most of them get in their turn during the year, when they generally earn from 10s. to 15s. per week, according to circumstances, besides their yearly privileges, which I will state below, and which many of my labourers have said to me at different times 'is nearly half our living,' referring to a cottage and garden, potato land, and the privilege of having grist over that of buying bread of a baker, as I regulate the grist by allowing a peck a head to the family of workers in a house. I think our system is nearly equal to other counties, where they give nearly double the wages, and no house nor other privileges, nor pay for wet days. In this county we agree for a family at a certain sum from the 6th of April to the 6th of April in the following year. Some of my men have continued on my farm with me for more than 30 years without change, where they are good labourers. This, I believe, is about the general run of our county as an average. I will now state how, and in what way I pay my horse-men, as you term them:

	£	s.	d.
House, good garden, worth to let, £4 per year, - - - - -	4	0	0
Weekly wages 8s., and 30 perch of potato land ploughed in with their potatoes, often growing 15 sacks, now worth 10s. per sack, and allow the seed out, would be £5, - - - - - -	25	16	0
200 furze fagots, carried home free to the cottage, - - -	1	0	0
28 cwt. of best coals, carried home at 1s. per cwt. and cost to fetch from ship, - - - - - - - - - - - -	1	14	0
Extra for harvesting, cash £1, and 1 gallon of ale per day, - -	2	0	0
Every journey with team 1s., average one per week, - - -	2	12	0
3 quarts of ale per day at haymaking for 8 weeks, at 9d. per gallon,	1	7	0
1 bushel of wheat per week if a family of small children, none to go to work, at 5s., not much advantage now, say 6d. per week, but when dear 3s., - - - - - - - - - - -	1	5	0
	£39	14	0

The whole of horse-man's wages is about 15s. per week.

My shepherd has the same as the horse-man, except he earns about £3 extra for sheep which he shears when no pay is taken up from him; and he has 1s. per score for all lambs bred, which, at about

600, is £1 10s.; and also 6d. for every ram let or sold, generally £2 10s. in all,	7	0	0
Take from this the difference of carter's journey money, which is	2	12	0
Leaving in favour of shepherd,	4	8	0
Wages and perquisites as carter's account,	39	14	0
	£44	2	0

Shepherd's wages weekly 17s., all but 2s. in the year.

Labourer 7s. per week, house as above, garden, potato land in many cases, 200 of furze, 15 cwt. of coals; grist, as I have before stated, at one peck per week for every one who works, great and small, some at 5s. per bushel and some at 6s. per bushel; and most of my labourers have piece-work at different times of the year when convenient. I consider on an average, a good labourer's place with me is full 12s. per week."

This is a most elaborate scheme of payment, and certainly a very liberal one, though I do not value the items so highly as Mr. Saunders does by about £6 a year, making the yearly wages of his ploughman £33 14s., or as nearly as possible 13s. a week. Now, over large districts in England another system obtains, of which Mr. Munster, a tenant farmer at Dumpton, near Ramsgate, gives the following very interesting account:

"Our ploughmen here are generally single, and yearly servants, and are boarded and lodged by the farmer or by his bailiff. They are hired from the 11th Oct. to the 11th Oct. each year; and though they sometimes continue for several years with the same master, a fresh agreement takes place every year. They commence as lads, at 13 or 14 years of age; their duties then are to drive the horses and attend to them in stables, and we also invariably find that the younger these boys go into service (as it is here termed) the better ploughmen and the better labourers they afterwards become. They begin at about £5 wages per annum, which is usually increased every year, as their strength and ability increases, or as master and servant agree; the increase goes on at a ratio of about £1 per year, and our head horse-man or wagoner gets from £12 to £14 per year. The cost of their board varies according to the price of provisions, and when they are boarded by a third party it is generally partly in money and partly in kind; they always have meat three times a day, and cannot be boarded, on an average, at less than 8s. per week per head. In some few instances where there are cottages near, married men are employed as ploughmen at wages of 14s. per week, and a cottage rent-free; if they have to pay rent, they are usually allowed about £5 extra for harvest, in addition to the 14s. per week." He adds—"Our labourers pay about 2s. 6d. per week rent for their cottages, and for this many get but a miserable home. I know of nothing in this neighbourhood so disgraceful as the want of accommodation for our labourers. They are (many of them) driven to reside in the worst parts of the town; many of them in hovels built—or, rather, stuck up—for the purpose of investment, without any regard to health, comfort, cleanliness, or morality. No garden attached, or anything else to make a poor man's home comfortable—completely away from the eye of his master, and all others that feel an interest in his welfare. The consequences I need not describe. With every inducement for him to spend his spare time and his hard earnings at the public-house or beer-shop, often having from two to three miles to go in all weather to his labour, never knowing the luxury of a hot dinner except on a Sunday, or a meal with his

family, the children run the streets in the worst parts of the town, and get early imbued in every vice and wickedness. With no father near to instruct or correct them, how can it be otherwise? I do hope this subject will be pressed before the public on every favourable opportunity. I find, on examining my labour account, that my best men, on an average of the year through, earn about 16s. per week, or little over £40 per year. This includes harvest and haymaking, as well as lost time from weather or other causes, and is the man's earnings independent of the rest of the family."

For all these various customs of payment there must, of course, be the general assent of the labourer, and the concurrence both of master and servant, in order to their establishment and maintenance; and so long as a labourer agrees to take certain wages, there is not the shadow of a plea for interference by any other person between him and his master. The fitness of customs, however, whether in the interests of agriculturists who find that labourers are more difficult to hire, or in the interests of labourers themselves, may very properly be discussed, even by those who have no greater interest in the subject than that which they hold in the well-being of any other class of their fellow-countrymen.

[TO BE CONCLUDED IN OUR NEXT.]

The Domestic Turkey---Peculiar Habits, etc.

The domestic turkey, in some respects, is the most valuable bird that has a place in the farmer's poultry-yard. It is large, comely in appearance, and its flesh is considered one of our richest dainties. It forms the standing dish at our Thanksgiving and Christmas dinners.

To the careful observer, its habits are interesting, notwithstanding they are somewhat eccentric, and, what is greatly in its favour, the more we study its habits the more we are pleased with it. There is one trait in the male that is never unobserved by his female companion, and when calling together their broods of young, may sometimes be heard half a mile or more. It is wonderful to observe how the little progeny will respond to his voice, if at a distance of twenty or thirty rods in the rear, as led by him in their daily explorations for food—and especially at the close of day, when returning to their usual place of rest at night. It cannot be denied, however, that in this latter respect turkeys are deficient in punctuality, and not unfrequently are overtaken by night before reaching home. If so, they make an encampment wherever they happen to be. But this is not the result of indifference to home, as in the case of the tippler and the gambler, so much as to defect in the science of geometry, not remembering how far they have wandered from it; or to a deficiency of astronomical observation, not having observed how rapidly the time has sped.

The well-fed male turkey, especially if rendered social by a numerous family of female attendants, is a very important character about the homestead. No one attracts more notice than his lordship. No one is more tenacious of his rights, or more complacent in the enjoyment of them. He is truly an original

character, but has numerous imitators. The incessant pompous display of his plumage has ever been deemed an appropriate counterpart of the human being which struts and seeks by an ostentatious display of exterior embellishments to attract attention beyond any claims founded on intrinsic merit. We cannot fail to be amused on seeing either of these animals of the masculine gender thus struggling for the ascendancy; but we cherish less respect for the one in broadcloth, than for his prototype in feathers. Indeed, the latter, although not celebrated for his mental endowments, possesses more intelligence than is usually attributed to him; and, moreover, as the representative of his family, occupies no inferior rank in respectability or the elements of being useful. He is led by instinct, if not by reason, to be a pattern of devotion to the safety of the community of which he is the legitimate head. He watches over the turkey chicks with the assiduity of the most faithful shepherd when guarding his flocks. He will never leave them, and is apparently unmindful of his own wants so long as they require his watchful care. On one occasion, a flock of twenty-odd more than half grown young turkeys with the old one were overtaken by night before reaching home. The consequence was, they roosted on the fence adjoining a cornfield. In the night, eight of the young brood were killed by we know not what, and dropped on the ground. For hours in the morning the living ones remained on the spot around those that had been killed, the old gobbler and his mates making the most piteous lamentations, till we were thus drawn thither. For a long time afterwards they were not seen to go near the place of this calamity, but daily went in another direction, which previously they had not done.

It is frequently said that turkeys are very stupid. We were formerly of that opinion; but on better acquaintance with them, we have become somewhat skeptical in regard to such opinion. If they possess naught of what is usually termed reason, they have a kind of cunning much resembling it. The hen turkeys are noted for stealing away their nests; and if they do it, no little difficulty is experienced in finding the place of concealment. If followed, the probability is, should they perceive your intention, they will wander about for hours until you become wearied and leave them, when they will go to their nests and deposit their eggs. On one occasion, it became apparent that a favourite hen of ours daily left the yard by flying over the fence, to visit her nest. It was usually about 11 o'clock in the morning, and after being absent one or two hours, would return and join the flock. Her direction was toward a small wood and dense undergrowth of brush. This we noticed for several days in succession. Her course was always in the same direction. Every now and then she would stop, reach upward her head, and look around to see if she was observed. At length we concluded to follow her, at a distance of thirty rods or so, keeping behind trees; but after a while she caught a glimpse of us, and although at such a distance, then she turned about and came back nearly in the same path, and without enabling us to be the wiser for our labour.

This she did several times with similar results, and at last we gave up the attempt.

A few instances may be related, illustrating the fidelity of the male in watching over the young brood. Our practice is, in a few days after the process of hatching is completed, to put the hens into a large coop or pen, of one or two rods in extent, with one side at least open with slats or stakes, to admit ingress and egress of the chicks, while their mothers, naturally great gossips, are restrained from long peregrinations, too toilsome and hazardous for the tender offspring. On the outside and in the vicinity of the pen, the cock spends his days in becoming assiduous to the infant family, and his nights in roosting close by it. Quickly does it happen that they become more fond of his society than of their pent-up mother's. As soon as his supremacy over them is well understood, and their strength admits of it, he will abduct them, no one can guess how far, as stealthily as the unprincipled swain runs off with his improvident lass for a clandestine marriage. Search for the missing ones is usually as unsuccessful in one case as in the other. However, Mr. Gobbler is a far better protector of his treasure than the speculating lover, who steals his wife from her fond parents. The former never abandons his charge; whereas the latter frequently does, leaving his deceived fair one, after being robbed of all she possessed, to return in disgrace and poverty to her broken-hearted family. It is amusing to see how faithfully the cock turkey, when thus the sole guardian of his children, will seek to provide them with food and to protect them from injury. In the night and in stormy weather, he spreads over them his broad wings, and if a hawk is seen, the same is done to shelter them from his marauding descent upon them; if they have become too large to be thus sheltered, they collect around him as close as possible, while his gorgeous crest rises above them, not more captivating and alluring to an enemy than the expressive banner which floats in the breeze over the well-mounted and strongly-manned fort.

We annex the following anecdote of a cock turkey we once possessed. Among a brood there was one male, a long-legged fellow of a most unique appearance. During the period of incubation, or as soon as one of the hens began to set—which she, seeming to know the old fellow's propensity, was very careful to manage in a very private and secret manner—he began to grow uneasy, and mounted the fences, watching for the place of her concealment, which he usually discovered the first or second day; when he, by virtue of his authority as one of the lords of creation, immediately took possession of the nest, and from that time forward, till the period of hatching, went on with the regular process, when he brought out his brood and duly carried them forward to maturity, when the hen, poor simple wife, was allowed to trudge along at a respectable distance, in the true after-honeymoon style.

Another instance. It appears that a male turkey kept on the farm of a gentleman in Rhode Island resolved on a revolution in turkeyism. Accordingly, he drove from the nest one of his better halves, where there were twenty-one

eggs, and performed the duties of incubation himself. The duties were so well performed that eighteen young turkeys duly made their appearance. Nor was this all. He became so pleased with the female cares of domestic life, that he spurned all interference from the gentler sex. When his own brood was fairly out of the shell, and finding that others of the household had been occupied in the same labour so that there is in all sixty-seven young turkeys to be taken care of, he determined to have undivided dominion in the domestic realms of turkeydom. This he did by turning the entire female fraternity out of doors, and taking the whole care of the nursery upon himself.

[*Southern Homestead.*] C. N. Bement.

Whitewash.

Whitewash is one of the most valuable articles in the world, when properly applied. It prevents not only the decay of wood, but conduces greatly to the healthiness of all buildings, whether of wood or stone. Out-buildings and fences, when not painted, should be supplied once or twice every year with a good coat of whitewash, which should be prepared in the following way: Take a clean, water-tight barrel or other suitable cask, and put into it half a bushel of lime. Slake it by pouring water over it, boiling hot, and in sufficient quantity to cover it five inches deep, and stir it briskly till thoroughly slaked. When the slaking has been effected, dissolve it in water, and add two pounds of sulphate of zinc, and one of common salt. These will cause the wash to harden, and prevent its cracking, which gives an unseemly appearance to the work. If desirable, a beautiful cream colour may be communicated to the above wash, by adding three pounds of yellow ochre; or a good pearl or led colour, by the addition of lamp, vine or ivory black. For fawn colour, add four pounds umber —Turkish or American (the latter is the cheapest)—one pound Indian red, and one pound common lampblack. For common stone colour, add four pounds raw umber and two pounds lampblack.

This wash may be applied with a common whitewash brush, and will be found much superior both in appearance and durability, to common whitewash.

Chemical Gazette.

The Dutch Way to Salt Beef.

Take a lean piece of beef, rub it well with treacle or brown sugar, and turn it often. In three days wipe it, and salt it with common salt and saltpetre beaten fine; rub these well in, and turn it every day for a fortnight. Roll it tight in a coarse cloth, and press it under a heavy weight; hang it to dry in wood smoke, but turn it upside-down every day. Boil it in pump-water, and press it; it will grate or cut into shivers, and makes a good breakfast dish.

To twelve pounds of beef the proportion of common salt is one pound.

Personal.

DR. J. E. WILLIAMS:—The accompanying letter addressed to Professor William Gilham of the Virginia Military Institute, you will please give a place in your columns as an act of justice to this gentleman, which should have been long since rendered him, and oblige

Yours, truly,

B. M. RHODES & Co.,
Office 82 Burly's Wharf, Baltimore.

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RICHMOND, October 26th, 1860.

PROFESSOR WILLIAM GILHAM,

Virginia Military Institute, Lexington, Virginia.

Dear Sir,—In prefacing your flattering remarks, in reference to Rhodes' Super-phosphate, before the Farmers' Assembly last evening, you spoke of a discussion we had with you several years since—growing out of your discovery of "Carbonate of Lime" in Rhodes' Manure.

Not having the pleasure of your acquaintance, and the party who had charge of the manufacture of the Manure at the time enjoying our *full confidence*—and being assured by him that you were in error, we consented to take up the defence. Shortly afterwards we had complaint of the Manure from those who had used it most successfully. This lead us to examine the subject; when, to our amazement, Professor Bickell's analysis disclosed "Carbonate of Lime"—proving your correctness. We immediately suppressed the stock in market, discarded the party we had employed, and repaired the damage as far as we were able. Costing us many thousands of dollars—besides *mortification*, which money could not restore.

We also prepared communication of the facts, with apology for yourself; but yielding to personal appeals, suppressed this act of justice—although against our convictions, and which we have deeply regretted,—and while made at this late day, hope you will receive as earnest of our gratitude for your magnanimous allusions to our *present* article.

We shall be most happy for you to visit and inspect our manufacturing facilities, also meet the eminent manufacturing chemists Potts & Klett, under whose supervision "Rhodes' Manure" has been prepared for near four years past—and in the meantime has attained its present high reputation.

In the manufacture of Rhodes' Manure, no material is used which contains less than 70 (seventy) per cent. Bone Phosphate (avoiding those varieties of so called Guano containing Carbonates, Iron and Alumina, in prominent proportions). This is treated with sufficient Sulphuric Acid, (which we manufacture,) so as to yield 30 to 33 per cent. Bi-phosphate—we prefer acid in excess—as experience proves the value.

We combine no Ammonia—our object being to establish a standard for *soluble Phosphoric Acid*, the nourishing property of plants; these being, as all are

aware, a standard for *Ammonia*—the stimulating property—in dry *Peruvian Guano.*

We also urge upon Planters to make their own combinations from these standard ingredients, and not to resort to these until they have exhausted their stock of Compost Manures, but use them as adjuncts.

When agriculturists see the importance of making their own combinations of Manures, rational agriculture will have commenced.

With expressions of high respect, we remain

Yours, very truly,

B. M. Rhodes & Co.

The above communication was intended for the December number, but was unavoidably delayed.—[Ed.

How to Tame Bees—"Ten dollars worth" of Information Gratis.

Many persons while watching an exhibitor of bees in a movable frame hive, at the Fairs, taking out and returning the frames of combs covered with bees, and, as they hang in clusters from the frames, removing them by handfuls, with no more apparent fear than though they were so many flies, have regarded the process as a sort of witchery; they have thought that none but the operator, and possibly a few others, could have such perfect and fearless control over their bees. Instead of this being actually the case, it is the reverse; for no person that I have yet seen, who has followed the directions for "Taming Bees" that I purpose to give, has been unable, after a little practice, to have full and absolute control over them. I understand that a speculator in Canada has made the proposition "to instruct bee-keepers in the art of taming bees for the exceedingly low price of $10 each!" But the readers of the *Agriculturist* can save their $10 and learn the whole art by observing the following directions, which the writer has practised for years.

The whole art of "taming bees" is embodied in the following: 1st—A honey-bee filled with honey or "liquid sweets," will not sting of its own accord. 2nd—Bees when frightened will generally fill themselves with honey; and, if given "liquid sweets," will invariably accept of them. Bees may be frightened thus: 1st. By confining them to the hive, and rapping the sides of it lightly with a small stick, or the palms of the hands. At first, the bees will try to get out, but finding that impossible, they will then rush to their stores and fill themselves with honey. 2nd. By blowing upon them the smoke of punk (rotten wood), tobacco, or cotton rags.

What is termed "liquid sweets," is water well sweetened with honey or sugar. Sugar is preferable, as bees from neighboring hives, or those in close proximity, are not so readily attracted by it.

For many years I used mainly the smoke of tobacco and cotton rags, but this season, in all my operations I have used nothing but the smoke of punk. This is not so pungent as that of tobacco.

In order to make the foregoing directions a little clear, I will now set forth the *modus operandi* of taming the most irritable colony of bees, in the Langstroth hive; which will answer, somewhat modified, for all colonies in all kinds of hives.

Set the punk on fire, and blow a little smoke into the entrance of the hive. This will cause the bees at and near the entrance, to retreat and go among the combs. Now, take off the top cover, and blow enough smoke into the holes or slats of the surplus honey receptable cover, to cause all the bees to go below the tops of the frames, when this cover may also be removed. Blow sufficient smoke upon the bees to keep them below among the combs. Unless the colony be very populous, the bees will now nearly all be found hastily filling their sacs with honey, and, will generally be ready to operate upon in from five to fifteen minutes. Should the operator desire to commence taking out the combs as soon as possible, he may sprinkle the bees with the sweetened water. Those not filling their sacs from the cells of honey, will commence at once to gorge themselves with this preparation. I seldom have occasion—except at the Fairs—to use the "liquid sweets." I would advise beginners to use a bee-hat until they have had some experience—which may then, at times be discarded.

Reader, just operate upon a colony in the way described, you will probably be surprised to find that you can more easily and readily subject the most irritable colony of bees to your control, than can Rarey an ordinary animal of the equine race.

M. M. BALDRIDGE

NIAGARA, Co., N. Y. *American Agriculturist.*

The Persimmon, and its Uses.

Perhaps there never was a more abundant crop of persimmons than is witnessed this year. In some parts of the State, if not in all, the fruit is highly esteemed, and is indeed of considerable value. There is probably as great a variety as we find among apples. The best persimmons ripen soft and sweet, having a clear, thin, transparent skin, without any rough taste. A good ripe persimmon is a delicate, delicious morsel; most animals fatten on them; the chicken, duck, turkey, goose, dog, hog, sheep and cow, all eat them greedily. The fruit, when mashed and strained through a course wire sieve, makes delightful bread, pies and puddings. When kneaded with wheat-bran, and well baked in an oven, the bread may be put away for winter use in making beer, and used when wanted.

The following, which is Mr. Jefferson's receipt for making beer, is among the best:

Sweet ripe persimmons mashed and strained, . .	1 bushel.
Wheat bran, ...	½ bushel.

Mix them well together, and bake in loaves of convenient size; break them in a clean barrel, and add 12 gallons of water, and two or three ounces of hops.

Keep the barrel in a warm room. As soon as fermentation subsides, bottle off the beer, having good long corks, and place the bottles in a low temperature, and it will keep and improve for twelve months.

This beer, when properly made in a warm room, and bottled as above, is an exquisitely delightful beverage, containing no alcohol, and is, to the connoisseur of temperate taste, not inferior to the fermented juice of the vine.

The ordinary way of making it is more simple, and the drink is relished heartily by most persons. A layer of straw is put in the bottom of the cask, on which a sufficient quantity of fruit, well mashed, is laid; and the cask then filled with water. It should stand in a warm room; and if the weather is cold, fermentation will be promoted by occasionally putting a warm brick or stone in the barrel. The addition of a few honey locusts, or apple peelings, will make the beer more brisk. Wheat bran always improves the quality.—*Farmer's Journal.*

From the Country Gentleman.

Principles of Road-Making.

Where so much prejudice and ignorance exists regarding the location, construction and repair of common roads, it seems almost a herculean task to introduce any improved system that is at variance with our preconceived notions or education. In general character our common roads are very inferior; is it from motives of economy, or ignorance of the principles of road-making? We are inclined to think the latter, as there is money enough expended to make our roads good, if done under the direction of one skilled in road-making. That a system of road-making infinitely superior in every respect to that generally practiced in this country, does exists, and has existed for a long series of years, no one can deny, and that we can profitably adopt such a system on all our principal thoroughfares, is equally true.

The original blunders of location, many of which were accidental, cannot at this late day be easily remedied, still very much may be done to reduce the grades, perfect the drainage, and improve the surface of all our common roads, and the sooner an intelligent system of road-making is adopted, the better it will be for our comfort and our pockets. Under the present legal system of road-making and repairing, no innovation of this kind can be easily introduced. There are too many men who cannot be made to understand the importance of good roads; why a long level road is better than a short up-hill one; why they should do any more work on the road than the law compels them; why, as a matter of pride, the public road in front of their own premises should not be well made and always kept in first-rate repair at their own expense, and why it is not highly honorable and just to cheat the roadmaster and public out of as many hours of their assessed time as possible. We have heard men boast of the shabby way they pay their road tax. I am, says one, assessed eighteen

days' work; I send my man, or boy if I have one, with my team—they go on to the road between 9 and 10 o'clock, come in at noon, out again at 2, and quit at 5, and count me three days' work. Such is the working of a miserable law for the benefit and comfort of the community. It may be urged, however, that extra time is assessed to cover all such delinquencies; but then all men are judged by the same standard, and in repairing roads, perhaps the law is right in assuming that all men are equally honest, or rather dishonest.

Repairing a road once a year, instead of doing it when it should be done, is adding very much to the labor and expense. The lack of all system in management, owing to the uncertainty of force that may turn out, and the wholesale ignorance of road-making that exists among the road-making community, are glaring defects in our present plan of operations.

Any law that would compel the payment of road tax in money instead of services, would be strongly opposed, and yet there is no more reason why a road tax should not be cash than the State tax. Perhaps instead of adopting any new system, a better plan would be to remedy the defects of the old, and insist on a thorough qualification in all departments of road-making as a requisite for the office of roadmaster; let merit be the controlling influence in such an appointment, and the exactions of labor be the same as if hired and paid for. Pay such a roadmaster a good salary, and let the business of road-making be the business of his life; give him a district large enough to occupy his whole time; make all repairs when they should be made, and if men cannot turn out in harvest time, or when otherwise engaged, let them pay their tax in money. Any intelligent man can now make a handsome sum by keeping the roads of any town in as good repair as they are now kept, if he were paid in cash one-half the present assessed annual road tax, and he would do upon the principle that a "stitch in time saves nine," and "anything that is worth doing at all is worth doing well."

A good road is a recommendation to any locality or neighborhood, and speaks well for the enterprize of its inhabitants; it attracts attention from all who use it, and pays in pleasure, comfort and business; it is a part of the machinery of transportation, and the more nicely the curvature and gradients are adjusted, and the surface even and well kept, the more closely we approach ease and economy in movable machinery.

In this go ahead age, time is the great element that must enter into our calculations. Not the road that is the shortest, but the one that can be travelled the quickest; not the water-washed gullies of a hilly road, but the hard smooth surface, and the light grades that can always be found in any habitable locality. A waste of power and a waste of time is very poor economy, and in the course of years will count heavily; every one who travels an ill kept hilly road, must pay these tributes to the ignorance of its projectors, and hope for private enterprise to remedy the blunders. We drive our horses as we drive our business, or anything else we undertake; we buy them for their endurance and

a business-like speed and we know from experience that a good horse has a keen appreciation of a good road, and our belief in universal salvation undergoes a decided change when we see a good horse abused.

GEO. E. WOODWARD,
Civil and Landscape Engineer, 29 *Broadway New York.*

On Sombrero Guano and other Commercial Varieties of Phosphate of Lime;

And in reference to their capacity for Manipulating and Super-phosphating purposes.

BY CAMPBELL MORFIT.

A friend has sent us the following article published in The American Farmer, with the request that we would give it a place in our columns. This we most cheerfully do, as we are as much personally interested in any light which can be thrown on the subject of manures of any kind, as any farmer can be. For years past we have been trying with all our energy to improve a poor farm; and we are very anxious to continue our operations in this line, with as much economy as may be consistent with the necessities of the soil. We consider it a matter of great importance that every farmer should be well posted on the subject of Guanos of every kind—the *Phosphatic* especially—that we may all know *whether it will pay to use them;* and the quantities which should be applied per acre in order to reap the best return for our money expended in their purchase. Therefore, we are inclined to publish everything of interest on this subject, *although we do not recommend the use of Guano to any farmer except as an adjunct to the manures made on the farm.*—[ED.

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The two prime elements of a successful cultivation of soils are nitrogen and phosphoric acid. The best and most available source of the first, in this connection, is, undoubtedly, Peruvian Guano; which contains, also phosphoric acid. Its phosphoric acid exists, too, in active condition for fertilizing utility; but the quantity is very disproportionate to the amount of associate nitrogen compounds —so much so, that the use of this Guano *alone* produces abnormal stimulation of growth, resulting in rank, but unsubstantial vegetation, as well as premature exhaustion of the soil. In other words, the plant under culture with this Guano not unfrequently lacks the vigor of constitution requisite to carry it to a healthy maturity. To impart this constitution then, the deficiency of phosphoric acid must be supplied from sources which combine economy with efficiency of material.

The sources of phosphatic material are of two kinds—*mineral* and *animal.* The mineral comprises the different varieties of *Apatite;* the *Phosphorite* of Estremadura, in Spain; the plastic clay of Anteuil, near Paris; and a peculiar, rust-looking substance of this market, which I shall speak of directly as *Cooperite.* They contain their phosphoric acid as bone-phosphate of lime, except when alumina and iron may be present, in which case it is partly phosphate of iron

and phosphate of alumina. With better and cheaper materials at ready command, our experience in the use of these substances, except the last named, is consequently little or none; so we cannot speak from our own knowledge in regard to them. Phosphorite, however, is a commercial article in England, and is largely employed there in the manufacture of super-phosphate of lime.

The animal phosphatic materials are *Bones*, *Phosphatic Guanos* and *Coprolites*. The latter, so called from two Greek words, *kopros* and *lithos*, signifying *dung-stone*, may be considered fossil Guano—being the excrements of Saurians and Sauroid fishes in a state of petrifaction. They contain 40 to 50 per cent. of phosphate of lime, with nitrogenous organic matters and carbonate of lime. We have no practical knowledge of them in this country, as they do not appear in our commerce even by sample. In England, where large strata exist, quantities are used advantageously for manurial purposes; and Baron Liebig, in his "*Letters*," speaks of them "as a substitute for recent bones," and "as a means of restoring and exalting the fertility of her fields." Still, notwithstanding all this, phosphatic Guanos continue to be imported into England; and the Sombrero Guano, especially maintains there a successful competition with Coprolites, on account of its greater phosphatic strength and other advantages.

The term "Guano" is of Peruvian origin—being a corruption of *Huano*, the Peruvian word for dung. Guano consists of the droppings of sea-fowls, intermixed with their eggs and skeletons, and the debris of marine animals frequenting the Islands where the Guano is found. When it is in its original state and is more or less rich in ammonia, the Guano is designated *Ammoniacal Guano*. On the other hand, when the Guano has lost all or nearly all of its ammonia by time and chemical changes, and assumed a modified condition, characterized by a liberal content of phosphate of lime, it is distinguished as *Phosphatic Guano*.

The ingredient of value, then in Phosphatic Guanos, is phosphate of lime; and it has three distinct chemical states. The proportion of phosphoric acid varies with each state; and corresponding with each state is a different degree of solubility for the phosphate of lime, and consequently, also, of its value to the planter. By disregarding scientific forms and writing so as to be intelligible to the unprofessional reader, they may be expressed as follows, in the usual order of their occurrence in nature:

1. *Basic or Bone-phosphate*—containing ONE of phosphoric acid with THREE of lime;

2. *Neutral or Common Phosphate*—containing ONE of phosphoric acid with two of lime;

3. *Acid or Super-phosphate*—containing ONE of phosphoric acid with ONE of lime.

In this gradation, the phosphoric acid rises from 46 per cent. in the *bone*-phosphate, to 56 per cent. in the *common*, and 72 per cent. in the *super*-phosphate. With each rise there is also a change of chemical and physical habitudes. Thus, for example, the acid or super-phosphate is wholly and readily soluble in water;

and the common, though not directly soluble, yields easily to the assimilating agency of the vital force of the plant. Bone-phosphate, per contra is under ordinary circumstances insoluble, and consequently slow in its action. This slowness of action varies, however, in degree, with the composition of the phosphate material—density, physical structure, and associated substances having, more or less, a controlling influence. It should be rendered soluble, therefore, by treatment with acid, previous to being used on soils. This preliminary treatment converts it into—

Super-phosphate.—Soluble phosphate does not exist ready formed in any natural compound, except the Peruvian and kindred Guanos, which may contain, one or two per cent., partly free and partly as phosphate of ammonia. When manufactured, by the action of acid upon phosphatic material, the physical nature and peculiarities of that material do not affect the quality of the resulting super-phosphate. Whatever the source of the product, the latter, if properly made, is the same kind of super-phosphate to all of the purposes for which it is intended; provided, however, that the raw material is not debased by an excessive presence of iron, alumina, or other equally undesirable components.

As before noted, all fertilizers should contain a due proportion of their phosphoric acid as soluble phosphate, so as to have the power of prompt action upon soils. In this way, while the soluble portion is doing immediate service to the growing plant, that other or bone-phosphate portion, which may be associated with it, is being transformed by atmospheric and other inducements in the soil, and prepared for assimilation as fast as shall be needed for accomplishing the vegetation. This is particularly necessary when the phosphatic material is to be "manipulated" with Peruvian or similar Guano, for the purpose of regulating its ammonia-energy; for the maximum effect would not be secured unless the phosphoric acid is present in soluble form and sufficient quantity to keep pace in activity with the fertilizing power of the ammonia. More than a due proportion, however, is neither requisite nor expedient—for if all the phosphate-lime should be in a soluble state, the internal change in the fertilizer may cause its reconversion into bone-phosphate ere the plant has had time to assimilate it, and thus interfere with the economy of its application.

Common or Neutral Phosphate.—The White Colombian Guano, so favorably known in this market a few years since, is the prototype of this phosphate. It contained a large quantity of neutral phosphate, and hence was a superior phosphatic manure. The supply has been wholly exhausted; but the reputation and even the name of the Guano are still appropriated to substances for the purposes of deception, with few or none of the true qualities of Guano. Dr. Bickell was the first to announce and establish the fact of its presence in Colombian Guano. (*Silliman's Journal, vol.* 23, *pp.* 121, 122.) There is no longer any rich natural source of it. True, the *lumps* from Jarvis Island Guano contain it in association with bone-phosphate of lime, &c., as was first proved

by me in my analyses of that Guano, as reported in the "Supplement of the Farmer" for September, 1859, and as has been reiterated by Baron Liebig, in a recent letter upon the same subject. But, unfortunately, these *lumps* form but a limited portion of the whole Guano, the larger part consisting of mealy sulphate of lime. The total of joint phosphates of lime varies, too, in different cargoes from 12 to 45 per cent.—the latter being the highest quantity I have yet obtained. This Guano is unprofitable, then, for manipulating purposes; though, as an independent manure, it will fertilize well to the extent of the phosphoric acid which it may contain. The question in its use is only one of profit in relation to its cost.

Artificially, the neutral phosphate is not produced except incidentally in the manufacture of the super-phosphate fertilizers, which almost always contains several per cent. of it; more particularly when alkali, or ammoniacal Guano forms a part of the composition.

Bone-phosphate.—This phosphate is typified in bone-dust and bone-ash. Bone-dust is the natural bone freed from grease, by boiling, and reduced to a coarse powder. It contains gelatin, which is a nitrogenous substance, promoting, by its putrefaction, the evolution of ammonia and the disintegration and ultimate solubility of the bones. When any grease in retained by the bones, this disintegration is materially impeded. Their content of lime-phosphate varies from 48 to 58 per cent.; and therefore, though very serviceable for independent use on soils, they are not profitable for manipulating purposes. Besides, bones have so many more advantageous applications in the arts, that the supply is rather limited for agricultural use. In South America, where they are more abundant, the custom is to calcine them or burn off their organic portion so as to render them convenient for exportation. They reach us then as bone-ash, which is richer in phosphate of lime than bone-dust, proportionately to the amount of volatile and organic matters destroyed or driven off during the calcination. The analyses of a number of cargoes which have come under my professional examination, prove that its amount of phosphate of lime varies all the way from 68 to 80 per cent.; but is more frequently nearer 70 than 80 per cent. Thus, on this score, bone-ash is as objectionable for manipulating purposes as bone-dust; besides being so in regard to its cost and other conditions affecting the economy of its use, which need not be stated at this time. The present price of "Manipulated Guanos"—$50 per ton—would not justify the use of bone-ash in a quantity to give the requisite ratio of phosphates to the ammonia.

Of the phosphatic guanos, the remaining representatives of this class of phosphatic material, there are known to us the white and brown Mexican from the Carribean Sea and its neighborhood; Baker's Island Guano from the Pacific Ocean, and the Sombrero, from the island of that name in the West Indies. For the sake of making this paper more comprehensive, I will include, also, the so-called Navaza Guano, from an island off the coast of Hayti.

The Mexican Guanos vary in phosphatic strength from 20 to 65 per cent. of bone-phosphate of lime, reaching in rare instances as high as 70 per cent. The supply is limited and unreliable. The physical temperament of the phosphate of lime constituent, well adapts it for fertilizing action. The Guano, however, is objectionable and unprofitable for manipulating purposes. Baker's Island Guano is a new article, only three or four cargoes having been imported. It has yet to establish a reputation for uniform richness in phosphate. A sample from one cargo which I examined gave 73 per cent. of phosphate. The present discussion, at this point, then, is narrowed down for the moment to the two remaining materials, viz: Sombrero and Navaza Guanos. Their relative composition is therefore to be considered.

Having obtained reliable and impartial samples—three of each kind—of different dates of importation, and put them scrupulously through a course of analysis, it was found that their nature, respectively, is as expressed in the following table:

TABLE No. 1.

CONSTITUENTS.	SOMBRERO GUANO.			NAVAZA GUANO.		
	"Done."—Cargo 1859.	"Seguin."—Cargo 1860.	"Belle."—Cargo 1860.	Average of six cargoes 1859.	"Ocean Belle," Cargo 1860.	"Condor."—Cargo 1860.
	*Sp.Gr.*2.74	*Sp.Gr.*2.67	*Sp.Gr.*2.58	*Sp.Gr.*2.50	*Sp.Gr.*2.52	*Sp.Gr.*2.72
Water	3.52	3.20	7.38	2.20	2.10	3.50
Sand and Silica	.68	.60	1.50	5.60	3.20	5.70
Organic matter, insoluble	...	.08	....	1.48	.63	.50
Organic matter, soluble	5.36	5.52	3.43	10.20	7.92	7.65
Fluorid Calcium	....	....	....	traces.	....	.. .
Sulphate Lime	.86	1.27	3.87	2.49	traces.	1.15
Lime, (with Alumina, Silica, and Organic Acids	6.97	3.41	4.70	12.47	13.33	18.72
Carbonate Lime	5.34	6.55	4.32	2.00	1.91	2.50
Bone-phosphate Lime	64.67	71 42	65.97	37.72	41.77	19.83
Phosphate Magnesia	2.39	1.72	1.80	2.70	1.30	.98
Phosphate Alumina	3.62	2.16	2.20	10.56	6.35	8.47
Phosphate Iron	1.95	traces.	....	2.20	6.40	3.74
Chlorid Sodium	.09	.45	.10	traces.	traces.	.24
Silicate Potassa and Lime	.76	....	....	....	....	....
Oxid Iron	1.10	1.28	1.90	3.50	2.50	6.80
Alumina	3.13	2.24	3.69	7.04	12.77	20.93
Total	100.44	99.90	100.86	100.16	100.18	100.71
Commercial and Agricultural Expression.						
Actual Bone-phosphate	67.96	73.77	68.14	40.44	43.57	21.17
Or, Calculated Bone-phosphate	73.78	76.02	70.39	50.76	56.96	33.95

The above results show an absolute superiority for the Sombrero and a meagre exhibit of the Navaza Guano. In the best sample of the latter, the actual bone phosphate is barely more than half the amount existing in the best sample of Sombrero; while in the worst or "Condor" sample of Navaza, it runs down to one-third,—the iron and alumina compounds amounting at the same time to nearly 40 per cent. This unprofitable mixture incapacities it for super-phosphating purposes, is fatal to its character as a Guano, takes it out of the category as such, and transfers it to that of the mineral phosphates. Its iron rust appearance and physical characters generally, and its allied chemical nature with certain phosphatic earths, indicate that its classification among *them* is the proper one. It therefore deserves a specific designation, and I propose for it the name of *Cooperite*, in honor of its enterprising proprietor.

The Sombrero Guano shows a remarkable uniformity of bone-phosphate as well as an absence of any material amount of wholly valueless substances. Those cargoes coming in now, are several per cent. richer than the average phophate of the Guano at the time these samples were imported; and I am informed by a recent letter from Mr. Jullien, the resident chemist at the island, that the deposit contains plenty of even 80 to 85 per cent. richness in bone phosphate. We may therefore, expect from the new regime instituted by him in the selection and shipment of cargoes, that future importation of the Sombrero, will contain even more than 70 per cent. actual bone-phosphate of lime.

No chemist should hesitate to vindicate the truth of science from sympathy with private disappointment or misfortune, and therefore with a becoming sense of professional obligations, I find it proper not to drop the examination of Navaza Guano at this point, but to carry it further through a course of experiments upon its solubility compared with that of Sombrero Guano. Taking the "*Done*" sample of Sombrero, and the "*Condor*" sample of Navaza, because of their closely corresponding densities and subjecting one hundred grains of each in impalpable powder to contact with three ounces of nitric acid liquor of specific gravity 1,015 (containing one volume of nitric acid to 29 volumes of water), for seven days, at a summer temperature, it was found that the proportions dissolved were as follows:

TABLE No. 2.

Matters and proportions dissolved by dilute nitric acid.	"Done" Sombrero.	"Condor" Navaza.
Lime,	22.00	16.80
Phosphoric Acid,	12.71	9.73
(Or Bone-Phosphate,)	(27.54)	(21.08)
Alumina and Oxide Iron,	2.10	7.30

Here it will be seen that the Sombrero sample has given up to solution one-third more phosphoric acid than the Navaza; and with this advantage, that it still retains nearly sixty per cent. of its original amount for the further action of the acid; while the Navaza has been very nearly exhausted of all that ingredient, in the experiment, as is shown in Table No. 1. Moreover, the Navaza solution has, per Table No. 2, the depreciating feature of 7.30 per cent. alumina and oxid of iron, while that of the Sombrero contains only 2.10 per cent.

These essays were conducted with observed precision, but it would be unprofessional in me to impose them upon the confiding reader as the counterpart of that action which would take place upon the Guano in the soil. It is true that nitric solution does occur there, but not as with the force of the liquor which I used in these experiments, and which solution, though containing comparatively little acid, is very much stronger than it would be under the circumstances of its natural incidence in the soil.

With the object of imitating more accurately the solvent influences in the soil, a further set of experiments was instituted with carbonic acid water of specific gravity 0,990; and this time those samples of Sombrero and Navaza Guanos richest in bone-phosphate were selected for the purpose, so as to make the conditions as favorable as possible. Fifty grains of the "*Seguin*" Sombrero and an equal quantity of the "*Ocean Belle*" Navaza, in impalpable powder, were put in glass-stoppered bottles with eight fluid ounces of carbonic acid water, and there left for fourteen days, at the end of which time they were filtered, and the filtered liquor carefully evaporated to dryness and weighed. These weights show that the Sombrero Guano had given up to solution 6.40 *per cent.* of its substance, while the Navaza had yielded only 1.40 per cent.: thus establishing beyond question that the solubility of the Sombrero under atmospheric influence or, in other words, in the soil, is four times greater than that of Navaza Guano. The Navaza solution exhibited appreciable quantities of iron and alumina, whereas the Sombrero barely held traces of them. The Navaza Guano having shown itself to be intrinsically so inferior, I took the trouble to extend the investigation to the inquiry whether its agricultural applicability could be improved by association, and to that end put through careful analysis representative samples of certain "*Manipulated Guanos*" well known in the market, and which I happened to have in my laboratory. To avoid disparaging distinctions in name, I will not give them their commercial designations, but tabulate them Nos. 1, 2, 3; only remarking that they all contain Navaza Guano as their phosphatic material in chief; superiority being particularly claimed on that account for Nos. 2 and 3 by their proprietors.

TABLE No. 3.

Manipulated Guanos.

COMPONENTS.	Navaza and Bones.	Navaza.	Navaza.
	No. 1.	No. 2.	No. 3.
Water, accidental - -	9.26	7.86	6.40
Sand and Silica - - -	2.14	4.64	10.40
Organic matter, insoluble -	.46	.86	.48
Organic matter, soluble -	32.55	30.03	30.39
yielding AMMONIA -	(8.40)	(7.40)	(6.56)
Sulphate Lime . - -	5.25	3.08	5.38
Lime (with Alumina, Silica and Organic Acids) - - -	4.95	8.69	13.76
Carbonate Lime - - -	3.18	1.79	1.60
Soluble Phosphoric Acid (as Phos. Ammon.) - - -	1.40	1.27	2.95
Bone-phosphate Lime - -	30.98	21.53	9.32
Phosphate Magnesia - -	1.90	1.90	1.80
Phosphate Alumina - -	1.40	4.16	5.31
Phosphate Iron - - -	traces.	traces.	——
Chlorid Potassium - -	.53	traces.	traces.
Chlorid Sodium - - -	.25	.13	.30
Sulphate Potassa - -	traces.	.21	.52
Sulphate Soda - - -	——	.05	traces,
Alumina - - -	3.70	8 14	8.39
Oxide Iron - - -	1.30	5.60	3.80
Total - - -	99.25	99.94	100.80
Equivalent of *total* Phosphoric Acid in Boneplate Lime - -	38.07	31.13	23.60

The results in this Table are very interesting, confirming my previous experience as to the want of uniformity of the per centage of ammonia in Peruvian Guano, its variable degree of moisture, and also its very small proportion of alkaline salts. While the inspection generally gives over 16 per cent. of ammonia for Peruvian Guano, it often runs under and down as low as 13 per cent., so that justly it cannot be allowed an average higher than 14 per cent. The large per centage of ammonia in No. 1, as well as the much lower amount in No. 3, may be considered as accidental. So also, is there, doubtless, an absence of intentional fraud in the low amount of phosphates particularly in Nos. 2 and 3, the cause being, probably, an injudicious selection of the kind of phosphatic material with which their manipulation is effected, or in other words, mistaking the quality of Navaza Guano. No. 3 is peculiarly unfortunate in being composed of one of the poorest of Navaza cargoes. No. 1 escapes reproach, in a measure, by the partial presence of bones, which brings up its amount of bone-phosphate to a fair proportion. It may be added that the 8 to 10 per cent. of ammonia and the 55 per cent. of bone-phosphate claimed for Nos. 2 and 3 in the proprietors' adver-

tisements, are purely hypothetical, as there are no available raw materials to afford such strength of ammonia and phosphates, at the present selling price of Manipulated Guanos.

Passing now from the foregoing Table to the following, the latter (No. 4) shows the analytical results from two fertilizers made with care in the selection of all the materials; the phosphatic element being Sombrero Guano. They are very well known in the market, but I shall designate them as A and B, with the explanation that *A* is a *soluble* Phospho-Peruvian fertilizer, while *B* is a Manipulated Guano:

TABLE No. 4.

Manipulated Guanos, made with Sombrero Guano.

COMPONENTS.	A.	B.
Water, accidental	9.60	4.72
Sand and Silica	2.60	4.40
Oranic matter, insoluble	6.70	6·00
Organic matter, soluble	17.42	24.50
yielding AMMONIA	(7.25)	(7.44)
Sulphate Lime	20.00	7.18
Lime (with Alumina, Silica, and Organic Acids)	1.12	2.05
Carbonate Lime	2.27	3·82
Phosphoric Acid, soluble	4.54	2.80
Super-phosphate Lime	6.88	——
Bone-phosphate Lime	20.17	38.16
Phosphate Magnesia	1.36	1.80
Phosphate Alumina	.34	.50
Phosphate Iron	——	1.60
Soluble Silica	.80	——
Chlorid Potassium	1.95	.52
Chlorid Sodium	.82	——
Sulphate Potassa	.33	——
Sulphate Soda	——	.33
Alumina	2.26	64
Oxid Iron	.84	1.20
Total	100.00	99.82
Equivalent of *total* Phosphoric Acid in Bone-phosphate Lime	41.28	48.88

Analytical results could not be more conclusive than those presented in the foregoing tables as to the degrading association of Navaza Guano on the one part, and the exalting quality of Sombrero on the other,—in regard to fertilizing mixtures. The poverty and objectionable features of the Navaza mixtures are seen in 1, 2 and 3, of Table No. 3, as compared with the results in *A* and *B*, of Table 4, from Sombrero Guano. No other phosphatic material than the Sombrero could be made to yield a fertilizer like *A* of Table 4, so affluent and yet so well

adjusted in all the elements for profitable fertilization: while, the employment of Sombrero in *B* gives also as rich a "Manipulated Guano" as can be probably made at the price charged for it by the vender. With its remarkable capacity for superphosphating and manipulating purposes, the Sombrero Guano vindicates, throughout, not only its superiority over other phosphatic Guanos, but also its title to be considered the phosphatic institution in agriculture, just as Peruvian Guano is now known to be the ammoniacal institution in that service. Readily accessible; uniformly rich in lime phosphates; of inexhaustible supply and at low cost; its existence is a boon of large value to agriculture, and its discovery marks an epoch in the history of fertilizers.

The progress of experience and research allows frequently only a temporary position to what is esteemed the best of the day; and so Sombrero Guano has to run its risk of the future. But having been among the first to discern and make known its worth, and now after much laboratory experience with it and other phosphatic Guanos, being confirmed in my first views of its value, I shall continue to recommend it as the best, until it is succeeded by something that, if possible, may be superior.

No. 19 E. 12TH STREET, New York, November 23, 1860.

[*American Farmer.*]

Tact and Good Judgment in Farming---How the Profits Accrue, &c.

The farmer, who takes a correct view of his position, and assigns to each of the circumstances which surround him the prominence each deserves, and who wisely distributes his energies among his varied interests, according to their relative importance, is called a successful farmer. Such he surely is. Success is the invariable reward of well directed energy.

The converse of this proposition is as forcibly true. The cultivator who, in ignorant or willful defiance of every principle of success, withholds his energies, or misdirects them by applying to unprofitable subjects, or unwisely distributes its relative force to each, becomes an unsuccessful farmer.

This is about all that constitutes the difference which we observe in farmers. Money does not make it, for one will commence with wealth and end in poverty, while his neighbor will commence in poverty and end in competence. It is not in education, for the educated man (educated in schools,) will frequently run his race to financial ruin, while his ignorant contemporary (ignorant of scholastic trash,) will pave his way to fortune. Wealth, learning, zeal, position—all yield in this struggle for success to simple tact, or the judicious application of energy to the right object.

"What interest demands a larger portion of my attention?" This inquiry each should make for himself, and measurably each must answer for himself. Herein lies our skill. Herein is the key to our success. No special rules can be given, applicable to all localities, and all circumstances; but each must look around him and discover his "lead." If we live a hundred miles from market,

it will not be wise to grow strawberries for it, especially, if equally distant from rail or water conveyance. There are a thousand other things we might do, which would be equally silly.

Without reference to particular localities, we may assume in general, that *stock raising* is our leading agricultural interest, and that the most successful grower of horses, cattle, sheep, &c. will be the most successful farmer, and, conversely, the farmer who comes the nearest to failure in this department of industry comes the nearest to being frustrated in his hopes and aims. It is true regarding only the immediate present, and reckless of the years that lie a little way beyond, a farmer may sometimes realize gains a little faster, by raising grain exclusively, yet in the stretch of a very few years, he learns to his sorrow that the race is not always to the swift.

And why is this? We think the truth is found in these simple considerations: 1st. A supply of stock is necessary to answer an imperious demand founded in our necessities—horses and oxen for our carriages and plows, cattle for our beef, cows for our butter and cheese, sheep for our mutton and wool. These demands are based in absolute necessities of our condition, and must be supplied independent of any whimsical caprice of fashion of the times. 2d The materials for enriching our soils are principally supplied by our stock, and such must ever be the case. Guano, superphosphate, etc., and even green manuring are, in our opinion, but temporary and questionable expedients, and can never supply the continued absence of animal manures. These considerations are sufficient to justify the assertion made in the preceding paragraph.

Shall we all become exclusively devoted to stock raising? Not at all. None are so stupid that they cannot easily foresee the result of such a procedure. Only let us give the prominence to this department of our business that legitimately belongs to it, and prosecute it with that degree of skill and energy which is attainable by all, and which leads to success.

What constitutes success in stock raising? This is made up of two elements. 1st. When by the skillful application of principles and combination of elements, we succeed in producing the desired result, independent of pecuniary considerations. This is gratifying to pride, and is the legitimate calling of the amateur. 2d. When by the exercise of judgment and economy, we succeed in raising a horse, at an expense of fifty or seventy-five dollars, which will sell for one hundred or more, or is good for that amount to wear out; to make a pound of beef for four cents, and sell the same for six cents; to grow a pound of wool at a cost of twenty-five cents, which will bring forty cents in market; in other words, to produce marketable commodities at a less cost than they will bring. This constitutes success in the pecuniary view of the matter, and is what we, as farmers, are striving for; and having done this, our success or profits will be proportioned to the capital invested.

We may be indulged, perhaps, in one more inquiry. How is the thing to be done? Ah, that is the nut that is to be cracked! Our space in these columns is

limited; we have not room to swing a ponderous sledge, even if we possessed one; so a few taps with our little hammer is all that remains for us to do.

1st. Begin at the beginning. Well begun is half done. Let us select the best breeders within our reach, but *not* regardless of expense. Profit is our object, and only a few, very few, can buy five hundred dollar bulls, or one hundred dollar rams, and realize on the investment. Ten have lost money in such speculations where one has made it. But let us do the best we can do safely.

2d. Animals in embryo are subjects for profitable attention. The characteristics of the parents will develop themselves in the offspring, and if starvation and general neglect are prominently exhibited in the former, we may look as confidently for their manifestations in the latter.

3d. It is a decided advantage to have the young come early. They must have milk, or its equivalent, a certain period of time, before they are ready for pasture, and if sufficiently forward to take the first fresh bite, much is gained for their subsequent growth.

4th. We must never let a day pass, summer nor winter, without improving the condition of our animals. This can be done, and must be done, or we become losers. The moment we feed without accomplishing an increase of weight, we feed at a loss. Circumstances must determine how rapidly it is profitable to push this improvement. It is a very easy matter to feed too much grain; we must feed as little as will suffice for our purpose.

5th. We must have the right kind of fixtures. We can do nothing right without them. Stables and sheds, warm, dry, ventilated and convenient; water good and abundant. The difference between these and the absence of them cannot be explained to the uninitiated; they must be tried to be appreciated.

6th. Strict economy of fodder. There must be no waste. If a farmer feeds 20 cows, or their equivalent, for 180 days, and allows each to waste one pound of hay each day, the waste amounts to over one and three-fourths tons, which at twelve dollars per ton, amounts to the interest on three hundred dollars, at seven per cent. A few such leaks would sink a pretty large ship, or at least keep the navigators hard at the pump.—*The Rural American.*

Discussion About Sheep.

AT THE NEW YORK STATE FAIR.

Mr. John Wade, of Canada, was asked to state what sort of sheep he raised for mutton. He said he preferred the long wool sorts, because they are more hardy. The mutton sells readily, and the wool, though not worth so much per pound as the fine wool sorts, produces so much more than the value of the fleece, is equal. We don't grow much corn, but we feed a great many roots, and feed well. It is foolish to try to keep any animal upon low diet. We feed anything that sheep eat best, and I fatten principally upon turnips and hay, with a little meal. The long wool sheep are better adapted to Canada than the fine wool.

We shear eight pounds of clean wool per head. The Cotswold variety are preferred; they have stronger constitutions than the Leicester sheep.

Mr. Pettibone, of Vermont—If a man keeps but few sheep, he should keep a mutton breed. If he keeps a large flock, or say 200 or 300, he should keep the fine wool sorts. The trouble in sheep-breeding is in letting them run down in October. I Winter 300 head, and 100 ewes will give 100 lambs. I use 400 acres, but many of them are on the mountain, and are valued at only $7 an acre. I do not let all my ewes breed. I keep my sheep in very close winter quarters, on hay. I feed breeding ewes one peck of corn a day to 100 head. In eleven years I have not had a lamb die, and they are kept without grain, but always with water and salt by them. There is a material difference in the value of the fleece, according to the way the sheep are kept. I prefer to have my sheep always fat. In January I select my ewes, and never sell the choice ones. I have an ewe that has produced eighteen lambs, and shears four pounds of wool. I do not select the most gummy sheep for my use; they are much more tender than those less gummy. Still, you must have greasy wool if you have fine wool. I feed generally twice a day—sometimes only once.

Mr. Baker, of Steuben Co., N. Y. I commence in October, after hard frosts, to feed grass to the lambs, and when winter commences I put them in yards and feed hay twice a day in broad racks. I never kept coarse wool sheep. My flock average 4 to 4½ lbs. per fleece—not of the gummy sort. I stable my sheep in winter. I keep 400 head, divided into three flocks, by two partitions. The gross sales average about $2 a head for wool and sales of sheep. I feed very regularly as to the time and quantity. I recommend the increase of our flocks, as they greatly improve our farms. I feed roots to ewes 20 days before lambing. I have kept 800 sheep a year on less than 200 acres in the farm, both summer and winter feed. I have raised 120 bushels of corn on an acre of sheep manured land. The water on my farm is limestone.

Gen. Hammon, of Monroe, Co., N. Y.—I commenced with fine wool sheep, 40 years ago. I then tried Leicestershire, and then came back to Merinos. I have less than 200 acres, and grow 30 or 40 acres of wheat every year; the land improves by sheep. My average lot of fleece is 5 lbs. I keep 330 head, and get over $700 a year for wool and increase. I stable 50 sheep in a room 14 X 40 feet, without change in the winter. I wash my sheep clean and let them run six or eight days, and then shear. I don't breed from gummy sheep. I feed in board racks, with straight sticks, so that the sheep can put in their heads. There are about 25 acres of reclaimed land on my farm that will keep sheep alive, but will not fatten them. My farm is limestone, and I prefer fine wool sheep to any other for profit; and I consider sheep twice as profitable as cattle on any grain farm. I never breed from ewes less than three years old. I do not like the cross of the Leicester bucks upon fine ewes. I have sold of wool and sheep over $900 a year.

Lewis F. Allen, of Black Rock, N. Y.—I have kept sheep 25 years upon a

clay loam, natural to sweet grasses, limestone formation, on the Niagara River. There is no rule as to the profit of keeping sheep. All depends upon circumstances. In Canada I have seen the best long wool sheep I ever saw, but the sheep are too fat for eating. You might as well dine off a cake of tallow as such meat. Such sheep may be as profitable in the United States. With me, those sheep require good shelter. They are not kept warm by their long fleeces. My sheep sheared 5 to 8 pounds of wool. I do not approve of feeding many roots excepting to breeding ewes. They are likely to scour sheep, at least they do mine.

Mr. Brown, of Orleans Co., N. Y.—I have bred both coarse and fine sheep. I have yearling coarse wool sheep that weighed 150 pounds each at one year old. I find the coarse wool breed the most profitable. My sheep average 5 pounds of wool, that sell at 31 cents a pound. My sheep are a cross of Cotswold, and are close wooled and hardy. I live on gravelly loam, wheat soil, and I think it desirable to increase the stock of sheep in this State. A field of clover fed off by sheep, will yield more wheat than if not fed off.

Lewis F. Allen—On some soils it may be best to plow in clover; on other soils it is not. As to mutton sheep, I have fed Southdowns, and the cheapest way that I can make mutton, is upon grass, and wethers of 150 pounds bring 5 cents a pound gross at Buffalo. I would keep mutton sheep if I had a good farm on a rail-road. I can always sell my lambs at $2. My Southdown fleeces bring $1.50 average. Southdown mutton is the best we have, and the sheep always sell well for mutton. The fine wool sheep mutton is apt to taste of the greasy wool. The Merino sheep are a hardy race of sheep, but they are not a good breed to keep, where mutton is the main object, and I would not keep a breed for mutton that produce carcasses all fat, like some of the long wool sorts.

Solon Robinson, of N. Y., was called upon to state what sort of sheep sell best in the New York market, which he has so long reported for the *Tribune*. He stated in substance as follows: Southdown sheep always outsell every other variety in New York to our first-class butchers, but they are not appreciated by the wholesale butchers, who are mostly Irish and Jews. There is always a good demand for choice Southdowns, particularly lambs, and the half-blood ones bring about as high prices as full-blood ones would, if brought in early in a first-rate condition. Samuel Thorne, of Dutchess county, buys good common ewes every year, and breeds them to his full-blood Southdown bucks, and gets early lambs, which sell at $4 or $5 a head. He clips the ewes, and fattens and sells them, and the sales of lambs, fleeces and ewes average about $7 a head over the first cost. This makes a very pleasant and profitable stock business, and should be largely increased, as the market is good now, and improving every year for such choice and fat sheep. The most profitable breed for the New York market is the long-wooled, heavy-carcassed sheep. This sort always sells well by the pound; it does not matter that the carcasses are loaded with fat; the mass of mutton eaters in the city are not such as appreciate the finest sorts of meat. Sheep generally sell by the head, and those

which are the heaviest, not the best, bring the most money. Early lambs will average $5 a head, the latter ones $3, if fit for the market.—*Rural American.*

Recipes, &c.

PUDDING.

Compounded of eggs, beaten up in a splatter;
A quart of new milk and a wee bit of butter;
Baked brown in an oven, and eaten while hot,
Is a pudding, than which, nothing's better, I wot.

Nelly Eyster, Harrisburg, Penn.

CONTENTMENT PUDDING.

Pare dozens of apples, or less, as you need them;
Then try, without breaking, to both core and seed them.
Fill each excavation with sugar and spice,
(Either nutmeg or cinnamon taste very nice.)
Place the apples in rows in a well buttered platter;
Pour over them lightly, a delicate batter.

Icing for Cake.—Beat the white of one egg perfectly light; then add eight tea-spoonfu'ls of loaf sugar, pounded fine and sifted, very gradually, beating it well; after every tea-spoonful add one drop of the essence of lemon or rose water to flavor it. If you wish to color it pink, stir in a few grains of cochineal powder. Lay the frosting on the cake with a knife, soon after it is taken from the oven; smooth it over and let it remain in a cool place till hard. To frost a common-sized loaf cake, allow the white of one egg and half of another.

Jumbles.—Weigh half a pound of butter, three-fourths of a pound of flour, half a pound white powdered sugar; put by a little of the sugar to roll them in. Beat two eggs well, add a little nutmeg; this must be made into a soft dough; do not roll it on the paste-board, but break off pieces of dough the size of a walnut, and make into rings; lay them on tins to bake, an inch apart, as it rises and spreads. A moderate oven.

Parisian Mode of Roasting Apples.—Select the largest apples; scoop out the core without cutting quite through; fill the hollow with butter and fine, soft sugar; let them roast in a slow oven, and serve up with the syrup.

How to Extract the Bitter Quality from Yeast.

Bake a small piece of bread quite black and drop into the yeast; or, if it be very bitter, put a small quantity of bran into a small sieve, and strain the yeast through. These remedies have been tried and never have been known to fail.

Or,—Pour cold water over the yeast some time before you require it. The yeast will sink and the bitter quality remain in the water, which pour off.

For the Southern Planter.

Letter from Dr. Higgins, of Baltimore.

MESSRS. EDITORS:

Dear Sirs—In an editorial of the August No. of the Southern Planter, on Manipulated Guano, you expressed the idea that the "father of the theory" had not been fully recognised, and that he would be entitled to the lasting gratitude of the agricultural public. In your September No. is a communication from John Kettlewell, of Baltimore, Md., in which he claims to be "the sole and exclusive originator of Manipulated Guano, in name and substance."

How far this claim of Mr. Kettlewell's can be substantiated, I leave it for the public to judge, after considering his certificates and the facts which I shall offer in relation to the matter. The certificates testify that in 1857, Mr. Kettlewell used a mixture of Peruvian and Mexican Guano, with good effect, on wheat. Some others testify to his having mentioned it to them before his connection with Mr. J. S. Reese, and one, (J. J. and F. Turner's statement,) that Mr. Kettlewell, in December, 1855, or January, 1856, asked them to join him in the mixing of Guano by machinery. The Messrs. Turner, therefore, gave to Mr. Kettlewell "whatever particular merit" might be due to him from "making (mixing, I suppose they mean,) Guano by machinery." Another certificate states that Mr. K. had made some Manipulated Guano in February or March, before his connection with Mr. Reese. None of these proofs, adduced by Mr. K. to prove his claim as the "*sole and exclusive originator of Manipulated Guano, in name and substance*," extend further back than January, 1856, or at most to December, 1855. He adduces, I naturally presume, the best evidence he can to support his claim, but no one proves, or attempts to prove for him that he was the originator, in name and substance, of the mixture of Peruvian and Phosphatic Guano, known as Manipulated Guano, before December, 1855.

My claims to the origination of the use of the mixture of the two diverse kinds of Guanoes, now sold as Manipulated Guano, are the following, which I submit to the judgment of the public.

In September, 1852, in an article published in the Baltimore Sun, I deprecated the use of the enormous quantity of Peruvian Guano then recommended in the Agricultural paper of the State, and recommended for each farmer to mix for himself Peruvian and Mexican Guano, with the addition of oil of vitriol, to increase the solubility of the Mexican Guano. Here, at once, was the principle enunciated of the superiority of a mixture of the two Guanoes over the Peruvian alone. The use of oil of vitriol being troublesome, many persons, by my advice, used the mixture without it with successful results. In my Report to the House of Delegates, made early in the winter of 1853, of which some fifteen thousand copies were printed for general circulation, I laid it down as a fundamental maxim that Peruvian Guano should not be applied alone, but mixed with Mexican Guano, then the only Phosphatic Guano in our markets, or

some other substance, known to be deficient in the soil. My attention was first directed particularly to this subject on account of the excellent action of some Patagonian Guano, which containing only half as much ammonia as did the Peruvian, yet acted equally well. Many persons asked my advice in relation to it, and I advised them to use a mixture of Peruvian and Mexican, as furnishing the same material at less cost. Here, then, was the principle published to the world, and the very thing itself recommended.

But not only this. In my Third Report to the House of Delegates, of Maryland, of which fifteen thousand copies were published for general circulation, I recommended the mixture of Peruvian and Mexican Guanoes under proper conditions, these conditions being "the absence of a knowledge of the proper quantity of Phosphates in the soil." See page 106, Third Report of James Higgins, State Agricultural Chemist to the House of Delegates, of Maryland, and on page 107, of same Report, when speaking of Peruvian Guano, I further state, "That its efficacy is greatly promoted by the addition of other saline substances, such as Mexican Guano, &c." On page 105 of same Report, I recommended "the mode of preparing Guano for use," that it be in a fine state of division, as a thing of almost vital necessity. In a table of "analyses of soils, from various parts of the State," page 121, of same Report, the almost constant deficiency of phosphoric acid is shown, and on these, and similar soils, of course the mixture of the two Guanoes is recommended. This advice was given to the owners of these soils in 1852, or as soon as they called after the making of the analyses.

In my 4th report made in 1854, I state that "the use of Peruvian Guano without any mixture with other common phosphates as it is so frequently applied, is costly and useless," and that a rational husband-man should use "a mixture of Peruvian and Mexican Guano, or other phosphates," and the reason for such advice clearly given. The causes of the excellence of this mixture and the rationale of its operation are distinctly set forth, and more strongly and thoroughly than had been before. See 4th report of St. Ag. Chew, to House of Delegates, page 56. In the same report, page 59, I expressly state that Peruvian Guano should not be applied alone, but its use should be accompanied by other substances absent or deficient in the soil, and show by facts and figures that its use alone will impoverish some soils and so reduce them, that Peruvian Guano alone cannot possibly be used with any profit. Furthermore, on page 61, is a letter from Mr. Richardson, who purchased a farm of Mr. Gossnell, a near neighbor of Mr. Kettlewell, and in the Custom House with him, detailing the result of an experiment, which he made with a mixture of Mexican and Peruvian Guano and Peruvian alone, the result being very greatly in favor of the mixture. This result was made known to me in 1853, with some others, and very many used the mixture of the two guanos on their wheat, more generally that perhaps from the great scarcity of Peruvian Guano in the Summer and Fall of that year. In the Fall of 1854, an increased number of farmers in various parts of the State,

used it, and the employment of the two guanos had become very general. It was not until the Spring of 1855 that the guanos ready mixed, were offered for sale in this market, under the name of "Manipulated Guano," by John S. Reese, Mr. Kettlewell being a silent partner and mixing the guano at his mill, where for several years before he had been mixing various substances and selling the mixture under various names as fertilizers. The recommendation for the use of the two guanos instead of the large quantities of Peruvian, was continued by me during my whole term of office, in each report of which, about 25 thousand copies annually were printed and circulated, until a different political party came into power and I was removed from office by the Governor of the American party.

The above is a full history of the origination, in theory and practice, of the use of the two guanos, from which it will be seen that by *my recommendation* it was *successfully used years* before Mr. Kettlewell or his partner Mr. Reese, either made, sold or used it; and, that it was after farmers and planters had again, and again; year after year tested its value, that Mr. Kettlewell, having a mill in which he had before mixed and ground various substances, mixed, ground and sold, a mixture of Peruvian and Mexican Guano, under the name of Manipulated Guano, to meet a public demand. Mr. John S. Reese disputes with him the credit of having first mixed these guanos by machinery, and between them I shall not attempt to decide, because there was nothing new in the mills or machinery used by them.

Let now the public judge from the above statement of facts, how much "devotion of the best years" of Mr. K.'s life, what "pecuniary sacrifices and difficulties" and the "amount of patient toil, of which no man can know but myself" (Mr. Kettlewell's own self), it cost for *him* to be the originator of the mixture of the Phosphatic and Peruvian Guano! * * * *

Since Mr. Kettlewell's publication, some other individuals have claimed for themselves or others the credit of the origination of the mixed guanos, and amongst them are Mr. Samuel Sands, the publisher of the Rural Register in this city, and Mr. B. M. Rhodes who is the agent for a Philadelphia manufactured Super-phosphate of Lime. Of the former I will only state that his own paper, the American Farmer, refutes all that he says about the matter, and that now Mr. Sands is selling a *refuted* Manipulated Guano by the aid of an analysis of Dr. Charles Bickell, who never made an analysis for him.

Messrs. B. M. Rhodes & Co., in a late number of your journal, claims that Dr. Bickell originated the mixture, and attempts to prove it from a book, belonging to me, which one of that firm holds unjust possession of. Now Dr. Bickell never claimed this merit for himself, as many persons here can testify to. Mr. Rhodes has again and again proclaimed *me* to be the originator years ago. In the pamphlet which he published in 1857, advertising his Super-phosphate of Lime made from my formula, on page 7, he says: "To Dr. James Higgins, the State Chemist of Maryland, is due the credit for his bold opposition to the exces-

sive use of Peruvian Guano, and for his introducing into practice the combined use of Peruvian and Phosphatic guanos, now so generally adopted by our farmers." And again, on page 23, of same pamphlet, we find the following: "The propriety of using mixtures of Peruvian and Mexican Guanos, on many soils, is no new invention, but was recommended several years since by Dr. James Higgins, our State Chemist, and since then has been practised among farmers in various parts of the State, before the words "Manipulated Guano" were ever heard. This we can prove by a host of witnesses, "copyright secured" notwithstanding. Yet, now Mr. Rhodes, with what sense of justice I am at a loss to conceive, attempts to deprive me of what is justly my due and give it to Dr. Bickell. Dr. Bickell himself, would, I am assured, have scorned to appropriate it to himself—the honor which he knew was due to me.

Let Messrs. B. M. Rhodes & Co., hereafter strive to introduce their Northern goods on Southern lands, as best they may, but let them not attempt to dishonor the name of a noble gentleman, by claiming for him, that which he never claimed for himself.

With the above statement of incontrovertible facts, I leave the matter to the judgment of an honest and intelligent public.

JAMES HIGGINS,
Analytical and Consulting Chemist,
No. 91, Second st., Baltimore.

For the Southern Planter.

New Process of Curing Tobacco.

DEAR SIRS,—Deeming it expedient that the Tobacco growers should know that the curing of Tobacco is no longer a mystery, or a work of chance, but a science, I am induced to make this communication. The process of curing is an invention of a well known gentleman living in my county by the name of Drummond; a son of a former contributor to your paper, who styled himself "Cold Mountain."

The curing is done by means of a furnace, which is of the simplest structure possible, while at the same time it combines every advantage to be desired; is free from danger of burning the Tobacco barn, requires less fuel, less time and labour, and has the quality of curing any colour desired.

I witnessed the curing with this new invention, and it was a most happy success; the Tobacco cured was lot Tobacco, very watery and green, and it was cured to an orange colour by design. I verily believe this invention is destined to supersede all others in the way of Tobacco curing, and were it not for the fact that the inventor has applied for letters patent, I would give a full description of the invention and manner of curing, but not wishing to infringe his rights, I will say no more, as he in due time, no doubt, will set it before the people.

AMHERST.

From the Working Farmer.

Under-Draining---Will it Pay?---Its Cost per Acre.

Nothing should interest the progressive American farmer, in the present state of agriculture in the United States, more than the subject of under-draining. There are many acres of useless land in each State that might be made productive by opening ditches, or a system of drainage, to carry off the surplus water that now remains on the surface, a barrier against improvement. Many fields now yielding pitiable returns, may, by a judicious expenditure in thorough under-draining and deep disintegration, be made to at least double the present results, besides putting at defiance climatic changes. In the month of September we received a letter from a friend in Cecil County, Maryland, informing us that his crops were nearly burned from the ground by the drouth, except a small under-drained piece, where the vegetation was luxuriant, showing no signs of being at all affected. This is but one of the many accounts received, showing the efficiency of drainage as a protection against drouth. "But," said a farmer to us a few days ago, "the operation is too expensive, we cannot afford to expend from $36 to $50 per acre in under-draining, it would be better to move West and buy fertile land at half that cost."

Five years ago, we under-drained a piece containing seven acres. The soil was clay and a hard pan sub-soil. This lot was wet and cold in spring, and some seasons could not be plowed until June 1st. The drains were opened four feet deep and forty feet apart. We used for parallel drains the two inch sole tile, and covered the joints with salt hay. The tiles cost us $12 per 1000; for these drains the entire cost was $350. The field was then in grass. The second year after draining, it was plowed and sub-soiled and moderately manured, and four acres of the seven, planted with late cabbage (a crop that could not be grown on the field before it was drained).

The cabbages succeeded, and besides paying cost for manuring, culture, &c., returned a net profit exceeding the expense of draining the whole field. The profit would not have been as large if the crop had been oats, potatoes, or corn, but it is very certain that with any crop the increase would have been sufficient to warrant the under-draining.

One year ago last September, we drained another lot containing four acres. The drains were three and a half to four feet deep, and forty-two feet apart, using two inch sole tile. The ground was loosened with a large lifting sub-soil plow to nearly the depth of the drains. By this means the opening of the drain cost only sixteen cents per rod. The cost of the work was as follows, per acre:

Digging 62 rods of drains, at 16 cents per rod,	$ 9 92
1023 feet of tile, - - - - -	10 23
Laying the tiles and covering with salt hay, -	1 00
Filling in drains, using plow and pair of horses,	1 50
Miscellaneous expenses, - - - - -	1 00
	$23 65

It will be seen by the figures that the work was performed for less than half what it had cost five years ago. The protracted drouth of last summer injured many crops to a considerable extent; this lot showed no indications of want of moisture; it was planted with potatoes and yielded over 200 bushels to the acre.

Thorough drainage will not be practiced to the extent it should, until it can be done at an expense of less than $20 per acre. Farmers of limited means will not generally adopt it, until some such change takes place, and from what has already been done in reducing the cost, there is little doubt that this desirable state of things is near at hand. Already we have a tile machine, inexpensive and portable, and said by those who have used it, to give good satisfaction, making a tile of a superior quality. When such a machine is in market, if several farmers in a township would club together and purchase one, the tiles could be made at home, and at one half the expense they now are.

In conclusion, we beg our readers to consider this matter fully, and if they have not heretofore been forced to improve their land by their own observations, to act upon the well ascertained and plainly stated profits of others; above all, whatever is done in under-draining, let it be done well, for it costs more to keep a poorly made drain in repair than to build a new one. P. T. Q.

Drain Tile—Number per Acre.

J. Herbert Shedd gives the following rule, in the *New England Farmer*, for calculating the number of drain-tile required for an acre:

"In estimating, to include main drains, divide 48,000 by the distance apart in feet. Thus: if the drains are to be 30 feet apart

30)48,000

1,600 the number required.

"If forty feet apart,

40)48,000

1,200 the number required.

"The per centage of tile to be used in the main drains, varies with the length of the laterals and with their distances apart. The above-given rule supposes the laterals to be 40 feet apart, and to have an average length of about 400 feet each.

"If it is required to know how many tiles would be used for lateral drains only, divide 43,560 (the number of superficial feet in an acre) by the distance apart. Thus: for lateral drains, 36 feet apart,

36)43,560

1,210 the number required."

When you know the length of a drain, provide a tile for every foot, since, after deducting for breakage and bad tiles, a thousand in number will just about lay a thousand feet in length.

Editor's Department.

Guano for the Corn Crop.

ABINGDON, VA., December 10th, 1860.

MESSRS. EDITORS:

My Dear Sirs,—I want to know in what quantities and what manner guano should be used upon corn? Whether it should be put in the hill with the corn when planted, or on the hill after the corn has come up, or sown broadcast? Whether the increase of the crop is large from its use, and whether it is better to use it pure or mixed with ashes or gypsum, and in what proportions? I would be glad also to learn whether guano is good for meadows and pastures, sown broadcast? You will confer a favor by answering me in the Planter.

Yours respectfully, JOHN W. JOHNSTON.

We very cheerfully comply with the request of Mr. Johnston, and will give him our personal experience on the subject of his enquiry. We hope some of our readers will also respond.

We have applied pure Peruvian guano mixed with equal parts (by weight) of plaster to corn, at the rate of 400 pounds to the acre. A deep furrow was opened every four feet, and the guano and plaster sowed in it—after which two furrows were lapped up on each side over the one containing guano. The land was then checked off in the opposite direction four feet, and the corn planted on top of the checks, so that the hills were four feet apart each way, and contained two stalks to the hill. The season was propitious, and the crop yielded well. At the same planting we applied the same quantities of guano and plaster broadcast to the land before breaking it up—plowed it in deeply, and had the land well harrowed. The corn was planted at the same distance apart each way, (four feet,) and the yield was *supposed*, by persons who saw both experiments, to be rather better than the first. Of this we had our doubts. We could see little if any difference between the two lots.

Another experiment we tried was a most complete failure, and resulted in the entire loss of the cost of the guano. In this case, the corn was planted five feet apart one way, by three feet the other—the land was well ploughed and harrowed—and the corn planted without manure. As soon as the corn was high enough to throw the dirt to it, we sowed one hundred pounds of unmixed Peruvian guano at the sides of the hills, and lapped the dirt over it. We had a severe drought and the chinch-bug both to contend with that summer, and the corn consequently *could not* do anything. The whole field was a dead loss.

Last summer we tried somewhat the same plan, with better success. We mixed guano (dissolved in sulphuric acid) with double its weight of plaster: sowed it at the rate of 300 lbs. of the mixture to the acre, and immediately

lapped two furrows on each side of the corn rows over it. A seasonable rain pushed the corn right along, and the field yielded four barrels (20 bushels) to the acre. This corn had previously been greatly damaged by drought, and we think would have easily doubled the yield but for that fact.

Next season, if we live, we intend to apply 200 lbs. of Manipulated guano and the same quantity of plaster to each acre of corn, when we throw the dirt to it, and to lay the corn by with peas. Our object in doing which is to secure a strong growth of green vegetable matter to the soil, so as to make the guano applied to the corn available for a crop of wheat or oats, if the season should be such as to make it not available to the corn crop. Guano is so expensive as to render the expediency of its use exceedingly doubtful, except in such manner as to give the farmer another chance at it, if the crop to which it is applied should fail. We think this plan a safe one, as it has, so far, proved so with ourselves.

We think that Southern farmers *must*, in self-defence, use either concentrated or home made manure upon the corn crop, as labor is so expensive with us that we cannot employ force for our farms and pay their expenses with the old fashioned average number of barrels to the acre.

We *must* put each acre of our corn land in proper condition to bring eight or ten barrels to the acre, *or we must every year become worse and worse off, by sinking money in the folly of cultivating poor land without a rational prospect of being paid for our labor.* It takes no more labor to *work* an acre of rich land than it does of poor, and while it might require more time and exertion to gather the crop from the former, we should at the same time have a very pleasant stimulant for our exertions in the shape of *profit.*

With regard to *manuring in the hill*, we must reply that *we* have never tried it in any manner; but we know farmers who have used guano in the hill for the purpose of giving their corn a lively start. A tablespoonful put in the hill, and well mixed with the dirt upon which the corn is dropped, is a plenty *for this purpose.*

We are opposed to mixing ashes with guano, because they are chemically incompatible, and the result of such mixing is to "set free" the ammonia the guano contains. *If the two could be mixed in a perfectly dry condition, and be at once put under ground*, there is no objection to using them in combination. We have seen this experiment tried *on wheat* with profitable results.

We have once tried the experiment of sowing guano and plaster broadcast upon clover, upon a limited scale. The experiment was tried during a light drizzling rain, and the clover was greatly improved by the application. We do not *know positively* how it would pay to sow guano broadcast over our meadows, but we are inclined to think that it would pay to apply it in small quantities mixed with plaster, occasionally to sod land, particularly if the latter was lightly scarified, and the top-dressing was given while the ground was moist.

We hope, any of our agricultural friends who have had experience in these

matters, will reply to Mr. J.'s queries, so that we may gain all possible information on the subject of guano, as it is a matter of great interest to farmers, and we should know the best means of using it economically.

To Our Readers.

We send copies of our present number to many persons who are not subscribers, and to others who have been in the habit of reading the Planter in by-gone years, but who are not now on our subscription list. It is needless to say that we shall be glad to have the influence and patronage of all these gentlemen, if they are inclined to give it, either on account of the good cause which we are trying to promote, a regard for their own benefit or for ours.

We believe that we shall make the Planter more useful than ever to every man engaged in tilling the soil. We are sure that Major Gilham will be able to give our readers much information of a perfectly reliable character, on all chemical and geological subjects, which it would be difficult for them to procure by investigations conducted on their own hook.

We promise for the Major and ourself, that we will conscientiously discharge the duties we have assumed, by endeavoring by all honorable means, to lay before our readers everything we can procure of value or instruction in agriculture, rural, and household economy, that we will not advise others to follow plans on their lands, which we would be afraid to carry out on our own, and we ask every man who reads these lines to aid us.

Some of our oldest subscribers are talking about discontinuing their papers on the ground that the general pecuniary distress of the country demands of them the observance of the most rigid economy. Granted, but let economy begin at the proper place. What would be thought of the economy of a miller who would not give a small sum of money to keep in proper repair the conduit of the stream which afforded to his mill nearly all its power, because from bad roads or confusion of plans on the farms of his neighbors, there was a temporary stoppage of his grist.

These cases are similar gentlemen, for the man, who in our present enlightened age, attempts to make a living by tilling the soil, and who cannot afford to take an agricultural paper, will never have enough of liberality towards his farm, to keep it from going downward every year; and he cuts off the stream of knowledge, thought and reflection, which keeps up to the standard of wisdom, his mind, which must be in a condition to work, or go to decay.

We neither advise nor expect any man to farm literally "by the book"—but reading one very subject connected with the successful practice of agriculture, *is a necessity;* and the benefits which are derived from judicious agricultural reading are sufficiently patent for everybody but a blind man to see. *"The papers"* present subjects for thoughts and reflection, as well as the practical experience of thinking and acting men: they afford a channel of communication between the farmers, and every one who has tried but one single experiment,

which he thinks would prove advantageous if carried out on the plantation of a brother farmer, owes it to his common brotherhood to make it known. If every man who reads an agricultural paper, will only act on this hint, we should soon find a rapid improvement in every one of them, and a reflex benefit would result to all our farms and farmers.

We invite all friends of agriculture to make the "Planter" the medium of publishing their agricultural thoughts and acts. Give us a report of what you are about in your cattle pens, your gardens, orchards, meadows and fields. *We shall open a column especially for enquiries*, and we promise all the aid we can give or borrow, to accommodate, or benefit every friend who will oblige us by accepting this invitation.

Salutatory.

In the December number of the Planter, its patrons are made aware of the fact, that with this number, I am to assume the responsible duties of Associate Editor. I have long been an occasional contributor to this journal, on various subjects connected with the applications of science to agriculture, and am proud to be able to say, that through this connection I have raised up for myself many friends in almost every quarter of the State. I am for the future, besides being a regular contributor, to take an active part in its editorial management; in the outset of my editorial career, I ask some of the indulgence and favor which have been extended to me as a contributor.

The institution to which I am attached, has, by the munificent bestowal of funds by a few individuals—one of whom is a Virginia farmer—been enabled to establish a school of Agriculture, wherein we hope to train young men in those arts and sciences, upon which successful agriculture so much depends; and I have been honored with a chair in this school. Henceforth my time and labors are to be given to the advancement of the cause of agriculture—to building up this school, to aiding in building up the fabric of scientific agriculture, and to spreading its principles far and wide over Virginia, and the other States of the South. The Planter is the only journal published within the borders of Virginia, devoted entirely to agriculture; I connect myself with it in the hope, that through the combined efforts of its present accomplished Editor, Dr. Williams, myself, and the numerous friends who are now, and of others whom we hope will become its contributors, we may make it pre-eminently useful to our farmers, and secure for it such a measure of favor, as to ensure its welcome entrance into the homes of many thousands of them. I may remark in this connection, that through the enlightened liberality of the Board of Visitors of the Institute, I expect to spend a large part of the present year in Europe, for the purpose of studying its agriculture, &c., and after my return to have the opportunity for mingling freely with the farmers, and for visiting various quarters of the State from time to time; the results of my observations and experience, whether at home or abroad, will of course be made public through the pages of the Planter.

It is not my object to discuss at this time, the various means by which the Planter may be improved; at the same time I cannot refrain from calling attention to one of the most important, if not the most important of them all. It is, that our farmers, instead of waiting, as far too many of them do, to see what the Editors may have culled from other sources, or have written themselves, would give their friends and fellow-farmers the results of their own experience, or of that of others, which they know must be of more or less value to the agricultural community. Or, if any would like to be informed upon any particular subject connected with their calling, let them ask for information through the pages of the Planter; if either of the Editors are able to answer the queries satisfactorily, they will take great pleasure in doing so; if not, an appeal will be made to those who can. Almost every farmer, if he is an observing man, must have found *something* in his experience that is worth recording, or that might be useful if made public; if not, he must have some questions to ask of those who have more experience than himself, he must desire some information in relation to various matters connected with his vocation. If he could meet his brother farmers at regular intervals, and had time to converse freely with them, he certainly would ask and be asked many questions; now since this is not practicable, let him make the Planter his vehicle of communication between himself and the hosts of others who follow the same noble pursuit, and let him, with the coming in of the new year, resolve that the year shall not pass without his imparting or asking information through its pages.

Let the Planter in this way become the common medium of communication between farmers, so that anything which is valuable in the practice of one, may become the common property of all, and then it will exert a revivifying influence upon agriculture, which will be felt wherever it circulates.

We are entering upon a political revolution, and a commercial crisis is upon us; that the agricultural, in common with the other great interests, must suffer more or less, there can be no doubt; let us not, however, be discouraged, let us rather labor on in the hope that our present difficulties may be followed by a season of unexampled peace and prosperity, and let us all remember, that no matter what may be the aspect of the political horizon, we have the sure promise that, "while the earth remaineth, seed-time and harvest shall not cease."

WILLIAM GILHAM.

PLANTATION BOOK.—We return our thanks to J. W. Randolph, Esq., for a copy of this book, with which we are much pleased. It is at once, an account book for the farm, and an efficient instructor to every farmer who may not have the necessary knowledge of book-keeping to be able to keep an accurate and record of his business operations. This book supplies a real want on every plantation, and we think we are serving the interest of our friends in presenting them with the table of contents, which, from the value and arrangement of the subjects treated in it, speaks for the book all that need be said in its commendation:

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CONTENTS:

PAMPHLETS RECEIVED.—*Journal of Transactions of U. S. Agricultural Society.* Benj. Perley Poore, Secretary.

Journal of Transactions of New York State Agricultural Society. Col. B. P. Johnson, Secretary.

De Bow's Review. This excellent Southern magazine has lost nothing of its interest. It is a work which has always well deserved the support of every Southern man, and we sincerely hope its editor may continue to receive the encouragement and support of all our citizens, for whose benefit he has labored so zealously and efficiently.

We transfer to our columns, from *De Bow's Review*, the following article. The present time is a suitable one for us again to impress upon our readers, the importance of encouraging, by all honorable means, our home industry, in *every department.* We do not have to advance into the arena of politics to do this, or to appeal to sectional prejudice or passion; but we urge it upon every good citizen, as a duty he owes to himself and his neighbor, to try, with all his might, to build up the commercial, agricultural, and mechanical resources of our own section of country, that in all our wants we may be independent of any supply from any other source. The man who faithfully discharges all his duties to his own family, is sure to prove a valuable, reliable, and agreeable neighbor.

Let those whose charity and patronage have been bestowed on places far from home, read and consider.

—

Southern Patronage to Southern Imports and Domestic Industry.

Our indifference to the encouragement of domestic industry, and the ease with which our people may be induced to purchase inferior articles brought from a distance to compete with the honestly-made home article, cannot too often be repeated, and we therefore trust that even *small matters* may be set forth as profitable examples. As straws indicate the direction of the wind, so may small things serve to indicate the course which trade and custom are drifting us, and the body economic, commercial, and body politic of the whole South.

What we want now, and have always wanted, is a broadcast public sentiment, which shall reach every mind and stimulate every bosom to action—not weighing the little inconveniences and slight pecuniary considerations in the balance with our permanent good. The public mind must be imbued with the importance of living more within ourselves, and anything that is calculated to move public sentiment in that direction, we trust will be excused, even if we should descend to what might be termed *small potatoes.*

Some twelve years ago, when manufacturing was the rage in South Carolina, we purchased from a neighbor a home-made well-bucket. The maker had a high reputation in that line of business, and supplied the country for many miles around, and it was the general opinion that his buckets would last from twelve

to fifteen years, and some even affirmed that they had been used for twenty years without replacing. The bucket made for us in 1847, was in use about eleven years, when it suddenly gave way. As our neighbor did not keep them ready made, a member of our family went to town and purchased a Yankee made bucket, which did not last a year. We went in person to endeavor to procure a home-made one, but looked in vain over Augusta, and through the stores of a village close by. We inquired of a prominent merchant, why he did not keep a supply of our neighbor's well-made buckets, instead of the Northern trash he offered us. His reply was, that he could make nothing on them; and, besides, they would *never wear out*. Not being able to do without water, we abandoned the rule of action we are recommending, and purchased a Northern-made bucket, highly praised by the merchant, but not guaranteed. He advised that it should be filled with water and left to soak for a day and night, lest it might fall to pieces; and he might, with great propriety, have extended the caution to keep water in it all the time, and not expose it to the sun. Feeling quite confident that the last purchase was no better than the one which had just fallen to pieces, another of domestic make was immediately ordered, to be held in reserve.

Now, here is an example which strikingly sets forth our apathy in regard to patronizing our own people and encouraging home industry. See this honest, hard-working South Carolina cooper, who, by diligent application, has earned an enviable fame in his line by the production of faithfully made and cheap articles. He is poor, and for want of patronage, not half his time employed at his trade, from the fact that it is to the interest of the trader that he should remain idle; and it is a convenience and a seeming economy to the unthrifty man to pay a dollar every year for a new, *cheap* Yankee bucket, rather than to employ this industrious mechanic to supply a good home-made article at a dollar and a half, which will last half a life-time. This certainly manifests an improvident, careless and wasteful spirit, that *patriotism* (if not our own interests) ought to prompt every individual to try and overcome. We remember the time when it was a common thing to see our merchants trading with country coopers for their cart loads of home-made ware—tubs, pails, churns, &c., manufactured of the best material—well-seasoned juniper or cedar. But now such a sight is rarely seen, the home-made article being obliged to stand out of the way and make room for the better finished, finer looking woodenware of the North.

Laudable efforts have been made at the South, in various places, particularly in Charleston, Columbia, and Augusta, to manufacture such articles by machinery; but the hot opposition from Yankeedom, and the never-ceasing desire of that people to *cheapen* goods and make fortunes by the profits, before the *cheat* is detected, together with our own indifference about being well-served, has driven those Southern manufactures out of the market, making, in most instances, a sacrifice of the entire capital so invested. And now we are over-run with Yankee buckets, tubs, etc., painted inside and out, to hide the sappy, inferior material they are made of. Northern work of this kind, polished and painted up, may be

seen in every village or country shop, and composes part of the household furniture of every mansion and cottage throughout the South. If you engage a mason to build a chimney, the first preliminary is to buy half a dozen Yankee blue-painted buckets, to carry water and mortar in, and if they hold together till the job is done, they will scarcely be worth preserving to be used on another job.

If we break a carriage tongue, instead of going to the woods and hewing out a tough piece of wood and working it into shape, to save trouble, we send to town and get one ready shaped, worked so by a labourer in the State of Maine.

If we break a buggy-shaft, we find it more convenient to apply to the same source for a pair already reduced to shape, if not finished, painted and trimmed ready for use. If you chide a man with a lack of patriotism in purchasing such articles of foreign make, he will tell you at once that if he takes his vehicle to the nearest village carriage-maker, the result will be the same, for he imports his carriage-tongues, buggy-shafts, and, indeed, *every* part is made at the North, except putting together, painting and trimming.

It is not an unusual thing for our wagon-makers to import their *hubs* already morticed; and, in some instances, the fellies and spokes. Even our timber log-carts, in many cases, are partially made at the North. Nothing is more common now, than to see at our store doors, hubs for log-cart wheels, which are often carried fifty miles into the country, after having travelled perhaps a thousand miles from the maker's hands, while it would be easier for the cart-builder to get the wood and turn them, than to go ten miles for them.

This all results from the want of *home patronage*, of which wagon and cart-makers get so little, that they cannot afford to keep the materials on hand; and when a job does come, to be done in haste, the only way for him to get seasoned hubs, fellies, and spokes (if not axles and tongues), is to post off to the nearest town, and purchase those of Yankee make.

The question now arises, how are we to cure this growing evil? It can be accomplished in no other way, than by liberal encouragement and patronage of all varieties of *domestic industry*. All can see, in a crisis like the present, that our entire dependence on others for the commonest necessaries in use, is a national evil.

If we turn from the Yankees and rely on Europe, for the supplies we ought to furnish for ourselves, can we reasonably look for a better state of things? It is well known to the mercantile world, that all nations reserve the best goods for home consumption, and send away the refuse; and we need not flatter ourselves that we shall fare better in the hands of English traders than those of other countries supplied by that nation.

The Yankees are not the only people who make good articles for home use, and manufacture trash expressly for export. Englishmen wear better broadcloth than is sent to this country. Good judges can procure the best English cloth, but that sent out here for general traffic is of the most inferior quality, highly finished, but not such as would be offered in the English market for home use.

The English also excel the Yankees in cheating, in the manufacture of cotton goods and hardware. They make good, substantial cottons for home use, but when they are to be exported there are deceptions practised, which few men here are aware of, and which some would hardly credit. Their consummate skill enables them to work up cotton without fibre. From the commonest short American cotton mixed with East India, together with card waste, they make a handsome looking article of shirting, sheeting and drills, and are not content with using poor cotton, but resort to the artifice of filling the yarn with *porcelain clay* to the amount of 20 to 30 per cent. of its weight.

The dressing of yarn for the loom in England is a business separate from the manufacture of the yarn and weaving it into cloth.

The spinner, when he sends a ton of yarn to the dresser, contracts to have it returned with the weight increased a quarter or a third of a ton. By the aid of steam and machinery made for the purpose, clay can be forced into the fibre of the thread, and so completely incorporated with it, as to remain while it is passing through the loom into cloth.

This may seem incredible to some, but it is nevertheless true. We had it from an extensive English manufacturer himself, who made no secret of it, and the process has also been witnessed by one nearly connected with us, while on a tour of inspection in England and France. The clay used is similar to that which abounds in our chalk-hills, and is finely pulverized and mixed with the sizing. Still the English are not satisfied with clay, but are now experimenting, and confidently expect to mature a plan, by which *white sand* may be reduced to a liquid, and used for sizing and weighing yarn. If they succeed, the weight may be increased fifty per cent., and stand the process of washing.

All dealers are aware of the impositions practised on us by Germany in hardware, fire-arms, watches, toys, &c., which are all the merest trash, made to sell, not to use. England has for many years been cheapening her articles of hardware, until she has come down to nearly a level with Germany in the manufacture of cheap hardware, cutlery, and fancy goods, to administer to the taste of the American people for cheap articles.

There are large towns in England engaged wholly in manufacturing goods for America and other foreign countries; while other towns employ a different class of mechanics to make for home consumption.

Sheffield, for instance, makes plated ware for home use; Birmingham makes a cheaper article for export.

If you wish to purchase a watch from a London jeweller, he will ask you fifty or sixty guineas, for what an American will expect to purchase here for a hundred or a hundred and fifty dollars. It is much the same in every other branch of business. An article made to sell in England for a dollar and a half, must be made so much inferior and cheaper, as to enable the American consumer to supply himself at a dollar, after government duties and other expenses are paid;

with an English or German manufacturer anything is good enough for the American market.

It is fortunate for us that the Northern and Eastern people have embarked in manufacturing. For although they cheat us of the South in many ways, there are various articles made by them far superior to those imported. In many articles in the hardware line, the American article has nearly driven out the European altogether. The Yankees excel in the manufacture of cross-cut, mill, and circular saws, axes, hatchets, planes and plane-irons, knob-locks and latches, brass and iron hinges, wood-screws, hammers, chisels, augers, gimlets, drawing-knives, nails and spikes, brads and tacks, shovels and spades, pitch-forks, rifles, pistols and swords, hoes of the finer kind, pitch and grubbing hoes, scythes, mathematical instruments, surveyor's compasses, theodolites, scales and weights, coffee and corn mills, andirons and fenders, shovels and tongs, cast-iron hollow ware, frying pans, besides a thousand other things in the hardware line, and a multitude of articles in the dry-goods trade, amounting to millions of dollars per annum, which we do not make, and which they supply cheaper than they can be imported.

We mention these facts in order to show that non-intercourse with the Northern States is impracticable, and will not be our true policy. But while we use every possible effort to diversify industry, and promote the growth of commerce and manufactures at the South, we should continue to buy what we cannot make of ourselves, from those who purchase from us, and from the people who will serve us with the best and cheapest article.

Every Southerner should feel the importance of putting his own shoulder to the wheel of progress in the right direction, and give us his help in creating such a change in our habits and sentiments, as will ultimately fill all our mercantile and trading channels with *Southern men*. Let our politicians and fire-caters turn their swords (if not into ploughshares) into yard-sticks and distaffs, and enter the field of domestic industry prepared to fight against our worst enemy—*Northern industry and commercial enterprise.*

Show Brother Jonathan that we have changed our tactics, and that, in future, we are to meet him in battle array—in the great field of commerce and home industry, where we intend to fight to the death against every attempt at usurpation. This, and this alone, will be the means of rendering us independent of the North, and secure us against their further crusades in the cause of emancipation. A strong demonstration in that direction would cause our Yankee brother to put on a longer face than was ever produced by the most heart-rending and fabulous stories of negro wrongs and Southern cruelty.

When the anvil and the loom begin to slacken their motion, and lose their exhilarating influence, for the want of Southern patronage, he will wake up, and probably discover that the colored gentlemen, shoe-blacks, pets, paupers, and vagabonds, collectively, are nothing less than a common nuisance, and will at last prove to be a blight on Yankee prosperity.

New York and Philadelphia will find, too, that their Ethiopian philanthropy has been wasted in the wrong direction; that their degraded, vicious, and helpless black population would be much happier and better off in the cotton fields of the South, under Christian masters, where the lines are so distinctly drawn between the two races, as to leave no heartburning aspirations, or cause of disturbance to (which we believe) the most happy state of society that can exist, where the superior and inferior races inhabit the same country.

"Truth is mighty and will prevail." This is the anchor of our hope. But while we place our reliance on the justice of the world, let us not forget that in order to secure our independence and safety, our watchword must in future be—diversified labor and *home patronage* to domestic industry.

(TO BE CONTINUED.)

Cultivate the Basket Willow.

The cultivation of willows has been a subject of much ridicule in this country for a few years past; but when it is known to what extent they are imported into this country, the immense quantity grown and used in the old countries, and the great variety of uses to which they can be applied, and especially since it has been proven that from *two to three hundred dollars per acre* can be realized from their cultivation, ridicule has given way to facts, and plantations are being started throughout the country. Some who have attempted to grow willows have failed to make it profitable, but such failures are caused by a lack of knowledge as to the proper manner of cultivating and preparing them for market.

It is but a few years since anything was known of their cultivation in this country. A few men started the business on a small scale, merely as an experiment, and when they had proved that the best French Osiers would thrive in this country, and that a very large profit could be realized from their growth, they published this information, stating the great profit of their cultivation, and the advantage of growing them in this country instead of importing. Thereupon many rushed into the business—some quite extensively—without any knowledge of the different varieties of the osier, or of their cultivation and preparation for market.

In this country, as it was once the case in England, ash and oak baskets are much in use. But the time is fast approaching when willow baskets will drive them out of the market. In England, formerly, all light goods were packed, for transportation, in light boxes, and in mats, and so were vegetables. Now baskets are in universal use, except for goods that will be injured by getting wet. Willow package baskets are in use for almost every purpose of transportation, by farmers, gardeners, wholesale dealers of all kinds, and by all classes in the community, for every possible purpose.

The cultivation of willow is not difficult nor expensive, if properly understood. The first thing necessary, is to choose a proper piece of land, which should be rich and moist, but not *wet*. Many suppose that willows require a wet place or

they will not thrive, but it is not so. If you will notice where native willows thrive best, you will find it is not in wet places, but close to the banks of some stream where the land is always *well drained*, but never suffers from drouth. Consequently, the best land for a willow plantation is rich alluvial interval, that is flowed occasionally; or a mucky swamp, naturally moist, but well drained. If the land is naturally rich, it should have a liberal dressing of manure, which should be spread on and plowed under as deep as possible, then harrow and fit it as you would a garden. There is no danger of doing it too well, as you have it to do but once, and it will affect the crop for years.

When the land is prepared, mark it off as you would for corn, or use a line to set by, and set the cuttings in rows 2½ feet apart, and about one foot apart in rows; stick them perpendicular, and leave but one or two buds above the ground. If it is green sward, use an iron spindle to make a hole for them. On mellow land, it is no more work to set an acre of willows than to plant an acre of potatoes, but it is very important that it be well done, as they are not set over every spring, and if badly started they will never produce a full crop.

They should be cultivated the first year, so as to prevent all grass and weeds from growing among them, and keep the ground loose, and the second year until they get up so as to shade the ground and not be injured by working among them.

Cuttings should be procured in the winter, and set as early in the spring as the ground can be prepared.—*Scientific Artisan.*

Liquid Glue.

The following recipe, the discovery of a French chemist, is selling about the country as a secret at various prices from one to five dollars. It is a handy and valuable composition as it does not gelatinize nor undergo putrefaction and fermentation and become offensive, and can be used cold for all necessary purposes of glue in making or mending furniture or broken vessels that are not exposed to water.

In a wide mouthed bottle dissolve eight ounces of best glue in a half pint of water, by setting it in a vessel of water and heating it till dissolved. Then add slowly constantly stirring two and a half ounces of strong aquafortis (nitric acid.)

Keep it well corked and it will be ready for use. This is the "Celebrated Prepared Glue," of which we hear so much.—*U. S. Journal.*

SALLY LUNN.—Three ounces melted butter, a half tea-cupful sugar, one beaten egg, yeast, a pint of milk alternately with the flour, making a batter too thick to pour. Put the mixture into two Turk's Heads, and keep them covered and warm until light, then bake one hour.

THE

SOUTHERN PLANTER,

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No. 1. RICHMOND, VA. JANUARY, 1861.

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Grateful for the patronage given me heretofore, I solicit a continuance of the same to the above firm; and will only add that having spent the better part of the last 16 years in making my Plow what it is, I pledge my best efforts still to improve it—having PATENT RIGHTS for the BREAST IMPROVEMENT and the HANOVER PLOW, secured November 1856 and February 1858. I will sell Rights to both in remote sections of this and other States on reasonable terms. The public are cautioned against infringements on these Patent Rights.

GEO. WATT, PATENTEE.

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RICHMOND, VA.

The subscriber keeps constantly on hand a large and Fashionable assortment of Ready-made Clothing, of his own manufacture, of the latest and most approved Styles. Also a large assortment of Gentlemen's furnishing Goods, such as Handk'fs, Cravats, Neck Ties, Shirts, Drawers, Gloves and Suspenders, Collars, Umbrellas.

In addition to which he keeps a large and general assortment of Piece Goods of every Style and Quality, which he is prepared to make to measure at the shortest notice and in the best and most fashionable style.

E. B. SPENCE.

No. 120, Corner of Main and 13th Sts.

July 59—1y

HOSPITAL FOR SLAVES.

This Hospital is situated near the corner of Main and 26th streets, and is admirably adapted in airness, privacy and healthfulness of position, to the purposes for which it has been instituted, namely: For MEDICAL, SURGICAL and OBSTETRICAL treatment of SLAVES. The rules and regulations governing this institution have already been published. A circular containing full particulars will be furnished those who may desire further information.

TERMS.—Patients per week, $5; less than a week, $1 per diem; *but the aggregate shall not exceed the charge for a full week.* Patients attending the daily examinations, (not fit subjects for HOSPITAL CONFINEMENT,) charged the regular fee adopted by the profession at large. The above charges include board, medicine, medical attendance and nursing. Surgical operations charged according to rules of other Hospitals of the city. For further information apply to the Physician resident at the Hospital, or to either of the undersigned Physicians and Proprietors.

FRS. W. HANCOCK, M. D.,
Main st., bet. 3d and 4th, or No. 130 Main st.

ST. GEO. PEACHY, M. D.,
Exchange Hotel, or Grace st., bet. 5th and 6th.

R. S. VEST, M. D.,
Franklin Street, below Ballard House.

PHILIP S. HANCOCK, M. D.,
Resident Physician.

CYRUS BROOKS,
Resident Assistants.

July 60—1y

ALBANY DRAIN TILE WORKS,

Corner Clinton Avenue and Knox Sts.,

ALBANY, N. Y.

1¼	inches Round,.....	$ 8,00	per 1000 feet.
2¼	" "	12,00	" " "
3½	" "	40,00	" " "

2½	inches Rise,.....	$10,00	per 1000 feet.
3½	" "	15,00	" " "
4½	" "	18,00	" " "
5½	" "	35,00	" " "
6½	" "	55,00	" " "
7½	" "	75,00	" " "

2	inches Rise,.....	$ 10,00	per 1000 feet.
3	" "	16,00	" " "
4	" "	30,00	" " "
5	" "	50,00	" " "
6	" "	80,00	" " "
9	" "	200,00	" " "

Orders solicited. Terms Cash.

Address C. & W. McCAMMON,

April 00—1y Albany, N. Y.

SOUTH DOWN LAMBS
FOR SALE.

I have for sale several South Down Buck Lambs. My flock is now the finest in Tide Water Virginia. The Lambs are one-half, three-fourths, seven-eighths, fifteen-sixteenths, and thorough bred, and I sell them at ten, fifteen, and twenty dollars, according to purity of blood. I shall have not more than eight or ten for sale. FRANK. G. RUFFIN.

April 60—tf

J. R. KEININGHAM,

DEALER IN

BOOKS AND STATIONERY,

211 Broad Street, between 4th and 5th,

RICHMOND, VIRGINIA.

arch, 1859.

Cephalic Pills
CURE
Sick Headache
CURE
Nervous Headache
CURE
All kinds of
Headache.

By the use of these Pills the periodic attacks of *Nervous or Sick Headache* may be prevented; and if taken at the commencement of an attack immediate relief from pain and sickness will be obtained.

They seldom fail in removing the *Nausea* and *Headache* to which females are so subject.

They act gently upon the bowels,—removing *Costiveness.*

For *Literary Men*, *Students*, Delicate Females, and all persons of *sedentary habits* they are valuable as a *Laxative*, improving the *appetite*, giving *tone* and *vigor* to the digestive organs, and restoring the natural elasticity and strength of the whole system.

The CEPHALIC PILLS are the result of long investigation and carefully conducted experiments, having been in use many years, during which time they have prevented and relieved a vast amount of pain and suffering from Headache, whether originating in the *nervous* system or from a deranged state of the *stomach.*

They are entirely vegetable in their composition, and may be taken at all times with perfect safety without making any change of diet, *and the absence of any disagreeable taste renders it easy to administer them to children.*

BEWARE OF COUNTERFEITS!

The genuine have five signatures of Henry C. Spalding on each Box.

Sold by Druggists and all other Dealers in Medicines.

A Box will be sent by mail prepaid on receipt of the

PRICE 25 CENTS.

All orders should be addressed to

HENRY C. SPALDING,

48 Cedar Street, New-York.

Dec.

RUFFIN'S

PHOSPHOR-PERUVIAN GUANO,

TOBACCO MANURE,

AGRICULTURAL SALT AND GROUND BONE ASH.

F. G. RUFFIN,

CORNER ELEVENTH AND CARY STREETS, ON THE BASIN,

RICHMOND, VA.,

Offers to the farmers the following MANURES, all of his own manufacture, viz:

RUFFIN'S PHOSPHOR-PERUVIAN GUANO,

Containing 8 per cent Ammonia, and 40 to 50 per cent Bone Phosphate Lime, per ton of 2,000 pounds, $50.

RUFFIN'S BONE ASH GUANO,

Containing 5 per cent Ammonia, and about 70 per cent Bone Phosphate Lime, per ton of 2,000 pounds, $50.

RUFFIN'S TOBACCO MANURE.

Containing 5 per cent Ammonia, 34 per cent Bone Phosphate Lime, 22 Chloride of Sodium, and 17 per cent Sulphate Lime, per ton o 2,000 pounds, $45.

RUFFIN'S GROUND BONE ASH,

Containing about 80 per cent Bone Phosphate Lime, dry and pure, per ton of 2,000 pounds, $35.

AGRICULTURAL SALT,

Loose in bags, per ton of 2,000 pounds, $11.

AGRICULTURAL SALT,

In bags, per to of 2,000 pounds, $13.

THE ABOVE MANURES are put up in strong bags, containing 167 pounds each, twelve bags of which make a fraction over a ton, and can be had of F. G. RUFFIN, at his mill, of any Commission Merchant in Richmond; of THOMAS BRANCH & SONS, Petersburg; M. HOLLINS & CO., Lynchburg; LEIGH & BROTHER, Norfolk; MASON, MARTIN & CO., Scottsville; JOHNSON, CLARKE & CO., Danville.

April 60—tf

SOMBRERO GUANO,

SOMBRERO GUANO AGENCY, 73 SMITH'S WHARF,
BALTIMORE, 8th October, 1860.

To Messrs. August & Williams:

I have just returned from Sombrero Island, and beg leave to say a few words in reference to the series of strictures upon Sombrero Guano, which have been published in your journal and in the "*Farmer*" during my five months absence. So long as honorable means are used to promote any opposing enterprise, I have not a word of complaint to utter: but when the proprietor of Navassa or other Guano, puts himself in opposition to our business upon premises which he has invented, and well knows to be utterly groundless, it becomes me to speak out and expose the fraud which is thus designed upon me and the public.

Sombrero Guano is not known for the first time to-day; for it was inaugurated in 1856, as an institution upon a solid basis. Then it was analyzed, and repeatedly since it has been analyzed by all the competent chemists in the United States, and by many abroad. In each instance, the result attested its pre-eminent richness in available phosphate. Years of practical experince in its use by planters, have further strengthened and established its claims to be "the" standard bone phosphate; and now at this day, it is well known, that those soluble or manipulated fertilizers, such as made by Fowle, Reese, and the Petersburg Company, into which it enters as material, enjoy a reputation, and exert an efficiency, which no competing compound has been able to accomplish without it. Thus it is that the real excellence, and high repute of our Guano, have provoked the jealousy of the proprietor of the Navassa, who seeks to divert attention from the intrinsic worthlessness of his own article, by decrying the Sombrero, with the hope of making a ruin of us upon which to build a success for himself. Thus it is too, that he has deemed it necessary to tip an inspiration to a collegiate chair to plead for Navassa, and against Sombrero Guano, so that by the prestige of such accidental position the words of the "*Professor*" may strike the unthinking and unsuspecting with a force of authority which is not justified by either their substance or their truth.

Now, with a profound reverence for science and its true followers, but contemptuous in my regard of those unscrupulous ones, who affect its accomplishments when they are ignorant of even its simplest rudiments, I protest indignantly against the unfairness of the publications in point.

But that the author may have the opportunity of vindicating himself before his profession and the public, if he can do so, I propose that his statements shall be submitted to a scientific tribunal of three persons, two of whom may be chosen by Mr. Cooper, the proprietor of the Navassa, leaving only one of the Chemists to be selected by our house. Premising that the whole expense of this commission shall be jointly incurred by Mr. Cooper and ourselves. I propose to prove before it in the most unqualified manner, upon a penalty of two hundred dollars, payable on default, to the Orphan Asylum of the City of Richmond.

AS TO NAVASSA GUANO,

1*st. That Navassa Guano is nearly "dirt poor" as a fertilizer.*

2*d. That apart from its poverty in Bone Phosphate it is inferior in other respects.*

3*d. That Navassa Guano is inferior to "*COPROLITES*" for any and all of the purposes of a Phosphatic material.*

4*th. That the solubility of Navassa Guano under atmospheric influences is barely appreciable compared with that of Sombrero Guano.*

5*th. That Navassa Guano will not make either a Commercial or Agricultural Super-phosphate of Lime.*

6*th. That on account of the large proportion of Iron and Alumina which it contains, the Navassa might almost be considered a raw material for the manufacture of Copperas and Alum.*

AS TO SOMBRERO GUANO,

1st. That Sembrero Guano is the most efficient and economical of the Phosphate Guanos.

2d. That it contains nearly twice the amount of actual Bone Phosphate that Navassa Guano does.

3d. That Sombrero Guano is not "*Coprolite*" nor of that species.

4th. That Sombrero Guano is a most serviceable material for Super-phosphate and Manipulating purposes.

5th. That Dr. Stewart's published statements in depreciation of Sombrero, compared with Navassa Guano, are incorrect in nearly every particular.

Believing that this is the fairest method of coming to the right of the contest imposed upon us, and in the hope that Mr. Cooper may respond manfully to this call, I ask that you will insert this paper as a communication, and oblige

Dec. '60—6mo Your obedient servant, **ANDREW C. ELLICTT.**

RARE AND BEAUTIFUL FLOWERS.

A. BORNEMAN,

Seedsman and Florist,

VERSAILLES, WOODFORD COUNTY, KENTUCKY,

Would inform his friends and patrons that his New Descriptive Catalogue of *Flower and Vegetable Seeds* for 1861, will be ready for delivery early in February, and will be mailed to all applicants inclosing a three cent stamp. Much pains has been taken in preparing it, and it will contain, in addition to the information that is usually found in such lists, many descriptive and cultural notes for the benefit of the amateur and unprofessional florist.

It will embrace all that is *new* and *most desirable* among annuals, Biennial, Perennial and Green House Seeds—alike suitable for the Flower Garden, Pleasure Grounds, Lawns, Shrubberies and the Conservatory, as well as many matchless novelties of the highest merit, which have been selected by his European correspondents from the most reliable sources. Collections of

FLOWER SEEDS BY MAIL, POSTAGE PAID.

The following collections now so favorably known in every part of the country, have been sent out from his establishment for six years past. He will continue to give especial attention to this branch to render them complete and satisfactory in every respect They will be found to embrace many novelties, and only such as are well worthy of cultivation. They are equally adapted for the requirements of those who have large, as well as others who have only small gardens. The uninitiated may therefore order them without fear of disappointment, and the experienced cultivator will find them equally acceptable. Full directions for culture will accompany each package, which will be sent, postpaid, to any address in the Union, under 3000 miles, at the following prices:

ASSORTMENT No. 1—Contains twenty choice varieties of Annuals,..... $1 00

ASSORTMENT No. 2—Contains twenty choice varieties of Biennials and Perennials,..... 1 00

ASSORTMENT No. 3—Contains ten extra fine varieties of Annuals and Perennials, embracing many of the new and choicest in cultivation,..... 1 00

ASSORTMENT No. 4—Contains five very choice varieties selected from *Prize Flowers* of English Pansies, German Carnation, and Picotee Pinks, Verbenas, Truffaut's French Asters, Double Hollyhocks,..... 1 00

Any one remitting $3 will receive the four assortments, postage free.

The following additional assortments will also be sent at the prices annexed, *free of postage.*

ASSORTMENT No. 5—Contains fifteen very select varieties of Greenhouse Seeds.... ... $3 00

ASSORTMENT No. 6—Contains one hundred varieties of Annuals, Biennials, and Perennials, including many new and choice varieties,..... 5 00

ASSORTMENT No. 7—Contains fifty varieties of Annuals, Biennials, and Perennials,..... 2 50

ASSORTMENT No. 8—Contains twenty varieties of Annuals, Biennials and Perennials, for sowing in the Autumn..... 1 00

The seeds contained in the above assortments are of his own selection. Purchasers who prefer to make their selection from the Catalogue, will be entitled to a discount proportionate to the quantity ordered. See schedule of prices annexed.

Great Inducements for the Formation of Clubs.

Being desirous of introducing his Flower Seeds as extensively as possible throughout the country, he offers the following inducements to those who wish to purchase in large quantities, or for the formation of Clubs, by which a great saving may be effected. The seeds will be forwarded *by mail, post paid,* to any address in the United States *under 3000 miles,* on receipt of the amount of the order. Those who reside beyond 3000 miles, are requested to remit two ten cent stamps, or their equivalent, in addition to the amount named, for every dollar's worth of seed ordered.

Purchasers remitting

$ 1 00	may select seeds at	Catalogue	prices	amounting to	$ 1 10
2 00	"	"	"	"	2 25
3 00	"	"	"	"	3 50
4 00	"	"	"	"	4 75
5 00	"	"	"	"	6 00
10 00	"	"	"	"	12 50
20 00	"	"	"	"	26 00
30 00	"	"	"	"	40 00

All orders must be accompanied with the cash.

Prices to dealers in larger quantities, will be given upon application.

COLLECTIONS OF BULBOUS ROOTS.

For the convenience of those who desire a fine collection, but are unacquainted with the varieties, we have put them up in collections as follows, with full directions for culture:

COLLECTION No. 1—PRICE $10—CONTAINS

20 *Double and Single Hyacinths*, (all named flowers,) and those varieties only which are best adapted for culture in glasses or pots.
20 *Double and Single Hyacinths*, for the open border.
20 *Early Double and Single Tulips*, for pot culture or the open border.
20 *Late Tulips*, for the border.
6 *Polyanthus Narcissus*, for pot culture or border.
6 *Double Roman Narcissus*, (very fragrant.)
2 *Crown Imperials*.
12 *Double Jonquins*.
100 *Crocus*, finest mixed.
2 Strong plants of the new and splendid Chinese Plant *Dielytra Spectabilis*.
4 *Peonies*, distinct and fine.

COLLECTION 2—PRICE $5—CONTAINS

One-half of each of the above varieties, with the exception of the Dielytra.

Jan 61—4t **A. BORNEMAN**, Versailles, Woodford Co., Ky.

MANIPULATED GUANO! MANIPULATED GUANO!

We offer to the Planters of Virginia a Guano prepared by us as follows:
1000 lbs. of the best Peruvian Guano that can be procured;
800 lbs. of the best Sombrero Guano, containing *full* 80 ℔ cent of the Phosphate of Lime.
200 lbs. of the best Ground Plaster, for which we pay $2 ℔ ton extra.

Planters and others are invited to examine the article. From the best information we can obtain, we believe the mixture is one of the best that can be prepared for the Virginia lands.

Price to Planters, $18 ℔ ton, or $2 ℔ ton less, where they furnish bags.

For sale by EDMOND DAVENPORT & CO.

Also for sale by Commission and Grocery Merchants in this City.

We refer to Planters who have used the Sombrero and the Manipulated Guano—among them James Galt, Esq., A. Warwick, Esq., Joseph Allen, Esq., R. H. Styll. Esq., and others.

Below we give D. K. Tuttle's (Chemist at University of Virginia) report of the same, samples from 72 bags, *and it shall be kept to that standard.*

"I am now able to give you the results of analysis. They show the Mixture to be what you stated in a former letter, and I judge that you are very fortunate in the selection of materials, especially of Peruvian Guano. The per centage of Ammonia shows the pure Peruvian to contain 12·4 per cent., which is more than the average. The Analysis is as follows:

Moisture (given off at boiling point of water,)	10.05
Phusphate of Lime,	48.26
Sulphuric Acid, 5.45 / Lime, 3.64,	9.09
Ammonia,	6.20
Insoluble Matter,	1.55
A small quantity of Alkali—undetermined, / Water in combination and *Organic Matter*,	24.85
	100.00

Hoping that your Fertilizer may meet with the success which it deserves,
I remain, very respect yours,
Jan—tf D. K. TUTTLE."

CO-PARTNERSHIP NOTICE.

I have this day admitted as a partner, Mr. JOHN N. JENNINGS. The business will in future be conducted at my old stand, No. 118 Main Street, under the firm and style of SAMUEL S. COTTRELL & CO., where we have on hand a fine assortment of Saddles, Bridles, Whips, Carriage, Cart and Wagon Harness, of every description and quality, and will continue to manufacture to order and for sale, every class of goods in our line.

There was awarded me at the United States Fair last Fall, three silver Medals for SUPERIOR SPECIMENS OF WORKMANSHIP; since which time our facilities have greatly increased, and we now flatter ourselves that we can furnish every article in our line, not to be surpassed in quality, and at as low prices as any other establishment in this country.

I beg leave to return my sincere thanks to my old friends and the public generally for the liberal patronage heretofore bestowed upon me, and respectfully solicit a continuance of the same to the new concern, pledging ourselves to use our utmost endeavors to please our friends and patrons.

Feb 1859- 1y SAMUEL S. COTTRELL.

DRAINING TILE.

"MARYLAND TILE AND FIRE-BRICK WORKS,"

SOUTH SIDE OF BASIN,

Office Corner of Pine and Lexington Sts., Baltimore, Md.

The subscribers have constantly on hand any quantity of DRAINING TILE, of the most improved patterns, which they will dispose of at low rates.

HORSE SHOE TILE.		SOLE TILE.	
1½ inch bore,	2½ inch bore,	1½ inch bore,	2½ inch bore,
3 " "	4 " "	3 " "	4 " "

July 60—tf

LINTON, RITTENHOUSE & CRAWFORD.

FARM FOR SALE

IN THE COUNTY OF ALBEMARLE, VIRGINIA.

I offer for sale the Farm on which I now reside, in the above-named County. The Farm contains **450 ACRES,** 150 of which are heavily Timbered. It lies upon the Eastern slope of the Southwest Mountains, within fourteen miles of Charlottesville, ten miles of Gordonsville, three miles of Cobham Depot, on the Virginia Central Railroad, and adjoining the lands of the Hon. William C. Rives, Rev. E. Boyden, Dr. T. W. Meriwether and others.

The improvements consist of a GOOD DWELLING, CARRIAGE HOUSE, STABLE, TOBACCO BARN, &c.

For Society and Healthfulness of situation, it is unsurpassed.

STOCK AND IMPLEMENTS WILL BE SOLD AT THE SAME TIME.

TERMS LIBERAL.

Persons desirous of looking at the Farm, are requested to call and do so.

Address GEO. C. DICKINSON,

Nov 60—3t Cobham Depot, Albemarle County, Va.

RHODES' SUPER-PHOSPHATE.

The Standard Manure.

FOR TOBACCO, COTTON, CORN AND WHEAT CULTURE, ROOT CROPS, &c.

Manufactured under the supervision of Eminent Manufacturing Chemists, and warranted "*pure and free from all adulteration.*"

B. M. RHODES & CO.,

Office 82 South Street, Bowly's Wharf, Baltimore, Md.

AGENTS IN VIRGINIA.

Richmond—SCHAER, KOHLER & CO,
Petersburg—VENABLE & MORTON.
" THOS. BRANCH & SONS.
Lynchburg—M. HOLLINS & CO.
Norfolk—B. T. BOCKOVER.
Alexandria—WM. H. MAY.
Fredericksburg—HUGH SCOTT.
Farmville—HOWELL E. WARREN.
Blacks & Whites—JEFFERSON & WILLIAMSON.
Clarksville—JAMES E. HASKINS.
Jan. 60—tf

IMPORTANT TO FARMERS!

VANDEMARK'S SELF-FASTENING, OR HOOK AND EYE

PORTABLE FENCE.

(SEE CUT IN READING COLUMNS.)

The observing farmer will readily perceive the numerous advantages of a PORTABLE FENCE which can be easily put up, taken down and removed from place to place, as convenience may require, at so little cost of time and labor.

The cost of this fence is only about *one-half* that of ordinary board fence with posts, and is more durable, there being *no posts* to rot off.

Not more than one-half the fence being required when portable, as the fence between growing crops can be removed to where it is wanted; thereby saving one-half by this mode of fencing, and prevent the growth of briers and bushes along your fence.

From the fact that the panels constructed upon the plan of this patent will make either a Worm, Straight, Square or Circular Fence, it possesses a double advantage over every other invention of the kind. To make 4 feet worm in 10 feet panels, the end battens should be 5½ inches apart on inch lumber. The Fence is not only the cheapest that can be made, where boards are used, but it has other great and good advantages.

1st. It can be made in bad weather or in the winter, when farm hands are commonly idle.

2nd. The fence being all above ground, will last without repair twice as long as a post and board fence.

3rd. The fence being portable, can be changed and moved without injury, and in a short time.

4th. It is all made of inch boards, and so simple in its construction that any farmer can make it, and all the tools necessary is a hand saw and hammer, avoiding the necessity of a carpenter, as in most cases necessary.

5th. The panels all being so that the same panel will make either a straight or zigzag fence, a square or circular enclosure, gives it material advantages over all other fences. When straight, it is supported by a triangular brace put in between the end battens or uprights, as shown in the cut, and made of the same material as the fence. The panels of this patent are so constructed that they will conform to the surface of uneven ground.

It is estimated that a log 12 feet long and 24 inches diameter, will make only 24 good sized rails, which will make only about two rods of fence, seven rails high without stakes; the same log sawed into 1 by 4 fence boards will make 300 feet—the same put in this kind of fence will make over eight rods of fence—so that if a farmer should give one-half his lumber for sawing, the balance would make more than double the fence the rough crooked rails would, and make use of timber that cannot be split into rails; and a man can certainly put up, take down, or remove 8 or 10 rods of the board fence, while he can one rod of the clumsy rail.

When the materials are furnished, this Fence can be built cheaper than an ordinary post and board fence. In building 20 rods of this Fence where lumber is worth $12 per M., and posts cost 13 cents each, we can save the builder $8, $10 on the 100, $100 on the 1000 rods of fence.

County or Farm Rights will be sold on the most liberal terms, in Augusta, Rockbridge, New Kent, Chesterfield, Powhatan, Hanover, King William, Buckingham, Amelia, Prince Edward, Prince George, Nottoway, Charlotte, Caroline, and Goochland counties, in the State of Virginia.

TERMS:

For a farm of 50 acres or under, $2.50; 100 acres, $5; and $2 for every additional 50 acres up to 300, and over 300 acres, the price to be arranged by the parties.

Correspondents are particularly requested to give the name of their Post Office and County in full. Address

JAMES A. AUGUST, Agent, Richmond, Va.

Dec.

SMALL FARMS NEAR THIS CITY FOR SALE.

One, containing eighty acres. IMPROVEMENTS GOOD AND NEW. Dwelling House has five rooms and eight closets. Two Wells of excellent water in the yard. Distance from the centre of the city three miles. Stables and out-houses as usual.

Two Tracts of unimproved land, each containing 100 acres, in less than five miles of this city.

The most accommodating terms given to purchasers. Enquire at the office of THE SOUTHERN PLANTER, or of Messrs. GODDIN & APPERSON.

THORLEY'S FOOD FOR CATTLE.

A Saving of $1 50 cts. per Week in the Keep of a Horse,

Together with a bright eye, sleek coat and an improved condition, through the use of fourteen feeds, of THORLEY'S FOOD FOR CATTLE, costing only Forty-two cents.

An Extra Six Quarts of Rich Milk Daily,

(Superior to New York Cream,) through using Six Cents worth of THORLEY'S CONDIMENT.

A Saving of 20 per Cent.

In the mortality of Sheep and Calves, through the use of Three Cents worth of THORLEY'S COMPOUND to each animal.

A Hog Fattened in Half the usual Time,

And the Bacon upwards of five cents per pound superior in quality through the use of Three Cents worth of THORLEY'S FOOD FOR CATTLE.

Barrels containing 448 Feeds with measure,..... $14
Half Barrels containing 224 Feeds with measure,..... 7

Manufactory, Caledonian Road, London. Depot for United States, 21 Broadway, N. Y.

Agents for the City of Richmond, BLAIR & HARVIE,
Commission Merchants, Corner of Cary and 12th streets

☞ Agents wanted in every city and town in the United States, and liberal terms awarded.
Sept. 60--tf

1853. **GEORGE STARRETT** **1860.**

Has in store his Fall Stock, comprising 284 varieties and sizes of STOVES, RANGES and FURNACES, many of them new and desirable articles, of his own make. He is also prepared to supply Northern Stoves at Wholesale or Retail, having contracted early in the season for two entire cargoes of the very best made in this country, at lower prices than the same goods can now be obtained. Also, Pumps and Pipe of all kinds, Plumbing, Gas Fitting and Tin work done in the best manner and cheap. Extra castings always on hand.

GEORGE STARRETT, Belvin's Row,
Governor Street, Richmond, Va.

Oct 60—6mo

RICHMOND FERTILIZER MANUFACTURING MILLS!

ROCKETTS, RICHMOND, VA.

S. HARTMAN, GENERAL AGENT,

OFFERS FOR SALE

EXTRA FINE BONE DUST,

HARTMAN'S AMMONIATED SUPER PHOSPHATE OF LIME,

HARTMAN'S IMPROVED MANIPULATED GUANO,

Adapted to WHEAT, CORN, OATS, TOBACCO, COTTON, and all Vegetables and Grasses.

☞ **THESE MANURES ARE WARRANTED GENUINE.** ☜

The BONE DUST is made of Bones in their Natural State, with all their organic matter.

SUPER PHOSPHATE OF LIME is manufactured from Crushed Bones, which also have all their organic matter.

IMPROVED MANIPULATED GUANO is composed of one half Best Phosphatic Guano, decomposed by Sulphuric Acid, the balance of the Best Peruvian.

To be had at the MILLS, or of Messrs. WOMBLE & CLAIBORNE, BLAIR & CHAMBERLAYNE, ALEX. GARRETT, Richmond; D. GRIGG, Esq., Petersburg, and Messrs. GUY & WADDELL, Staunton. April 60—tf

GUANO!

We would call the attention of Guano Dealers, Planters, and Farmers, to the article which we have on hand and for sale at

40 PER CENT LESS THAN PERUVIAN GUANO,

which we claim to be superior to any Guano or Fertilizer ever imported or manufactured in this country.

THIS GUANO IS IMPORTED BY

WM. H. WEBB, OF NEW YORK,

FROM

BAKER'S AND JARVIS' ISLANDS, IN THE SOUTH PACIFIC OCEAN.

Sold genuine and pure as imported by the Cargo, or at retail, by

JOHN B. SARDY, General Agent,
No. 58 South Street, Corner of Wall Street, New York.

It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent and popular Agricultural Chemists, and found to contain (as will be seen by our circular) a large per centage of

BONE PHOSPHATE OF LIME AND PHOSPHORIC ACID,

and other animal organic matter, yielding ammonia sufficient to produce immediate abundant crops, besides substantially enriching the soil. It can be freely used without danger of burning the seed or plant, by coming in contact with it, as is the case with some other Fertilizers; retaining a great degree of moisture, it causes the plant to grow in a healthy condition, and as experience has proved, **FREE OF INSECTS.**

For orders in any quantity, (which will be promptly attended to,) or pamphlets containing full particulars of analyses and tests of Farmers, apply as above.

Oct 60—1y

FOWLE & CO.'S

SOLUBLE PHOSPHATED

PERUVIAN GUANO.

MADE OF GUANOS OF

DIRECT IMPORTATION,

Under the personal supervision and direction of Dr. R. H. STABLER, Chemist, of this City.

THIS FERTILIZER we confidently recommend, as the most permanent and cheapest yet offered to the public. Being composed of

NO. 1 PERUVIAN AND SOMBRERO GUANOS

OF OUR OWN

DIRECT IMPORTATION,

FROM THE

CHINCHA AND SOMBRERO ISLANDS,

WE WARRANT IT IN EVERY RESPECT.

THE SOMBRERO GUANO

Before being mixed, is rendered *immediately soluble*, by the addition of Sulphuric Acid. This treatment is universally recommended by the most eminent Agricultural Chemists. Without it, the action of the two Guanos, when mixed, is not simultaneous, and consequently comparatively inefficient.

This is the ONLY mixture of the Ammoniated and Phosphatic GUANOS we know of, yet offered to the Agricultural Community, in a REALLY SOLUBLE form.

Price, $50 per Ton of 2.000 lbs.

Our reports from those who applied the above FERTILIZER to their crops last fall, are *highly satisfactory*—so much so, indeed, as to convince us that our *Soluble Phosphated Peruvian Guano* will ere long be altogether used in this section, as a substitute for the Peruvian Guano, which, *without the addition of Phosphates*, tends rather to exhaust than permanently improve the soil.

FOWLE & CO.,

ALEXANDRIA, VA

May 60—tf.

VALUABLE LOUISA LAND FOR SALE.

Wishing to dispose of my Real Estate, in order to divide the proceeds among my children, I offer for sale, privately, my Farm,

SUNNING HILL.

This most desirable tract of Land lies in the heart of the valuable tobacco Lands of Louisa, on both sides of the south branch of the North Anna river, adjoining the lands of H. P. Poindexter, Gabriel Jones, Joseph M. Baker and others, eight miles from Louisa Court-House and Tolersville, on the Virginia Central Railroad, and equally convenient to both.

This Farm contains 1,040 acres, of which 200 are wood land, more than three-fourths of which are heavily timbered with oak, pine and hickory of original growth. The arable land is fertile and in a high state of improvement—well adapted to the growth of wheat, corn and tobacco. There is a comfortable DWELLING, with eight rooms, a good barn, tobacco houses, and all necessary out buildings. The locality is healthy and the neighborhood pleasant. Presuming that any one wishing to purchase will visit the Farm and see for themselves, I deem it unnecessary to speak farther. The Farm is capable of being divided into three tracts, if desired. Being very desirous of selling, terms will be made to accommodate purchasers.

My manager, Mr. GROOM, will take pleasure in showing the premises to any one who wishes to purchases. JULIA A. HOLLADAY.

For further information, apply to Dr. W. C. N. Randolph, Charlottesville, Va,; or, H. T. Holliday, Rapid Ann Station, Orange and Alexandria Railroad, who is authorized to sell. Feb 60—tf

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THE GREAT SOUTHERN
Hat and Cap Manufactory and Depot.
JOHN DOOLEY,

No. 81, *Main Street, Richmond Va.*

MANUFACTURER of HATS and CAPS on the largest scale, and in every possible variety, and Importer of North American and European FURS, HATS, CAPS, PLUSHES, TRIMMINGS, and all other articles belonging to the Trade, is always supplied with a splendid stock of Goods, for Wholesale and Retail, which in quality and quantity cannot be excelled by any other house in the South. His manufacturing arrangements are of the completest kind, and his facilities for supplying country merchants a the shortest notice cannot be surpassed.

July 1858—1y

BARKSDALE & BROS.,
COMMISSION MERCHANTS,

Corner of 13th and Cary Sts., Up Stairs,

CLAIBORNE BARKSDALE,
C. R. BARKSDALE,
CHAS. H. BARKSDALE,
} RICHMOND, VA.

Feb 60—1y

ALEXANDER GARRETT,

Cary Street, second door below 13th street, Adjoining the Old Columbian Hotel,

RICHMOND, VA.,

GENERAL COMMISSION MERCHANT,

AND DEALER IN

GROCERIES,

PERUVIAN, ELIDE ISLAND, AND RUFFIN'S PHOSPHO GUANO, PLASTER, &C.

Particular attention paid to the sale of all kinds of country produce:

Wheat, Corn, Flour, Tobacco, Oats, &c.

I have made arrangements with Mr. JNO. M. SHEPPARD, Jr, one of the best judges and salesmen of TOBACCO in this city, to attend to the sale of all tobacco consigned to me. July 59—1y

---

PURE BRED STOCK
FOR SALE.

Pure Bred Durham Cattle, from $50 to $200.
Spanish Merino Sheep, and French Merino Sheep, at $10 to $30
Madagascar Rabbits at $10 per pair.
Improved White Pigs, at $8 each.
Brood Mares, served by "Bush Messenger," Morgan, Messenger and Basham, at $125 to $300.
Stallions from colts to well broke and trained animals, from $75 to $600.

All animals sold will be carefully boxed or haltered, and placed at the Express office.

My residence is 4½ miles east of Brownsville, Fayette County, Pa.

POST OFFICE BOX No. 6.

JOHN S. GOE.

Feb 60—1y

WM. P. LADD,

No. 319, head Broad Street, Shockoe Hill,

RICHMOND, VA.

Wholesale and Retail Detail Dealer in English, French and American

DRUGS, MEDICINES, CHEMICALS,

Paints, Oils, Varnishes and Dye-Stuffs; Window Glass Putty, Glue and Sand Paper; Paint, Camel's Hair and Whitewash Brushes; Cloth Hair, Flesh, Nail and Tooth Brushes.

Fine and Choice Perfumery, Fancy Goods,

PURE LIQUORS AND WINES,

For Medicinal and Sacramental Purposes.

Surgical Instruments, Trusses, Shoulder Braces, Supporters, &c.

Landreth's Celebrated Garden Seeds,

In great variety. Also,

DRS. JAYNES' AND ROSE'S

FAMILY MEDICINES,

MEXICAN MUSTANG LINIMENT.

Together with all the most popular PATENT AND BOTANICAL MEDICINES, direct from the Proprietors.

Orders from Country Merchants and Physicians thankfully received and promptly attended to.

☞ All articles from this Establishment are warranted pure, fresh and genuine. dec 58—1y

VIRGINIA FERTILIZERS,

MANUFACTURED BY

S. McGRUDER'S SONS,

RICHMOND, VIRGINIA.

PHOSPHO-PERUVIAN GUANO, warranted to contain 8 per cent. of Ammonia and 50 per cent. of Bone Phosphate of Lime. This, we consider, the very best Fertilizer that can be used for Wheat. The ingredients are the dryest and best Peruvian Guano, Bone Ash, and the richest and most soluble Phosphatic Guano that can be obtained. Price per ton of 2,000 lbs. $50 00

BONE ASH GUANO, containing 5 per cent. of Ammonia and 70 per cent. of Bone Phosphate of Lime. Price per ton of 2,000 lbs. . . . $50 00

GROUND BONE ASH, containing 75 per cent. of Bone Phosphate of Lime, and ground to a very fine powder. Price per ton of 2,000 lbs. . . . $35 00

A. A. WHITE MEXICAN GUANO, which we grind to a fine powder, containing 75 per cent. of Phosphate of Lime. Price per ton of 2,000 lbs. . . $30 00

Having been for many years largely engaged in the Guano Trade, and had opportunities of testing fully the value of all kinds of Guano that have been imported into the country, enables us to select the very best varieties for our preparations—and from repeated experiments that have been made with all the ingredients we use, both separately and in combination, we are satisfied that the Farmers will find our Fertilizers much cheaper than the Peruvian Guano, when used alone.

The Peruvian and Phosphatic Guanos used are selected with great care, and always subjected to rigid analysis. They are very dry, and ground to a fine powder, and thoroughly and intimately mixed.

We will take pleasure in showing Farmers through our establishment, as there is no secret as to the ingredients used, or process of manufacturing.

ALL ORDERS will be promptly filled, when sent directly to us, or to our Agents.

S. McGRUDER'S SONS, Corner 13th and Cary Sts., Richmond, Va.

AGENTS.

C. M. RAGLAND, *Scottsville;*
CHEEK & FICKLIN, *Danville;*
FAYETTE STEPTOE, *Lynchburg;*
HILL & WARREN, *Fredericksburg;*
R. M. KENT, *Louisa C. H.;*
C. W. GRANBY & SONS, *Norfolk.*

CERTIFICATES.

OAK HILL, NEAR RICHMOND, August 13, 1860.

I take pleasure in recommending S. McGRUDER'S SONS' PHOSPHO-PERUVIAN GUANO to our farming community. They are gentlemen of high standing and strict integrity,—live in our midst, and conduct their manufacturing in the city of Richmond. They have been extensively engaged in the Guano trade for a longer period than any other house that I know of in the city, and their facilities for the selection of ingredients for their fertilizers are unsurpassed. Their manufacturing establishment is very large and complete, and at all times open for the inspection of farmers. I have myself used their Phospho-Peruvian Guano under circumstances to test its excellence, and the result is entirely satisfactory.

LEO. ROSSER.
Editor Richmond Christian Advocate.

I have used S. McGRUDER'S SONS' PHOSPHO-PERUVIAN GUANO. I have never used anything like it, and will use no other in future, if I can get that—much preferring it to Peruvian, and would like for any one to see my tobacco, it being very fine.

JOSEPH LOVELACE,
August 10, 1860. Danville, Va.

This will certify that I bought of Cheek & Ficklin S. McGruder's Sons' Phospho-Peruvian Guano last Spring, and am highly pleased with it. I now want more, and will not use the Peruvian, much preferring their Manipulated.

JOS. R. DICKINSON.

August 10, 1860. Breckinridge, Henry Co., Va

This will certify that we have used the Peruvian Guano and S. McGruder's Sons' Phospho-Peruvian Guano, side by side, and we cannot see one particle of difference in the appearance, growth and strength of the tobacco up to this time.

S. B. BLACKWELL.
RICH'D MITCHELL.

August 1, 1860. Independence P. O., Caswell Co., N. C.

I have used both on Tobacco this Spring, side by side, and can see no difference in the appearance.

JNO. A. FERGUSON,

August 10, 1860. Danville P. O., Pittsylvania Co., Va.

I have used both the Peruvian and McGruders's Sons' Phospho-Peruvian Guano on my Tobacco and do not see any difference in the prospect.

ROBERT FERGUSON,

August 3, 1860. Danville, Va.

We might add numberless other certificates, but deem it unnecessary. One great advantage claimed for our Fertilizer is, that it will not only produce crops equal and even superior to Peruvian Guano, but steadily improves the soil. We have great confidence in its excelling the Peruvian Guano on the wheat crop, the same quantity of each being applied, side by side, with equal chances, which is a considerable saving to the farmer, as the Phospho-Peruvian costs $50 per ton, while the Peruvian costs $58.

S. McGRUDER'S SONS.

Sep 60—tf

PAINTS. PAINTS. PAINTS.

PURCELL, LADD & CO.,

DRUGGISTS,

No. 122 Main Street, corner 13th, **RICHMOND, VIRGINIA,**

Offer at low prices, a large and well assorted stock of articles in their line—embracing

PAINTS, COLORS, VARNISHES, OILS, &C.

LEWIS' WHITE LEAD,
NEW J. WHITE ZINC, Horsehead brand,
CHROME GREEN,
VERDIGRIS.
TERRA DI SIENNA,
LINSEED OIL,
MACHINE OIL.
PARIS GREEN,
CHROME YELLOW,
TURKEY UMBRE,
LAMP OILS,
SPTS. TURPENTINE.

All Colors for Painters, Coach Makers, and others, Dry and in Oil, Paint Brushes, Sand Paper, and a very large stock of best

WINDOW GLASS,

Comprising nearly every size made. We are also prepared to take orders for Imported

Polished Plate, Sky Light and Ornamental Glass.

☞ Particular attention to packing and forwarding all goods—and the quality warranted.

PURCELL, LADD & CO, *Druggists,*

June 1858. 122 Main Street, Richmond.

WM. L. HILL, N. M. NORFLEET.

HILL & NORFLEET,

GENERAL COMMISSION AND FORWARDING

MERCHANTS,

OFFICE---SHOCKOE SLIP,

RICHMOND, VIRGINIA.

AGENTS FOR

FOWLE & CO.'S

SOLUBLE PHOSPHATED PERUVIAN GUANO.

Oct 60—1y

NOTES ON THE CANE-BRAKE LANDS,

OR THE

CRETACEOUS REGION OF ALABAMA.

BY EDMUND RUFFIN, OF VIRGINIA.

A corrected pamphlet edition of the above. (first published in the Southern Planter,) has been printed, and may be procured at the following rates:

A single copy will be sent by mail PREPAID, on the receipt of four postage stamps of three cents each. or 100 copies will be sent by Express. PREPAID. on the receipt of six dollars.

Address AUGUST & WILLIAMS, Publishers, Richmond, Va.

Oct 60

CITY SAVINGS BANK OF RICHMOND.

Chartered in 1839.

Capital, - - - $100,000.

HORACE L. KENT, PRESIDENT.

N. AUGUST, *Cashier.*

W. GODDIN, *Secretary.*

This *old, well known,* and *prompt-paying* Institution continues to receive deposites, on which interest is paid (semi-annually if desired.) at the rate of 6 per cent. per annum on sums remaining on deposite six months or longer. and at the rate of 5 per cent. for shorter periods.

OFFICE. No. 148, *Main Street.* Jan 61—tf

SEPTEMBER 1st, 1860.

I have a large number of Farms for Sale in different parts of Virginia. With some of these Farms the negroes, stock, &c., will be sold. Those wishing to purchase in any portion of Virginia will be furnished descriptive letters, by enclosing me a stamp. When negroes are sold one per cent will be charged the purchaser. I. I. HITE, Land Agent.

I solicit business in any capacity an agent may be wanted. I refer to Messrs. Williams & August, Richmond, Va. Other references given if desired. I. I. H.

LOVINGSTON, NELSON COUNTY, VA. Oct 60—tf

INDEX TO ADVERTISEMENTS.

SOMBRERO GUANO.

OCTOBER, 1860.

Attempts having been made, recently, to depreciate the enviable character of SOMBRERO GUANO as a fertilizer, by partisan and untruthful publications, the Proprietors beg leave to submit to the Agricultural community, the annexed portion of a letter from the most authentic chemical source in the United States, setting forth the REAL facts of the case upon the only reliable basis, that of an analytical examination of the several Phosphatic Guanos in Commerce. The data obtained by Dr. Morfit are incontrovertible, and not only attest the superiority of SOMBRERO GUANO, as the richest and most efficient Phosphatic Manure, but are suggestive also of the futility of any attempt to bring the Navassa or other similar Guano into successful competition with it. Orders received by ROSS W. WOOD & SON, New York,

Or, ANDREW C. ELLIOTT & CO., Baltimore.

EDMOND, DAVENPORT & CO., AGENTS, Richmond, Va.

CHEMICAL LABORATORY, No. 19 East 12th Street,
NEW YORK, 21st March, 1860.

Messrs. Patten & Miller, and
E. C. Wade & Co, Savannah, Georgia:

Gentlemen—In reply to your joint letter of 9th February, requesting my professional opinion upon certain points of Agricultural interest, and which more immediately concern you as honorable dealers in Fertilizers, I have given the subject its due consideration, and now submit my report.

1. Your first question, as to the rank which belongs, properly, to SOMBRERO GUANO, compared with the Phosphatic Guanos from Navaza, Jarvis and Baker's Islands, will be best answered by the annexed table, which shows their relative composition. Baker's Island Guano is omitted, however, from the comparison, for the just reason, that no cargo has been imported, it being known here, at this time, only by sample.

CONSTITUENTS.	Sombrero.	Navaza.	Jarvis Island.
Water	3.52	2.20	8.17
Sand and Silica,	.68	5 60	.16
Organic matter, insoluble,	....	1.48	.81
Organic matter, soluble,	5 36	10.20	5.77
Fluorid Calcium,	....	Traces.	Traces.
Sulphate Lime,	.86	2 49	44.81
Lime, (with Organic Acids,)	6.97	12 47	...
Carbonate Lime	5.34	2.00	.. .
Bone Phosphate Lime	64.67	37.72	13.33
Common Phosphate Lime,	....	....	25.94
Phosphates Magnesia,	2.39	2.70	.84
Phosphate Alumina,	3.62	10.56	....
Phosphate Iron,	1.95	2.20	....
Chlorid Sodium,	....	Traces.	.19
Chlorid Potassium,	.09	....	....
Silicate Potassa and Lime	.76	....	....
Oxide Iron,	1.10	3.50	Traces.
Alumina,	3.13	7.04	.63
Total,	100.44	100.06	100.65

COMMERCIAL AND AGRICULTURAL EXPRESSION.

Actual Bone Phosphate,	67.96	40.44	44.73
Or,			
Calculated Bone Phosphate,	73 78	50.76	44.73

All the analyses were conducted with the rigid care of a scientific investigation. The samples employed were also of assured integrity. *The Navaza was obtained directly from the State Inspector of Maryland, as an average of six ca goes imported in 1859; consequently, the eighty and odd per cent of Bone Phosphate claimed for it in circulars and advertisements are a fabulous estimate, or else were deduced from extraordinary samples.* Jarvis Island Guano is represented by an average of the "Henry Brigham's" cargo, which is the best of the kind that has come under my observation. The Sombrero sample was also a fair average of several cargoes, and from a reliable source.

In the Commercial and Agricultural expression for the several Guanos, as above noted, I have distinguished the Phosphoric Acid, which exists in combination with Lime and Magnesia, as ACTUAL Bone Phosphate, while I give the title of CALCULATED Bone Phosphate to the actual phosphate, conjointly with that portion of Phosphoric Acid present in the Guanos as Phosphate of Alumina and Phosphate of Iron, because the equivalent of the latter in Bone Phosphate Lime is determined by calculation. The Alumina and Iron Phosphates, it may be proper to add, though of value in the fertilization of soils, are, in degree, inferior, for that purpose, to actual Bone Phosphate Lime. With this explanation, it will be evident, then, from the Table, that *precedence belongs to Sombrero Guano*, not only because of its *very much greater richness in Phosphoric Acid*, but also for the reason that nearly the whole of that constituent occurs in the Guano as ACTUAL Bone Phosphate of Lime. Moreover, Sombrero Guano is characterized by much uniformity of dryness and composition, as well as *by a very limited amount of matters which would be valueless to crops.*

2. The presence of oxide of Iron is detrimental to a fertilizer, when the proportion may be excessive and in indissoluble combination. But these conditions do not pertain to *Sombrero Guano;* for it holds only a small quantity of iron, and will yield with sufficient readiness to the solvent power of atmospheric agencies in the soil. I base my judgment upon a large, Laboratory experience with this Guano.

And I may remark, further, that the idea of its being deficient in capacity for making Superphosphate, as pronounced by others, is founded in ignorance of the true nature of the Guano. Indeed, with the proper knowledge, a Super-phosphate of the highest fertilizing efficiency can be made from it at a reasonable economy of cost. * * * * * *

Respectfully yours,

Oct 60—3t CAMPBELL MORFIT.

SOMBRERO GUANO.

OCTOBER, 1860.

The proprietors of Sombrero Island fully confident that this locality is the richest known source of Phosphatic Guano, have established a Laboratory on the spot, and appointed a resident chemist, with strict instructions to select all cargoes by preliminary assays prior to their shipment from the Island, so that all Guano exported from the Island shall be of the standard of 70 to 80 per cent bone phosphate of lime. Cargoes of late importation have been, and those to arrive hereafter will be of that standard, and in order to give the consumers of Sombrero Guano the best advantages of the deposit a higher grade will be fixed as soon as arrangements can be completed for developing its still richer portions. It is the determination of the proprietors not only to maintain the present superior character of their Guano, but to increase its value by sending it ere long into market with a per centage of Bone Phosphate of Lime, even greater than that by which it now excels every other phosphatic material.

The following analysis by Drs. Piggot and Pitt represent several cargoes of late importation:

1860.

June 22nd,	cargo	Champion,	by Dr. Piggot,	70.00	Bone Posphate of Lime.		
June 28th,	do	do	by Dr. Pitt,	72.67	do	do	do
June 25th,	do	Golden Rod,	by Dr. Piggot,	73.02	do	do	do
June 28th,	do	do	by Dr. Pitt	70.20	do	do	do
July 25th,	do	St. Mary,	by Dr. Piggot,	74.62	do	do	do
June 28th,	do	do	by Dr. Pitt,	70.96	do	do	do
July 25th,	do	D. H. Baldwin,	by Dr. Piggot,	71.61	do	do	do
Aug. 22nd,	do	Sequine,	by Dr. Pitt,	74.64	do	do	do
Aug. 22nd,	do	do	by Dr. Piggot,	79.06	do	do	do
Aug. 22nd,	do	Ianthe,	by Dr. Pitt,	74.88	do	do	do
Aug. 22nd,	do	do	by Dr. Piggot,	78.72	do	do	do

Orders received by **ROSS W. WOOD & SON, 90 Front Street, New York.**

Or, **ANDREW C. ELLIOTT & CO., 73 Smith's Wharf, Baltimore.**

EDMOND, DAVENPORT & CO., AGENTS, Richmond, Va.

Oct 60—tf

THE GARDENER'S MONTHLY,

AND HORTICULTURAL ADVERTISER,

A MONTHLY PERIODICAL, devoted to the Dissemination of Practical and reliable Information on the Culture of FRUITS, FLOWERS, CULINARY VEGETABLES, and ORNAMENTAL TREES and SHRUBS: On the Management of HOT and GREENHOUSES, VINERIES, ORCHARD and FORCING HOUSES, and on the Culture of EXOTIC FRUITS and FLOWERS; and LANDSCAPE-GARDENING, RURAL ARCHITECTURE, and RUSTIC ADORNMENTS; And to furnishing the Latest Discoveries, Improvements, and Inventions of a Horticultural character in the kindred Arts and Sciences, such as BOTANY, ENTOMOLOGY, CHEMISTRY, MECHANICS, &c. And, also, to afford an Effective and Economical ADVERTISING MEDIUM to Nurserymen, Florists, &c.

EDITED BY THOMAS MEEHAN,

Formerly Head Gardener to Caleb Cope, Esq., at Springbrook, and at the Bartram Botanic Garden, near Philadelphia: Graduate of the Royal Botanic Garden, Kew, London, England: Member of the Academy of Natural Sciences; Author of "The American Hank-book of Ornamental Trees, &c." Assisted by an able Corps of AMERICAN and FOREIGN CORRESPONDENTS.

It is published on the first of every month, at the office,

NO. 23 NORTH SIXTH STREET, PHILADELPHIA,

where all *Business* communications should be addressed.

TERMS OF SUBSCRIPTION:

One copy for one year, payable in advance,	$1 00
Two copies, " " " "	1 75
Five " " " " "	4 00
Ten " " " " "	7 00
Fifteen " " " " "	10 00
Twenty " " " " "	12 00

☞ The THIRD VOLUME commences on the first of January, 1861.
Sample copies furnished gratis on application. Dec 60—tf

IMPORTANT TO STOCK GROWERS!

THE THIRD VOLUME OF THE

AMERICAN STOCK JOURNAL

COMMENCES JANUARY 1st, 1861.

It is devoted exclusively to matters relating to the care and management of our domestic animals, and is by far the largest, cheapest, and most widely circulated paper of the kind in the world. No stock grower can AFFORD to be without it.

☞ Thirty-two large octavo pages. Handsomely Illustrated. Published Monthly, at 25 Park Row, New York, at $1,00 per year in advance. *Specimen copies gratis.*

D. C. LINSLEY, Editor and Proprietor.
OTIS F. R. WAITE, Associate Editor.

Newspapers giving the above advertisement two insertions, and sending a marked copy to A. G. HATCH, WINDSOR, VT., will receive a copy of the paper one year free.

Dec. A. G. HATCH, General Agent.

SHOCKOE MILL RICHMOND GROUND PLASIER.

The Subscriber is prepared with a full stock of Windsor (Nova Scotia) Lump Plaster, to supply fresh Ground Plaster to any extent. He begs leave at the present time specially to invite the attention of the Farmers to the article as a CHEAP, PERMANENT and VALUABLE IMPROVER, prepared AT HOME, from selections of fine, rich lump, quality guaranteed, and furnished at less cost than in any other market, for similar quality.

Jan 61—3t JOHN H. CLAIBORNE, Office No. 11, Pearl Street.

American Stock Journal.

The Third Volume Commences January 1st, 1861.

Devoted especially to matters relating to domestic animals. The largest and cheapest paper of the kind, in the world. Published Monthly, at No. 25 Park Row, New York. Price, $1,00 per year in advance. Specimen copies gratis.

D. C. LINSLEY, Editor and Proprietor.
OTIS F. R. WAITE, Associate Editor.

Papers giving the above advertisement three insertions, and sending a marked copy to A. G. HATCH. WINDSOR, VT., will receive a copy of the paper one year free.

Dec. A. G. HATCH, General Agent.

AUGUST & WILLIAMS'

Agricultural Registry and Agency Office,

At the office of the Southern Planter, No. 148 Main Street, RICHMOND, VIRGINIA.
The subscribers are engaged in the business of

BUYING AND SELLING LANDS

and executing orders for all kinds of

AGRICULTURAL MACHINERY AND IMPLEMENTS, SEEDS,

IMPROVED STOCK, of every variety, &c.,

to the selection and shipment of which we will give our personal attention.

We have now on hand for sale, a large number of Farms in various sections of the State. (see our list to be found in another part of this paper). to suit persons of the most limited or enlarged means, and will cheerfully furnish information respecting any of them upon application.

We are also Agents for the sale of

"Phelps' Patent Combination Bee-Hive,"

one of which can be seen in operation at our office.

It is our design to make our office a kind of "Farmers' Head-Quarters," and cordially invite them to call and see us when in the city. They will find constantly on our table a number of the best agricultural periodicals in the country, always open for their inspection and information, and we will receive and remit subscriptions for the same, *free of charge.*

JULY 1, 1858. **AUGUST & WILLIAMS.**

PIEDMONT FEMALE ACADEMY.

A few vacancies will occur in this School on the 1st of February. TERMS for five months: Board and Tuition in English, $35; Latin, 10; Greek $10; German, $10; French, $5; Music on Piano, $17.50; Melodeon, $7.50; Guitar, $7 50; Harp, $17.50. For further particulars see Catalogue. Address the subscriber at "Stony Point, Albemarle, Va.

Jan 61—2t JAS. W. GOSS.

MR. LEFEBVRE'S SCHOOL.

Grace Street, Between 1st and Foushee, Richmond, Va.

THE next session of our School begins on the first day of October, 1860, and terminates on the last day of June, 1861.

In consideration of the almost unprecedented success that has attended our efforts, we cannot refrain from expressing our thankfulness to our many friends and patrons, and think we may be pardoned for briefly referring to some of the many advantages afforded, on which the permanent prosperity of all such institutions must ultimately depend.

The buildings are large and commodious, planned for the wants and requirements of a large Female Institution—and affording almost unequalled advantages for the comfort and convenience of our pupils. Only two young ladies will occupy the same chamber, except when three may prefer to room together.

The Principal has made female education the study and business of his life, and has now been engaged in successful teaching for upwards of twenty years; his assistants are well qualified and experienced, selected with especial reference to the branches under their charge, and sufficiently tried in this Institution to be referred to with entire confidence.

Our system of education is thorough and complete, and while the best facilities are afforded for perfection in the accomplishments of female education, the greatest care is devoted to insure the acquirements of sound, practical learning; the reason and judgment are exercised in preference to memory, and the latter, while not wholely ignored, is made subsidiary to and dependent on the former.

Our daily system consists essentially in close, searching examinations, careful explanations, and familiar lectures. The plan pursued for many years in instruction in the French department has proved eminently successful. It is the language of the family, and much time and attention is given—indeed every facility afforded—to enable those pupils boarding with us to acquire an accurate knowledge of, and to speak with ease and fluency, the French of common conversation. In this respect, we think our school possesses advantages which can only be equalled by few Institutions of the kind in the country.

Music, Vocal and Instrumental, Drawing and Painting, both from models and from *nature*, are under the charge of Professors eminently qualified in their various branches. Most of these instructors are employed to teach exclusively in our school, that by devoting their time and attention entirely to our pupils, every advantage may be afforded for the acquisition of these accomplishments.

Such rules and regulations are enforced as are calculated to promote the welfare and interest of all the pupils.

TEACHERS.

HUBERT P. LEFEBVRE, A. M., *Principal*,
Natural Philosophy, Literature, Moral and Mental Philosophy, French.
WILLIAM G. WILLIAMS, A. B., *Vice Principal*, Astronomy, Mathematics, Chemistry, History, Latin.
EDWARD C. HOWARD, English Literature, History, Reading.
MRS. GRACE BENNETT, English Branches. MISS MARY C. GORDON, English Branches.
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The REV. GEO. WOODBRIDGE and the REV. FRANK BAKER have kindly taken charge of the Bible Classes.

TERMS FOR THE SCHOLASTIC YEAR.

Beginning the first day of October, and ending the first day of July.

For Board,	$200 00	For two lessons (of an hour) a week,	80 00
For Washing,	20 00	For three lessons (of an hour) a week,	120 00
For Lights,	10 00	For four lessons (of an hour) a week,	160 00
For Fuel,	10 00	For Sacred Music in class,	8 00
For English Tuition.	40 00	For Harp.	Teacher's fees.
For Modern Languages, each,	20 00	For the use of Piano,	10 00
For French, when studied exclusively of the English branches,	40 00	For Drawing, from Models,	20 00
For Latin,	20 00	For Drawing, from Nature,	40 00
For Literature,	20 00	For Painting in Water Colors,	40 00
For Music on Piano, Guitar, Organ or Singing		For Oil Painting,	50 00
For one lesson (of an hour) a week,	40 00	Primary Department, for children under 11 years of age,	30 00

REFERENCES.

THE PATRONS OF THE SCHOOL.—Right Reverend Bishop Meade, Va.; Right Reverend Bishop Elliott, Ga.; Right Reverend Bishop Johns, Va.; Right Reverend Bishop Cobbs, Ala.; Reverend A. Empie, D. D., Wilmington, N. C.; Rev. D. S. Doggett, D. D., Richmond; Rev. Charles Read, Richmond; Rev. Nelson Head Danville, Va.; Rev. G. Gildersleeve, Richmond, Va.; Rev. T. V. Moore, D. D., Richmond, Va.; Rev. Wm. H. Wheelwright, Richmond, Va.; Rev. John Saunders, Richmond, Va.; The Clergy of the Episcopal Church in Virginia.

Sept 60.—tf All letters to be addressed to HUBERT P. LEFEBVRE, *Richmond, Va.*

THE

SOUTHERN PLANTER,

DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

VOL. XXI. [FEBRUARY.] NO. 2.

EDITED BY

DR. J. E. WILLIAMS AND PROF. WILLIAM GILHAM.

AUGUST & WILLIAMS, PROPRIETORS.

RICHMOND, VA.
MACFARLANE & FERGUSSON, PRINTERS.
1861.

MR. LEFEBVRE'S SCHOOL.

Grace Street, Between 1st and Foushee, Richmond, Va.

THE next session of our School begins on the first day of October, 1860, and terminates on the last day of June, 1861.

In consideration of the almost unprecedented success that has attended our efforts, we cannot refrain from expressing our thankfulness to our many friends and patrons, and think we may be pardoned for briefly referring to some of the many advantages afforded, on which the permanent prosperity of all such institutions must ultimately depend.

The buildings are large and commodious, planned for the wants and requirements of a large Female Institution—and affording almost unequalled advantages for the comfort and convenience of our pupils. Only two young ladies will occupy the same chamber, except when three may prefer to room together.

The Principal has made female education the study and business of his life, and has now been engaged in successful teaching for upwards of twenty years; his assistants are well qualified and experienced, selected with especial reference to the branches under their charge, and sufficiently tried in this Institution to be referred to with entire confidence.

Our system of education is thorough and complete, and while the best facilities are afforded for perfection in the accomplishments of female education, the greatest care is devoted to insure the acquirements of sound, practical learning; the reason and judgment are exercised in preference to memory, and the latter, while not wholely ignored, is made subsidiary to and dependent on the former.

Our daily system consists essentially in close, searching examinations, careful explanations, and familiar lectures. The plan pursued for many years in instruction in the French department has proved eminently successful. It is the language of the family, and much time and attention is given—indeed every facility afforded—to enable those pupils boarding with us to acquire an accurate knowledge of, and to speak with ease and fluency, the French of common conversation. In this respect, we think our school possesses advantages which can only be equalled by few Institutions of the kind in the country.

Music, Vocal and Instrumental, Drawing and Painting, both from models and from *nature*, are under the charge of Professors eminently qualified in their various branches. Most of these instructors are employed to teach exclusively in our school, that by devoting their time and attention entirely to our pupils, every advantage may be afforded for the acquisition of these accomplishments.

Such rules and regulations are enforced as are calculated to promote the welfare and interest of all the pupils.

TEACHERS.

HUBERT P. LEFEBVRE, A. M., *Principal*,
Natural Philosophy, Literature, Moral and Mental Philosophy, French.
WILLIAM G. WILLIAMS, A. B., *Vice Principal*, Astronomy, Mathematics, Chemistry, History, Latin.
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SOUTHERN PLANTER,

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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.

J. E. WILLIAMS, M. D., Prof. WILLIAM GILHAM. } Editors. { AUGUST & WILLIAMS, Proprietors.

Vol. XXI. RICHMOND, VA., FEBRUARY, 1861. No. 2.

From the British Farmer's Magazine.

The Forces used in Agriculture.

A paper by Mr. J. C. Morton, *read at the Society of Arts, Wednesday, December* 7, 1859. J. Bennett Lawes, Esq., *in the Chair.*

[concluded.]

It is plain, on a very short acquaintance with the subject, that every system which has been, and I will say can be, devised, is liable to abuse. And this, moreover is also true—that each is liable just in proportion to its excellence in the hands of a well-disposed man. The direct payment of a stipulated sum of money for stipulated services to be rendered is, of any plan of wages, the least liable to abuse; but it is, at the same time, that which furnishes the least scope of any for the establishment of friendly relations between masters and men.

Then, on the other hand, that system which gives food and fuel and accommodation is the best of all, when administered with kindness; for the extras are worth to the labourer much more than the sum at which they would be valued to him in money payment; but there can be no doubt that it is more liable to abuse than the simple money payment. The abuse of the money payment, it is plain, does not affect the relation of labourer and employer at all; it lies in the scope afforded by it for the utter ignoring of the man in any other than this relation. The abuse in the case of payments of food, &c., does affect the due reward of labour; for, notwithstanding the agreement on this score, the quality of all these articles cannot be defined so exactly as their quantity. The payment, too, of all this household stuff as wages is a thing which affects householders only, and the young men who are leaving us are those whom we want to keep.

To do so, then, as Mr. Mein, a large employer of agricultural labour tells us, we must just offer wages which will keep them. That is the simple truth.

It is not, however, the whole truth of the matter. It must be admitted that the relation of master and servant is, by force of circumstances, mixed up in agriculture with much besides a mere bargain for the sale of services, with much that is personal; that there is much more scope for the development of kindly personal feeling between the two than there is in the case of any other class, excepting household servants. Of course this personal feeling may show itself in much that is of great money value besides mere wages, and in much that is of higher value than money is capable of measuring. A young man will, notwithstanding lower wages, keep his place for the sake of advantages of greater value to him than the increased sum he might otherwise receive. He may see that his master takes an interest in him personally, showing it in helping forward his education, and by seeking ultimately a better position for him than he can offer for himself, and this is soon observed and thought of. But there is a reverse side to this picture, and just in proportion to the closeness of contact which the terms of service enforce between the two *may be* their recoil asunder as soon as they are once more free.

If there be a plan which would strengthen the bond between the two more than any other, one would imagine it to be the very common one in England of lodging the younger labourers in the farm-house, and giving them partial board as well as cash. But what is the ordinary experience on this point? In the parish in which I reside, Old Michaelmas Day sees a complete sweep of the young men and lads who have lived during the past year in the house of their master. The evening schools, each winter, present a new array of faces—and the masters are, for a while at least, and necessarily, as much strangers to their lads and many of their men as if they had paid their wages through a clerk, and had as little opportunity of personal acquaintance as a manufacturer with his hundreds of mechanics.

It is plain that it is not in the *system*, but in the administration of it, that merit and demerit lie, and that, while sufficient wages (that is, just as much as labourers can get) are given, a personal interest in the labourer, as a neighbor, is what will bind him to his master.

If I had, in a single sentence, to describe the relation of master and servant in the agricultural world, it would be to assert that nowhere is it better and nowhere is it worse. The two are thrown close together, and character is on both sides known, and therein lies the explanation; the two are never—as is unavoidably the case when one man pays 500—they are never indifferent to one another; they love, honour, and respect one another, or they distrust and hate; and while, in the former case, there is a noble scope for exerting a useful influence for their well-being over those who are employed—the latter, in the very closeness which is the condition of agricultural service, has scope enough for bringing forth its fruit.

The combination of sufficient wages, with a greater opportunity for personal good-will than any other trade affords, is what may, and often does, honourably distinguish agricultural labourers and employers amongst the multitude of English occupations.

One further word and I have done. The whole value of the expression to which this good-will leads, arises out of its origin in a personal feeling—it cannot be disputed without altogether losing its character. Anything like the transference of my personal duty and pleasure in such a thing to a public society does, in my opinion, spoil the whole affair.

There are societies, as we all know, long established in England for distinguishing the worthy among agricultural labourers by public testimony to their worth. If that worth had shown itself in public-spirited conduct, nothing could be more appropriate than a public acknowledgment of it. When it is, however, only personal and domestic worth (far more worthy, let us all admit it, than the other), nothing can be more grotesquely out of place.

These societies have, however, been established and are supported by a real, if unwise, philanthropy; and I would not say one word in discouragement of their object, however unwise may be their plan. Benevolent men have truly seen that the relationship of master and servant is but a part of the truth affecting them; and carrying the superiority of the employer over his servant into another field where no superiority exists, they have read the commandment as if it were addressed to the former only, and as if it said of the latter: "Thou shalt be a father unto him." The system of rewards for good conduct, for long servitude, and for morality, is founded on a mistaken idea of this kind. It is a mistaken idea—let me repeat it. Along with the paternal relationship, with its powers and responsibilities, wherever it really exists, there has been implanted the natural love of the father as the safe-guard of the child, and the docility and helplessness of the child as its counterpart. Neither of these conditions apply to the relationship of master and servant. The commandment has been miss-read. It is really addressed to both alike, and it prescribes a perfectly mutual and equal duty in words addressed to each—"Thou shalt love thy neighbour as thyself."

This is the law which supplements the bare relationship of master and servant, and makes the operation of it perfect. But I will not pursue the subject further, only adding as at once the natural corollary of this proposition, and as bringing us back more directly to the subject of this paper, that the more we encourage genuine individual manliness in our labourers, with its efforts after real self-improvement, in intelligence and skill, and its higher sense of individual responsibility, the more likely are we to attach the young men to us, and to obtain labour of the kind of which steam-power is rapidly proving the necessity. This is not to be done, either by taking all the difficulties of his position out of his way, or by offering rewards to him proper only to the qualities and condition of a child.

As affecting the reception of these few words of criticism, allow me to say one

word of myself: They must not be deceived as if they came entirely from an outsider. I have for many years directed and paid the labour, on certainly a small farm, costing, however, about £700 a year in wages paid to the agricultural labourer. I claim to know the style and character of the man by many years' experience; for I have a larger number of personal friendships in his class than in any other class of her Majesty's subjects. I mention all this merely as effecting the weight which might attach to what I have said on this—the last of the forces used in agriculture to which I have to allude. I have more than exhausted the time permitted me, and it only remains for me to indicate the probable results, so far as our subject is concerned, of that progress which we all see in English agriculture.

That the services of the labourer will more and more require the combination of skill with mere force, and that a large number of well-qualified men is being and will be needed, seems plain. That horse-power will be displaced by steam at least two-fifths, I believe; and, as there are now at least 800,000 horses used upon our farms, there is scope enough, for many years to come, for all our agricultural mechanics.

The grand result will, no doubt, be a continual increase of produce and fertility, and that which the Registrar-General puts as fulfilled prophecy into the mouth of the Englishmen of a century ago, may, with equal probability of truth, be uttered now:—

"Our fertile soil sustains 21,000,000 of people in its whole length from the Isle of Wight to the Shetland Islands. We cannot—for the mighty power is not given us—say, let there be on the European shores of the Atlantic Ocean three Great Britains. But the means exist for creating, in less than a hundred years, two more nations, each in number equal to the existing population; and of distributing them over its fields, in cottages, farms, and towns, by the banks of its rivers, and around its immemorial hills: and they will thus be neither separated by longer roads nor wider seas, but continue neighbours, fellow-workers, and countrymen on the old territory; wielding by machines the forces of Nature, that shall serve them with the strength of thousands of horses, on roads and fields and seas—in mines, and manufactories, and ships. Subsistence shall be as abundant as it is now, and luxuries, which are now confined to the few, shall be enjoyed by multitudes, for the wealth of the country—its stock and its produce—shall increase in a faster ratio than the people."

The CHAIRMAN said it was now his duty to invite the meeting to discuss the very able paper they had heard read. It appeared to him that there was very little question that steam-power theoretically was a much more economical power than horse labour, and horse labour, again, more economical than manual labour. But the great problem to be solved in agriculture was, what were the proper proportions in which these three forces should be made use of? There could be little doubt that it would be found eventually that the proportions between those forces found to be most economical, would differ in proportion to the size of the farms, and also the quality of the land. The question whether steam-power would be found most economical upon heavy lands and small farms, or upon

light lands and large farms, was one which opened a large topic for discussion, and upon which he was sure many gentlemen present would be anxious to express their opinions.

Professor JOHN WILSON would rather give a different version to the case. He thought they must look upon the man, upon the horse, and upon the steam-engine, not as sources of power, but as the media through which power could be communicated. The real power existed in the material upon which those three forces were fed, and in this respect he thought he could show them that the whole question was one of pounds, shillings, and pence. They knew very well that a steam-engine could not work unless they gave it coals, and a certain amount of water; a horse could not work well unless it was well fed; and a man could not work unless he was properly nourished, because the force existed in the food which these three engines or machines, as they might be called, consumed. They had heard from Mr. Morton of the manner in which these three machines were fed. They knew it was to the interest of those who employed a steam-engine to have an efficient one, and a low-priced engine was a dangerous tool to play with. They knew how proud a man felt of a handsome team of horses, and how well they were fed and attended to. But did they pay that attention to the agricultural labourer? Was it not the fact that he did not receive the same amount of attention as the other two forces of power mentioned? If, therefore, the man was to be placed in competition with the machine, he ought to receive the same amount of attention as the machine did; otherwise he was placed at a disadvantage, and he thought it should be the policy of the employer to remunerate the labourer in such a manner as would enable him to get the largest amount of work out of him. He spoke, of course, of physical force—not mental. The mental force required another mode of treatment. The steam-engine could work without horses, but it could not work without the application, not only of a small amount of hand labour, but also of skill. They must, therefore, look upon these three applications of power as the media through which the power was communicated; the real generator of power was the substance supplied; and that was the subject of pounds, shillings, and pence—the real question for farmers to consider, for in that their principal interest was involved. He had heard, with some surprise, the statement as to the condition of the agricultural labourers in Wiltshire. With regard to the north it was the fact that a very numerous body of that class of labourers, though not exactly on strike, were almost in that state, having had several meetings amongst themselves to discuss these matters. He hoped the good sense of the employers of labour there would come to the rescue, and lead them to give proper consideration to some strong points which had been brought before them, though he was no advocate for strikes. In all cases where they set men to hard work—such as that on railways, it had been found that a badly fed man could not exert the power which a well fed man did; and he thought no one could reasonably expect that a labourer at 8s. a week was capable

of doing a full amount of work, so as to be fairly placed in comparison with either a well fed horse or a properly supplied steam-engine.

Mr. SMITH (of Woolston) stated the mode in which he had arrived at some of the returns furnished by him to the author of the paper, so as to explain any apparent discrepancies between his own and the other returns. He bore testimony to the great value of Mr. Morton's paper. According to the estimates given by Mr. Morton, in which he entirely concurred, the saving of steam-power over manual and horse labour amounted to nearly 50 per cent.; and upon the total number of horses at present employed in agriculture, there would be a saving of 300,000, or equal £9,000,000 a year, one-half of which would be real gain to the country. If the other half went into the pockets of the labourers in the shape of increased pay, it would be a matter of gratification to him; for he believed the increased production of the soil under steam cultivation would still enable the farmers to secure their profits.

Mr. S. SIDNEY thought that the time had scarcely arrived for working out the Chairman's suggestion, and ascertaining the comparative amounts of hand-labour, horse-labour, and steam-labour that could most profitably be employed on a farm of given quality and acreage. Steam cultivation had, within the last two or three years, been brought to the stage of an economical success; but until Mr. Fowler, Mr. Smith, and others, had fully supplied all the customers who were clamourous for steam cultivators, until it was as easy to obtain a steam cultivator as a set of barn machinery, the calculation suggested by Mr. Lawes could not be made over a sufficiently wide area to give it any practical value. The high importance of Mr. Morton's paper lay in the fact that he had availed himself of his peculiar advantages, as editor of an established agricultural newspaper, to collect precise facts, showing the present state of British agriculture, and specially in reference to the employment of manual-power, horse-power, and steam-power. Thirty years ago the ratepayers of the kingdom were labouring under perpetual fear lest unemployed unskilled labour should devour in poor rates the whole substance of the land, and under the influence of this terror various expedients were proposed, by men eminent for rank, talent, and literary ability, to increase the amount of manual labour. The horse was to be dismissed, as working too much and too cheaply, and we were to retrograde to the spade. This was one of the theories of Robert Southey—cottage farms and spade cultivation —and it was supposed that there was a sort of magical influence in the spade, which would, in some mysterious manner, multiply without measure the fertility of the soil. A great name in political economy, Mr. John Stuart Mill, who, however, had failed totally whenever he approached practical questions of trade, colonization, and agriculture, had suggested pauper colonies in Ireland, where a number of five-acre farms were to be cultivated with borrowed capital, spades, and hoes. These terrors and these fallacies had past away. Mr. Morton had shown, by facts and figures, what every one one familiar with the agricultural

condition of the country knew by common report. Instead of being deluged with labour there was a positive drought. Wages were rising, and farmers were consulting and contriving how to attract and retain the class who, thirty years ago, were treated by the poor law and its administrators as if they were some noxious vermin, whose increase was to be obstructed by every possible means. Mr. Morton had shown by figures, which were rather under than over the mark, that while the system of mechanical and intensive cultivation increased the demand for manual labour in those departments where machinery could not be employed had increased also; that wherever a horse could do a man's work, it was more rapid, more effectual, and consequently cheaper; and that wherever steam-power could be applied, it was even cheaper compared with horse-labour than horse-labour was when compared with that of man. It must be observed that economy in agricultural operations meant more produce. The exertions of agricultural engineers had destroyed the fallacy of the spade (most valuable in its place) as a means of raising the sustenance of the nation. He (Mr. Sidney) had made a few calculations, for the purpose of giving some idea of how much was gained by the improvements which had brought mechanical ability of a high order, and the science of the chemist, to assist in the cultivation of English farms of average size and fertility. Mr. Smith's farm at Woolston, in Buckinghamshire, consisted of 110 acres of arable and 70 acres of grass, of good quality. The labour appeared to be performed by seven men and four boys, equal to nine men, the number usually taken to represent in England 45 souls. These men lived, he undertook to say, better than the peasant cultivators of France and Germany. Were this farm divided into six-acre farms, it would probably support double the number of peasant proprietors; it would keep no sheep, a goat or two, no ox-beef, but an occasional supply of the flesh of a worn-out milch cow. There would be, as surplus, a little wheat, rye, and perhaps, flax. The arable would be fallow every third year. But with hand-power, horse and steam-power, he (Mr. Sidney) would undertake to say that the Woolston farm, being never in naked fallow, produced 6 quarters to the acre, but say 5 quarters on 27 acres, or 135 quarters of wheat, 135 quarters of barley, and with clover and other green crops, roots and beans, at least seven thousand pounds of mutton from 100 sheep, two thousand pounds of pork, from say 10 pigs, and an increase on cattle, purchased or reared, of five thousand pounds of beef; in all, fourteen thousand pounds of meat, besides feeding the family of the farmer himself. These calculations, very much under the mark, would show, not only that full-sized farms were necessary to support agricultural progress, but that it was on large farms, as distinguished from five-acre farms, that the nation must be fed. Mr. Morton's paper had conclusively shown that this progress had been obtained with positive benefits to the labouring classes, who had not been sacrificed, as was once feared, to machinery. He (Mr. Sidney) thought that the distressed classes now were the farmers, hard driven for labour, with high wages and low prices. He believed their only safety and resource lay in adopting steam cultivation, and tempting

labourers to stay and increase by improved cottage accommodation. The wages question settled itself, and was beyond the power of laws.

Mr. EDWIN CHADWICK, C. B., had rather expected that the discussion would have turned upon the points which the Chairman had suggested, namely, upon the comparative value of mechanical forces; but he was glad to find that it had been directed to the social and economical effects either already obtained or promised by the introduction of machinery into agriculture. It was most important to discuss the effects of machinery upon the great mass who had to use it—the labourers. In the statistics given by Mr. Morton of the rise of wages, he (Mr. Chadwick) submitted that one large and important fact was omitted. Mr. Morton had stated the progress of wages in different counties, but he had not mentioned another progress, viz., the progress of the efficiency of the labourer; because, according to his own inquiries, the efficiency of the labourer had borne its relation to the improved forces introduced. The farmer in Dorsetshire only paid 8s., and the farmer in Lancashire and some of the northern districts paid 16s. a-week, and the latter got his work done cheaper at the higher wages than it could be done at the lower. Moreover, there was yet room for further improvement by the advance of wages to the operative class. Some time ago there was a notion of getting up a Land Improvement Company, the object of which was to improve particular districts, and to put the land into better condition, by employing a better class of labourers. Those who were engaged in that project were good judges of labour, and they proposed, as the cheapest plan, to employ, not the agricultural labourer, of the district, where the law of settlement and low wages prevail, but navvies whose wages were 3s. per day. Truly efficient labour, he submitted, could only be obtained by the advance of wages. The increased development of labour which the improved circumstances of the country would produce, would effect this object. The extensive emigration that annually took place, and the demand for labour in manufactures would raise wages; and he expected and hoped that it would bring this country into the condition of the American labour market, and give an immense stimulus to the introduction of machinery. With respect to what had already been done, he would take the opportunity of congratulating his friend, Mr. Wren Hoskyns, that in the introduction of steam for ploughing, which he had so long laboured for, the corner in the shape of profit over manual labour had been turned. He might mention, by way of contrast, looking to the state of things abroad, that in many parts of the south of France the constant price of ploughing by oxen was at the present time five francs a day for the men and the oxen to do the work, whilst the amount of work done was a quarter of an acre per day. That was paying at the rate of 20 francs per acre, but it was a mere scratching of the surface of the soil some three or four inches deep, whereas steam-ploughing did the work much better at about one-third or one-fourth that price; in other words, the light land which the farmer in France paid 20 francs an acre for ploughing in that way, could be done by the steam-ploughs now in use at 6s. per acre, and instead of being ploughed

three or four inches deep, it would be ploughed seven inches deep. The economical, as well as the social part of the question was, he thought, well resolved by a labouring man on one occasion when he (Mr. Chadwick) went to see Mr. Smith's plough at work on the farm of the Prince Consort. Upon his asking the man how those steam-ploughs answered, the reply was that they answered exceedingly well, as he (the labourer) got half-a-crown a day wages. He (Mr. Chadwick) was extremely desirous to see the use of steam culture extended, because he was sure wherever the steam implement went two shillings or half-a-crown wages per day would go with it. But in contemplating the extended introduction of machinery, one important point must be considered, viz., the state of education of the class of agricultural labourers upon whom the management of these new steam implements would devolve. In the larger use of that same power in the manufacturing districts, it was the frequent remark of Mr. Fairbairn upon coroners' inquests, when accidents occurred by the bursting of steam boilers, that for the proper management of the steam-engine a higher degree of education was required than had yet been applied to the labouring classes. If that were so in places where they were paying 20s. or 25s. a-week wages for the management of an engine, what must be the case in the agricultural districts, where the wages are so much lower? It was only by the exercise of intelligence and watchfulness that they could reach the highest order of economy. That had been peculiarly displayed in the case of the Cornish engine, in the use of which men were put upon piece-work, which was not the case in the north. There had been great improvements in the steam-engine in Manchester, but in Cornwall they did as much work with 2½lbs. of coal as was done in Manchester with 10lbs. It was found that farmers were frequently dissatisfied because their engines did not realize all the promises of the manufacturers of them. The answer to that was, that the fault was not with the engine, but with themselves, in not employing more intelligent men to superintend it, and in order to do that they must pay better wages. But unfortunately, in the present state of education in the agricultural districts, if higher wages were offered, the men were not to be found to do the work with the greatest amount of economy; and in order to attain this end, their education must be improved. It was true that prodigious advances in that direction had been made. On going into one of the district schools that day, where a steam-engine was used to prepare the food, he found that boys were placed under the men for the purpose of being educated in working those engines. He thought this was largely an educational question. Besides the employment of machinery, which was so valuable, he thought the small farmers should not attempt a too great use of steam-power, and that there were many useful lessons to be learnt from America, where labour was dear, and also from the continent, where coal was scarce. He would conclude by expressing his high opinion of the remarkably able paper which had been read.

Mr. Wren Hoskyns said, if he had wanted evidence what the general advancement of agriculture in this country had been able to effect, it could not be

more satisfactorily furnished than had been done in the eloquent and philosophical paper they had heard that evening. He was struck with the tone of the paper; because, although the subject was a physical one, yet it went also into the metaphysical portion of the question, and all those who read it, whether connected with agriculture or not, could not but consider it as a most useful production, showing that agriculture had made other strides than in matters connected merely with mechanical improvement. With regard to the remarks of the Chairman as to the desirability of establishing something like a specific relation between the forces now employed in agriculture, he (Mr. Hoskyns) had come to the same conclusion as Mr. Sidney, viz., that they had not yet sufficient data for the discussion of that question, because he could not submit to the idea that they had as yet attained to the development of the steam-engine in the cultivation of the soil, which they were destined to witness. Far be it from him to derogate from such splendid specimens of well-applied labour and employment of capital with a courage and determination not surpassed in any department where human ingenuity had been applied, as had already been afforded by the use of the steam-engine in agriculture; but, for specific reasons connected with agriculture itself, he could not believe that the point at which they had now arrived afforded a true test of comparison between the steam-engine and horse and manual labour.. One reason why the problem was more difficult, was that the varieties of soil were so much greater than many people were aware of. The difference between the cultivation of light soil and stiff waxy clay was as great as possible, and any conclusion at present arrived at could only be of a very general character. For when they said a steam-engine would plough a shilling per acre cheaper by the ordinary method, it could only apply to some general average of the soil. But when they saw what horse labour could do upon light soils, where they could cultivate every day in the year, because the labour was less severe, and compared that with soil which did not allow of access to it, except for a month in spring and a couple of months in autumn, the comparison between horse labour and the steam-engine was most difficult. It had been stated by Mr. Mechi that a horse required sixteen hours of rest for eight hours of work. That was understating the case, because a horse required eight months of idleness for four months of work, on a soil which would not admit of the tread of his foot except when sufficiently dry for profitable cultivation to take place. He could not conclude without a word upon the condition of the agricultural labourer, as spoken of by Prof. Wilson. There was, no doubt, much truth in what the Professor had said. A fair estimation of what the labourer was able to do was not possible, because his powers were not entirely brought out—either in a physical or moral point of view. If they had more skilled and intelligent labour, they would have better results from the elements composing it, and especially from that best element of all—the will. He did not know a better foundation for this than a juster distribution of the labourer over the soil, and increased facilities for restoring the due proportion of cottages for the residence of the labourers

near their work. Owing to the imperfect laws which had reduced the means of living near their work, it was a fact that labourers did half a soldier's day's work in going to and from the farm. He hoped that residences would be provided for the labourers, in a way that would make them a better investment of capital than than they were at present. For some reason or other, which it was difficult to fathom, cottage accommodation could not be provided so as to make it profitable. One of the best inducements to provide this accommodation would be the power of doing so without loss to the landlord.

Mr. James Howard (of Bedford) said he subscribed fully to the opinion that the general employment of steam-power in agriculture would tend to increase the employment of labourers. Within his own knowledge, it had in some degree extended the growth of root crops. He could refer to a case in which 35 acres of roots were grown upon land which had never before been so cropped; and if they grew larger root crops, they increased the crops of corn, and increased also the employment of labour. Looking at the increase of population in this country since the extension of steam-power in our manufactories, he was surprised to find that it took upwards of 200 years previously to the introduction of the steam-engine to gain an increase in the population of 2,000,000; whilst since its introduction the population had increased 12,000,000. He thought there were no more effectual means of raising the intelligence of the farm labourer than a more general introduction of steam-power. A farmer who paid a man merely to swing a flail could not afford to pay for intelligence—it was nothing more than the exercise of brute force; but to a man who paid £500 for a steam-engine, a shilling per day additional would be a trifle in the wages of the men employed to direct that machinery.

Mr. Alderman Mechi said he felt it nothing less than a duty to pay his tribute of thankfulness and admiration to Mr. Morton for his able paper. He entirely agreed with the tenor of it. He was quite sure that in his calculations of the economy of horse-power over human labour, and of steam over horse-labour, Mr Morton had not over-stated the case. He (Mr. Mechi) had employed a steam-engine on his farm for the last ten or eleven years, though it was regarded by his neighbours as an act of folly to use a steam-engine upon a farm of 170 acres. His experience during that period had convinced him that the employment of steam-power had not diminished the demand for labour, but had rather increased it, whilst it produced a most beneficial effect upon the profits of the farmer and the intelligence of the labourer. They were all creatures of prejudice; but he had yet to learn that agricultural prejudices were stronger than those of other people, and he hoped that the showing of Mr. Morton that £50 out of £100 could be saved by the substitution of steam-power for horse-labour would tend very largely to remove all prejudice upon that point. With regard to the scarcity of labour, no doubt the cause had been correctly stated by Mr. Chadwick. When they looked at the vast increase that annually took place in the exports and imports of this country, they must see that the mere keeping the accounts, and the

handling of the goods about, must absorb an enormous amount of labour. Looking at his own immediate locality, he found that men had been abstracted from agriculture to be employed in the manufacture of implements for foreign exports. He also found that the knowledge that better wages could be obtained in our colonial possessions induced many to emigrate, who had derived considerable advantage from emigration. Still he thought a good master had not much trouble in getting good labourers. He had employed the same men for many years, and they had become intelligent by the improvements carried out upon the farm. Those men still remained with him, and he had no difficulty in getting-in his harvest at a moderate rate of wages whilst others complained on that score. He agreed with what had been said, that something more ought to be done than the mere payment of wages and the using men as machines which could be laid aside at any time. There was the relation between the employer and the employed to be considered. With a proper regard for that feeling, and by a more general introduction of piecework, which was, after all, the cheapest, he experienced no difficulty in getting and retaining men of great physical and improving mental capacities. With regard to the economy of horse-labour and steam, they must look at it not only in a pecuniary point of view with respect to the direct saving effected, but also to the amount of land that was set free for the production of human food by that substitution, namely, by feeding those 300,000 horses with coal instead of with corn and hay. He calculated that, at the lowest estimate, there would be in the United Kingdom 2,300,000 acres of land set free for feeding human beings instead of animals. That alone was a great desideratum in these times, when population was pressing so hardly upon production. With regard to the various applications of steam-power in the operation of a farm, looking to the improvements they might expect to be made, he saw no reason why, by improved arrangements, in addition to the turnips, &c., being cut up, the food should not be delivered by the means of machinery, and why steam should not be made to do nearly everything upon a farm which was now done by manual labour.

Mr. THOMAS SCOTT said it was a gratifying fact which they had heard, that the great pioneers of steam culture—the inventors—had more orders upon their hands than they were able to keep pace with. The whole subject of this evening's discussion had been in fact reduced to the great agricultural question of the day—steam cultivation; and when Mr. Hoskyns said it was judicious to wait a little longer, he (Mr. Scott) would only say that three or four years ago he felt for those great self-sacrificing inventors, but he was happy to add that no such feeling was now called forth. Having noticed the results of steam culture upon the crops, he found that they were such as justified any man in adopting the present machinery, even admitting it to be still far from perfect. A few days ago he entered into an examination of the cost of the operation by Fowler's steam plough, extracted from the carefully kept books of a farm, and he found it to be 4s. 4d. per acre as the actual cost, to which must be made a fair addition for repairs and allowance for wear and tear. If that were the fact, the cost of steam ploughing was very much less

than that of the common ploughing, and the produce of the land was greater. It was therefore manifestly to the interest of the cultivators of the soil to abandon the present system, which entailed a daily loss, and to avail themselves of steam machinery, now that the opportunity was afforded to them of doing so.

A vote of thanks to Mr. Morton concluded the proceedings.

Horses—Directions to Purchasers.

Of course every man wishes for a sound horse, without defect in the wind, limb or sight. The various imperfections which occur in each of these are here enumerated.

The Eyes.—When the animal about to be purchased is at the stable door, before he is brought out, examine his eyes; the light coming upon them in that situation, will enable you to discover any defect that may exist. Remember that both eyes must be in an equal degree of light; and, regarding this, observe that there is no difference in the eyes, for if they be not alike, one must be diseased. If both eyes be clear, and hazel round the pupil, and the pupil itself be blue, and free from any white specks—if it contract in the light and dilate when in the shade, you may conclude the eyes are good. If the eyes be blue round the pupil, or the pupil itself be in the least degree affected with external specks, or deep-seated pearly whiteness, termed cataract; if it do not diminish, or enlarge, as the light is more or less upon it, in all these cases, it is a defective eye. All weeping, cloudy, dull-looking eyes are unsound; and if there be the least appearance, in any, of disease in this very important organ, reject the animal. Imperfect vision is often the primary cause of shying.

The Age.—Next examine the mouth to ascertain the age. Yearlings and two-year-olds are alike in mouth, and must be judged by general appearance. At three years old, the horse has four *horse-teeth*, two above and two below, in front of the mouth, which supply the place of the sucking teeth. At four, he has eight horse-teeth, four above and four below, the corner being only sucking teeth. At five years old, these are gone, and the *mouth is up*, at least, with the exception of the *inside* of the backmost, which, especially in mares, sometimes do not rise until the sixth year; that is, all the teeth are horse-teeth, and the tusk is up on each side of the mouth. A dark mark, or hollow, is generally observable in all the teeth of the bottom jaw at five years old; and the tusks are concave in their inner surface. At six, the two middle teeth have quite lost their mark, and the tusk is higher up, and longer, and not so concave. At seven, the next two teeth have lost it, and the corner teeth only have the mark left in them. At eight, it has grown out of these, and no mark is left at all. The tusks also become longer, and instead of being concave in their inner surface, become convex; the horse is then termed aged. There is, however, a great deal of difference in the mouths; some have lost their mark in all except the corner teeth, even as early as five years old; others have their front teeth in the top jaw projecting over the bottom teeth at the same age. You may form some idea

of the age from the appearance of the mouth in general, when the marks are no longer visible. If the corner teeth do not appear long and running forward, as it were, to the front of the mouth; if they retain their square shape, and shut well together; if the tusks are blunt, and have least concavity in their inner surface, you may conclude that the horse is not very old, particularly, if his head be not gray, and not very hollow above the eyes; though this latter shape sometimes exists in young horses. A concave tusk is the most certain criterion of youth; and as mares have no tusk at all, they must be judged with reference to what I have said about the corner teeth, except in some cases of what are called "shell teeth," from their resemblance to the plate-cakes of shells, and horses with these preserve the appearance of youth till ten or twelve years old. It is here necessary to mention, that the difficulty of acquiring accurate knowledge of the age of horses by their teeth is very much increased by the tricks that are practised.

It is generally allowed that no horse is fit for work until at least five years old; and it is a common custom with great breeders in the north of England, and with many dealers, to pull out the sucking teeth when the animal is rising to four years old; the mouth is *forced* by these means, for the horse-teeth succeeding soon after the operation, the animal appears to be a five-year old. To detect such deception, regard must be paid to the tusk. Every horse upon attaining the full age of five, has the tusk completely up on each side of the mouth; but in forced five-year old mouths, the tusk is only just making its way through the gums. There frequently exists also in the latter an irregularity in the front teeth, as well as backwardness in the growth of the tusk. Forced mouths vary in their appearance according to the time of performing the operation; and the habit of observing horses' mouths, will alone enable you to ascertain where any artifice has been practised.

THE JUGULAR VEIN.—Mark that both jugular veins are perfect, and that a free circulation through them exists; as there are horses, which, from having been unskilfully blooded, and from subsequent inflammation, have *lost the vein*, a defect of some consequence.

THE POSITION.—When a horse is brought out, allow him to be placed with his fore-legs up hill; because if his joints be at all *bent over*, or his legs shaken, you will best discover it in such a position. When the animal is placed with his fore-legs in a gutter or down hill; or whenever the person showing him, is continually pulling at the bit to make him shift his legs, that he may stand advantageously, be assured that his joints are impaired, and that he cannot stand firmly.

KNEES.—As the horse stands, examine his knees, and ascertain that no marks exist in front of them. The marks are generally the symptoms of having *been down*, and even were they occasioned by other means than falling, the blemish is the same, and almost equally detracts from his value. Next look inside of the leg just under the knee, and if scars be visible, or the hair stick up, you may conclude that he cuts in his speedy or fast places. Mark well that a similar scar

does not exist at the ankle, or hair appear brushed; for such marks are solely produced by the act of cutting, which, as before observed, is generally a natural and therefore incurable defect in action.

THE LEGS.—Take notice that the legs be not tottering, and inclined forward, either at the knee or at the ankle; and that the ankle joints be large in front. The back sinews, also, should not appear bowed out behind, nor feel thick; the symptoms of their having sustained some injury. The legs should be flat, and not round; neither should they be soft and puffy, but *wiry* and hard. Both legs should be alike, for if one be larger than the other, it is an injured leg. Never buy a horse for a sound one with a big leg, even though he be *warranted*. You need not mind a splent, or a bony excresence on the shank, unless it be so situated as to interfere with the suspensory ligament, or project so much as to hit the other leg in going. *Ring-bones*, or enlargements on the pasterns and coronet, are easily perceived from a difference in the two legs; as it rarely occurs, even when both legs are affected, that they are affected equally. Incipient ring-bones will sometimes produce lameness, even before they are very observable.

THE FEET.—Be particularly attentive to the feet; for, according to the old saying, *no foot, no horse*. First of all, observe that one foot should not be less than the other; and that they should not be indented, or hollow round the crust. The crust itself should not be brittle, and broken where the nails have been driven; nor should there exist in it any circular cracks, nor longitudinal fissures from the coronet downward, which last are termed *sand-cracks*. The heels should not be drawn together, and contracted; nor should the frog be small and ragged, nor discharge of fœtid matter, which is a disease called *thrush*. The horn at the heels should be as high as the frog; for if lower, the heels will be liable to *corns;* and the sole should neither be flat nor convex. It is obvious no horse can continue sound with those imperfections in the feet; and it frequently happens that horses with very finely formed feet, are very lame from a hidden cause within the hoof. Some veterinary surgeons consider such description of foot lameness hereditary. Lameness in the feet (often erroneously taken for, and called lameness in the shoulder) frequently proceeds from a slight strain in the back tendon, which, on inflammation falling down to the sensible sole, produces *navicular* disease, only curable by an operation, and which, fortunately, is a simple one, in really scientific hands, seldom failing to give relief. If the legs and feet be *smooth*, you may imagine that all is right in the fore part of the horse.

THE HOCKS.—Next examine the hocks; observe that, as you stand on either side of them, there be no projection at the back of the joint, called a *curb;* and as you stand behind them, that the inside of the joint down below be free from little knots, or bony excrescences, which are called *bone-spavins;* and on looking at them in a slanting direction, that there be no tumor above, or *blood spavin*. Look down between the horse's fore-legs for these defects, as it frequently happens that they are better seen from that view. An enlargement of the cap of the hock does not often cause lameness, though it is a blemish; but enlargements

on each side of it, which upon pressure fluctuate from the inside of the joint to the outside, are termed *thorough-pins*, which are in fact *wind-galls*, and often cause very obstinate lameness.

THE HIPS.—Look that both hips be of the same height, as horses are met with having the defect termed *down of a hip*.

SHOWING.—Having thus examined the horse as he stands, let him be run down slowly on a rough, or stony declivity, at the end of a halter, without any support to his head, or any whip near him. If he go boldly, with his knees bent, and his foot flat and firm to the ground, without dropping his head, you may conclude that he is sound before; and if, on running him up hill, he go with his hocks regularly together, and not dragging the toe, nor drooping from the hip, you may buy him as free from lameness. If he go *pattering* on the toe, and *feeting*, let him not be bought for a sound one.

HOW A HORSE SHOULD BE SHOWN.—Always have the horse you are about to purchase shown quietly; because, when he is agitated, a slight lameness may escape your observation; and always see him ridden, that you may judge how he *wears* himself, and how he uses his legs and feet; for many horses are pleasant to ride, that are unpleasant to look at when ridden; and dealers never fail to put you immediately on their backs, when their riding is pleasanter in the feel than in the appearance. Besides when you see him ridden, whatever pace the horse is continually kept in, that pace is the best; and whatever he is hurried out of, he cannot do at all, or be well assured that no opportunity would be lost of exhibiting it.

LAMENESS—HOW DISCOVERED.—Take notice, that in examining a horse for lameness, you may often detect it by only looking at his ears; for all horses that are lame before, drop their heads when they throw their weight on to the sound leg; and those that are lame behind, throw their heads up when the sound leg comes to the ground.

FENCING.—Whenever a horse stands in the stable fencing, that is, with a foot out under the manger, it is a sign that something exists uneasy to him, and may give you just reason to suspect unsoundness.

STRING-HALT.—*String-halt*, or a singularly high motion, or twitching up of the hind legs, is too glaring to escape observation; it does not constitute unsoundness, though it lessons a horse's value. Bone-spavins not unfrequently occasion a similar method of going. But there are no horses with this affection thoroughly bad.

WIND.—With regard to wind, some horses naturally possess greater freedom of breathing than others; for instance, a horse with large, open nostrils, a wide gullet, a short neck, and a deep wide chest, has generally superior wind to one with the contrary shape. There are two kinds of disease injurious to the wind; one is an affection of the wind-pipe, which creates *whistling* and *roaring;* the other, an affection of the lungs, which produces *broken-wind*.

The usual way to discover the first of these imperfections, is to go up to the

animal in the stall, and taking fast hold of his head, flourish a stick about him suddenly, or strike him. If he groan he is a *roarer*. But this method will not detect a mere *whistler;* the surest way, therefore, is to gallop the horse with a bridle tightly curbed, and at the same time agitate him as much as possible. If he make a wheezing noise, or blow with the same kind of sound as is produced by blowing upon a knife placed before one's mouth, he is not sound in his wind. The state of the wind is sometimes ascertained, and with great accuracy, by the sound of the cough; and in the following manner: Grasp the wind-pipe at the throat tightly, and then immediately let go the hold; the horse is sure to cough. If he cough *bullily*, that is, if the cough sounds like the lowing of a bull, the disease I just mentioned is in existence. But this cannot be often done with the same horse, or it would produce the very disease in question, and is, indeed, a method so delicate and difficult as not to be tried without express permission of the owner, nor with it, if you possess any claim to humanity. If he cough short and hacking, the lungs are affected, and he is broken-winded; but if the cough be long and shrill, the wind is good. Be careful to leave hold of the wind-pipe the moment you have compressed it; for if you hold it long, the horse will cough shrill even if he have imperfect wind.

Always gallop a horse as well as make him cough; a horse with the roaring or the short cough should be immediately rejected.

By making a horse cough, another advantage arises, viz: that you may discover if he be affected with a cold; in which case, upon compressing the wind-pipe, he will cough repeatedly.

Injurious Habits.—*Crib-biting* is a bad habit to which many horses are addicted. It consists in taking hold of the manger, and at the same time drawing in the breath with a gulping noise. The effect of it is loss of flesh and condition in the animal, and sometimes injury of the wind. It is cured by a little salt, when it proceeds, nine cases out of ten, from acid in the stomach.

Wind-sucking is nearly the same, only without taking hold of the manger. It is caused by the animal's desire to cool his interior, and a little salt in his oats, by removing the cause, often allows the habit to drop.

As these habits are not always discoverable during the short time you are in a dealer's stable, it is advisable to have the horse you are about to purchase warranted free from these defects, in addition to the warranty of soundness, as the latter does not provide against them.

It is also prudent to have the horse warranted free from restiveness; though you may discover this by riding him several times past his own stable door; if he be restive, he will manifest his self-will by endeavoring to turn in, and in rearing if you attempt to prevent him.

Injuries of the Back.—Injuries of the back, which are not unfrequent, are discovered by *backing* the animal; and if he perform the retrograde motion with the least degree of difficulty, he has experienced some serious dorsal injury.

There are other imperfections which need not be mentioned, as none but the lowest description of persons would keep for sale horses possessing them.

Horse Tamer.

Cheese.

We have seen the question going the rounds of agricultural papers—"What causes the strong, unpleasant flavor of American cheese?"

In the English market, great fault is found with American cheese, on account of an acrid or sharp, bitter taste that is often found in it. This subject deserves great consideration, as the credit of American cheese in the European market depends upon its solution. We could give our views on this question in a few words; but we think more than statement of our opinion may be useful on the subject.

We have often reiterated our remarks on this subject, that the quality of butter and cheese depends much on the character of the soil and herbage on which cows are pastured. Cows kept on low, wet ground, which produces coarse, *sour* herbage, will not give rich, sweet milk. The milk, and consequently the butter and cheese made from it, will partake of the nature and flavor of the herbage. For good butter and cheese, an old, dry pasture is best, and the shorter the herbage, provided there is enough of it, the better.

The first great difficulty, then, in American cheese is, the cows run on new, wild land, and in the dry season resort to the low, wet lands for their food, and the milk partakes of the sour qualities of the herbage. This flavors the cheese, and destroys the sweet, pleasant flavor of that which is made from milk secreted from sweet herbage. The remedy is, by underdraining, lime and good tillage, to convert these low lands into dry pasture. Kill out the wild grass, and substitute the blue grass, red top, sweet vernal, and other sweet and tame grasses.

The other difficulty is, in manufacturing the cheese. This is often done by *guessing*, without any fixed standard. We may thus often find a great diversity in the quality of the cheese made by the same person, from the milk. This is owing to a want of system in adapting the quantity of salt and rennet to the milk, the proper temperature of the milk, and the preparation of the rennet.

In every part of cheese-making, there should be a system. The milk should be weighed, and one hundred and twelve pounds of cheese may be counted on for every one hundred gallons of milk, by weight. If the milk has been skimmed for butter, the butter-milk should be put into the milk for cheese, as the particles of butter will greatly add to its richness.

The rennets should be procured at least one year before they are used; turned inside out, and salted, and then packed down with a layer of salt between them, then covered with salt and shut from the air. Before they are used, they should be taken out, and fine salt sprinkled on them, and then stretched on sticks to dry. If used earlier, the cheese heaves and is full of holes.

The milk should be at a temperature of about 80 degrees, when the rennet is

applied, and enough, and no more rennet put in than will bring the milk to a curd in one hour. If the curd is produced more rapidly, there will be less of it, and it will be tougher. The quantity of salt should be one pound of Turk's Island salt to forty pounds of curd.

The *strength* of the rennet cannot be tested, accurately, except by experiment. Six rennets in two gallons of water or brine, is about the usual proportion, and the quantity of the liquid necessary to coagulate the milk in one hour, can be tested by experiment.

The whey should be allowed to separate itself from the curd. If forced out, it will be of a whitish color, showing that the richness of the cheese is pressed out into the whey. If the whey is allowed to separate itself, it will be of a greenish color.

The great difficulty, then, aside from the quality of the herbage from which the milk is secreted, is a want of system in adapting the quantity of the rennet and salt to the milk; too much haste in "making the curd come soon," and in separating the whey from the curd by pressure, and in using rennets too soon after they are cured.

To make the rind hard, and thus prevent its cracking, the English, as soon as a cheese is taken from the press, put it in strong brine for three or four hours.

If these suggestions are attended to, we believe American cheese will rank with the best made in England. We hope our views will call out experienced dairymen.—*Ohio Farmer.*

"Southern Independence."

The ridiculous farce of forever *talking* about, and never *doing* anything to develope our own Southern resources, is well satirized in the following:

A Southern planter, who has been indulging in disunion notions, took an inventory of his household and plantation stock in trade, and the following is the result, as communicated to the N. Y. *Journal of Commerce:*

"I have been a planter for a good many years, and I was considerably startled at the result of an investigation in my own family. On examination of my expenditures, one year with another, I find that nearly three-fourths of my income has either directly or indirectly, found its way into the hands of Northern men; and I believe this to be true of a majority of the producing classes here.

"I am aroused in the morning by the bell of a clock hailing from Connecticut. Leaving a bed which, with all its paraphernalia, is of Northern origin, I thrust my feet into a pair of Massachusetts shoes, and, as I join my family at the table, everything that meets my eye, except the faces so dear to me, is all, all Northern.

"My coffee, which has paid toll to a Northern importer, been parched over an Albany stove, ground in a mill from Meriden, Conn., poured from a Yankee urn into a Yankee cup, sweetened with sugar refined in New York, stirred with a spoon of like origin—used to be drank without one emotion other than pleasing.

"To church or to school a Northern bell invites us. In our devotions or our dances a Northern organ or a Northern fiddle lends its inspiring strains.

"Whether we ride or walk, sit or sleep, we do all, my Northern friends, through your kind assistance.

"I take a look at my sour visage in a Northern mirror, stamp my foot on a Northern carpet, and rush out of a house which was constructed with Northern tools, fitted with Northern doors, sash, blinds glass, &c., painted with Northern paint, furnished and adorned throughout, from cellar to attic, with the work of northern hands. I mount a Northern saddle and I ride over a farm which is cultivated with Northern implements, by negroes clad in cloth made in Massachusetts, from materials furnished anywhere from Vermont to Ohio.

"My cotton, prepared for market by a Northern gin and press, enveloped in bagging which has paid tribute to a Boston Indiaman, is hauled by a Northern engine to the sea port, whence it is shipped in a Northern vessel to its ultimate point of destination, paying, in its transport, commission, brokerage, insurance, exchanges, and a host of charges."

It is a great pity (says the Georgia *Constitutionalist*) that Southern planters, and merchants of the South, have not been "startled" by these facts at an earlier day. They have harangued continually against the aggressions of the North, and yet instead of building up Southern mechanical and industrial enterprises, which would render this section truly independent and flourishing, they have given their patronage and their money to build up the institutions and fortunes of that section which they hate and abuse. If this policy of patronage to home industry had been adopted years ago, there would be no causes for disunion threats at this day—or, if there was a cause, the South would be in a position not only to assert, but to maintain her independence. Our institutions of learning would be more numerous, and the course of education more thorough. Our manufacturing establishments would be numerically increased, and their products at least equal to those of other sections.

Our population in the cities and towns would be largely increased, because of the inducements to mechanics and operatives—who would, in turn, be so many more inducements to an increase of mercantile men and mercantile employments. We should have not only these, but we should have, too, armories, and foundries, and workshops for the manufacture of many things for which we are now compelled to send abroad.

But our "Southern planter" was "startled" at the discovery that he had been sending abroad for things which his own section could have furnished him, and thus have enabled him to patronise and foster branches of industry that must and will benefit and even enrich the South.

Thus he arises from a Northern made bed, when Platt's factory, in this city, could have furnished him one equal to it, made in the South, and of Southern lumber. Some one of the Southern factories could have furnished him with the material for a mattress, and he could have had it stuffed with the great "staple

of the South. sheeting; and his
pantaloon stu of Georgia, made
up by South in shoes made by
Southern sh and villages, from
Southern tan

Our "Sou rn made bed, and
arrayed in his his family around a
Southern made table—upon which might have been spread his neat tea set, manufactured at the Kaolin factory, near Augusta; and his coffee he could have procured from New Orleans importers, and his sugar from New Orleans refineries; while he n one of the stoves made in this c

When the l xander's Columbia, South Carolin im, while Brenner, of Augusta, or is church with its organ. His d en made in the South. In a w he sent to the North might have remained in his own section, enriched his own people, and helped to place them and him in a position of the most complete commercial, manufactural and political independence. But, unfortunately for the South, our people prefer to vent their spleen and their patronage upon other portions of the confederacy.—*Southern Cultivator.*

From the Plantation.

At Home.

I write in one of the most retired rooms of the rambling old house in which I was born, and in which I have spent most of the years of my life. Of late, I have been a restless wanderer, but here I am, once more, sitting in the quaint old chair, connected by my earliest recollections with my grandfather—for this was long, almost the only seat he would occupy. The board on which I write, is the one on which his Bible used to rest. Beneath it is the little box which contained what seemed, to my childish imagination, a world of treasures and curiosities. My feet are on the foot-board on which I used to sit, and look up into grandfather's face, and listen to his tales and jests. It is a strange old chair —large, and apparently cumbersome—but so surrounded with various convenient appendages, so many places for books and papers, little tools, pipes and all an old man's notions, that it seems a habitation within itself. Oh! the memories that throng around this old chair. Let me recall the past. Turn back, oh, my soul! and review the scenes of childhood, of boyhood, of youth, and opening manhood. What a retrospect!

Who can look back over his past life—its happy hours, its hopes, its aspirations, its ardent ambitions, its pleasurable excitements, and remain unmoved, while contrasting it with the present—its unhappiness, its *ennui*, its disappointments, its gloom, its despondency?

Let it pass. I look around, and, on the walls, behold the same old ceiling, with its peculiar beaded strips, put up many, many years ago, according to the strange fancy of my eccentric grandfather. There is the same wide, old fireplace, with its massive andirons, and its quietly-glowing fire. The same cranky old tongs and the venerable fire-shovel maintain their position against the jambs. My mother sets her face against innovation, and she is right. This particular room she insists shall remain unaltered, and it stands, a memento—a living part—of a past age. On the mantelpiece, the old clock stands, with its constant tick echoing loudly in the silence of the room. Before the glowing hearth lies the white cat, favorite of my mother, with her calm, lazy purr, indicative of the most perfect contentment.

In that corner stands the table on which my father once kept a few books and journals, so that he could read without going to the solitude of the library. The wind whistles by, and rattles the panes of a window which opened long before I came into existence. By the window, close to the cozy fireplace, day after day, for nearly half a century, my father used to sit, at certain hours, reading some favorite French author, or looking over the newspaper. The same old panes of glass which gave him light, still kept their place in the mouldy wooden frame.

Opposite me, by this very window, sits my mother—relict of my departed sire—sole surviving link which connects me with a past generation. I gaze upon her placid, pallid brow, as she sits in the stillness and quiet of this, the Sabbath day, reading *the* Book—the Word of Life—the inspired volume which now constitutes her chief solace and delight.

Now she removes the glasses from her eyes, shuts the sacred tome, and turning to the window, gazes out. The wind is howling dismally, and as it sweeps by,

brings down the leaves in showers from the huge old oaks with which she has become so familiar, and which appear to be almost human in the companionship which they afford her. She looks out, abstracted, and unconscious even of the presence of me, her youngest born. Whither do her thoughts turn? Is she communing with the past? Do thronging memories come, bringing with them old faces, old scenes, old hours of happiness? Or is she looking forward and upward, with vision brightened and perception made clear by the words of Holy Writ which she has just been perusing, to a blissful reunion with all those whom she has loved on earth?

Sure I am of one thing: that though she may occasionally look back through the dim vista of past years, her bitterest pangs are long since over, and her gentle mourning is now almost sweet, as she thinks of the happy home to which she is tending, and repeats to herself:

H. W.

Hints on the Care of Horses in Winter.

I. During the winter months, those horses which are used for labor should be well shod. Unless, however, they are to be driven in such places as render them very liable to slip, the corks should not be *very* sharp. When a horse is newly shod, be a little careful when you drive him, especially if he feels well, or he may cork himself. Like men, it takes a few days for them to become accustomed to handling their feet with new shoes.

II. See that the stables in which horses stand are strong, and so arranged that they cannot kick each other. In cold weather, if they are well fed and do not work much, they kick and paw, or bite their mangers for exercise. It is not viciousness that makes them do it, but frequently a want of exercise. Often a valuable horse is badly injured just for want of proper arrangement of the stalls. A little expense to-day often saves a good deal to-morrow.

III. See that the floors are strong, and that the horse-barn is well banked up, to prevent the cold air from passing under the building and making the floor constantly cold. Every means ought to be taken to have the floor as warm as possible. A horse that has worked all day and has his legs wet, often takes a cold because his legs are kept so during the night by a cold floor. Warm feet for horses is as important as for men.

IV. A horse's bed is of some importance. We know a good many farmers who allow them to stand and lie on the hard floor all winter. They may get

used to it, but what can be got used to, is not always the best. A good bed of straw, or some similar material, kept clean by frequent changing, should be furnished to all horses. They will frequently paw it from under them, but this is for amusement, and not because they do not wish for a bed. When this is the case, great pains should be taken to prevent it.

V. Always clean out the droppings of your horses, both morning and evening. They ought always to be so far removed from the stable that the air will not be poisoned by the emanations from them, or the sills and siding of the barn will be rotted by coming in contact with them. We have always thought the practice of throwing the manure into a heap by the side of the barn door slovenly, wasteful and detrimental to the health of the horse. With a broom, sweep out all dust that accumulates daily.

VI. A h[illegible] A good groom-
ing is worth[illegible] l be supplied
with a good[illegible] l stiff broom,
for this pu[illegible]us, keeps the
skin clean[illegible]ld, and makes
the horse l[illegible]nwashed boy,
or a perso[illegible]

VII. It[illegible]anketed in the winter. If the stable is a good one, and sufficiently warm, we should not use the blanket, except when the horse is out of doors, or has been subjected to severe labor or exposure. If it is used when they do not need it, it will do them little good when they do need it.

VIII. In a cold day of winter, when a horse's bits are full of frost, always *warm them thoroughly before placing them in the mouth.* Not to do this is very cruel. Touch your tongue or even a wet finger to a very cold piece of iron, and you can appreciate the importance of this hint. It may be a little trouble to do it, but it should be done. The frost may be taken out conveniently by placing the bits in water.

IX. If you have no labor to perform with your horse, see that he has *plenty of exercise daily.* This is necessary to the health of the animal, as well as to his and your comfort.

X. Do not allow him to drink very large quantities of ice-cold water at once. Moderately warm water is best for animals, but a large quantity of very cold water is always injurious. Especially is this the case when they do not have moderate exercise immediately after drinking, or when the horse is warm or much wearied by hard labor.

XI. A horse's food can never be exactly measured to him. Sometimes he needs more than at other times. Give him as much as he needs, and exercise judgment in regard to the matter. At all times give as much good, bright hay as your horse can eat. If the weather is very cold, the horse needs heat-producing material, and corn is as good grain as you can give. Grind it and feed

wet and mixed with a little cut hay or bright straw. When it is warm, oats is the best of grain for horses, and for laboring horses nothing is superior to them. Oats is to the horse what steak is to the laboring man; it furnishes the material for muscle.

XII. Young colts should not be stabled in winter, but protected from cold storms and winds by sheds, or be kept in unexposed situations. They need to be kept where they can move about as much as they desire. It gives them better constitutions and better locomotive power. Give them a little grain daily, and domesticate them by treating them kindly and handling them frequently.

XIII. Brood mares, unless they are worked, should be allowed to run out, except when the weather is severe. Give them plenty of hay and a moderate allowance of oats. A few roots occasionally are good, but never feed frozen roots, or those *very* cold, to them or any animal. It is like putting so much ice in the stomach.—*Ohio Farmer.*

Southern Patronage to Southern Imports and Domestic Industry.

CONCLUDED.

We again repeat that the lack of *home* patronage to domestic industry is apparent in every department of Southern life. Nothing exemplifies it stronger, than the neglect of our own nurserymen, engaged in raising fruit-trees, roses, and ornamental shrubbery for sale. That class of men have had a long and hard struggle for existence, and are just now beginning to get a foothold. Notwithstanding, it is a well-known fact, among intelligent fruit-growers, that there is a disease likely to exterminate the peach-tree at the North, and that, in the course of time, must lead to its destruction here, if we continue to send there for our trees. Scarcely a vessel arrives in our Southern ports, during the fall, winter, and spring months, that is not partly freighted with bundles of fruit-trees from the North; and you may see them at every railroad depot and express office at the South, from November to March.

We have the finest climate and soil in the world, for the propagation and growth of that delicious fruit—the peach. And there is no reason why we cannot be supplied with any number of trees by our own nurserymen. We have the native seed to plant, for grafting and budding, which ought to secure us against the destructive diseases with which the Northern trees are infected. Our native peach-trees, if properly taken care of, will live and bear fruit for half a century, while those imported from the North may not be expected to last longer than twelve or fifteen years. We have an example before us, of healthy, thrifty trees of native growth, which were bearing twenty-three years ago—while we have orchards of Northern-grown trees ten and twelve years old, that are dying out, and which we are obliged to prune down every year to half a crop, in order to keep them alive.

Aside from the patriotism that should prompt Southern men to purchase from

each other, a knowledge of the above facts prove it to be "penny-wise and pound-foolish," to attempt such economy in the establishment of an orchard, as the saving of three to five cents a tree. Fine grafted and budded trees are sold at all the Southern nurseries at twelve and fifteen cents, some as high as twenty cents. But where they are sold by the quantity, *fifteen cents* should be the outside price, and some now sell at twelve cents.

Yet thousands of orders go to New-Jersey, where they are bought for eight cents, and by the time they are delivered at Columbia or Augusta, they will have cost twelve cents. It should be known to every one, that large nursery establishments are springing up all over the South, and they require nothing more than a reasonable patronage from our own people, to render that branch of industry thrifty and prosperous. We will take the liberty of naming a few establishments, from which we have purchased trees, and know to be reliable and able to furnish all kinds and varieties of choice fruit-trees, either to supply amateur fruit-growers with extra choice small collections, or in quantities to plant orchards.

Those of whom we have *practical* acquaintance, are Messrs. Wm. Summer, of Pomaria, Newberry District, S. C.; Peters, Harden & Co., Atlanta, Ga.; P. J. Berckmans & Co., Augusta, Ga.; Thomas J. Fentress, Greensboro', N. C.; Westbrook & Mendenhall, Greensboro', N. C. There are, no doubt, others as reliable as those named, and it only needs the patronage of those now planting orchards, to rear up nurseries all over the South, which will not only fully supply us, but will eventually turn the current of trade from South to North. We predict the time when we will see the Jersey peach millionaires digging up their sickly orchards, to be replanted with Southern trees, thus carrying out the advice of the lamented Downing on this subject.

He recommended this as the only means of curing the disease known as the *yellows*, which has already nearly destroyed the peach orchards of New-Jersey and Delaware; and has within a few years cut off an immense source of income to peach-growers, railroads, and steamboats, the extent of which, would seem marvellous to relate in detail. We have a published statement before us of one grower, who realized in a few years over a million of dollars, principally on peaches. He, besides chartering a steamboat for the season, paid upward of twenty thousand dollars railroad freight, to carry his crop to market. Many realize gross incomes amounting to twenty, thirty, and even fifty thousand dollars, for a single peach crop; paying enormous transportation expenses, say, some five thousand, some eight thousand, and others ten and twelve thousand dollars, railroad freight during the fruit season.

If we were to pursue the subject, naming in detail all the neglected articles and occupations in our Southern country that might be adduced, a much larger space would be required than is allotted to these articles.

We trust that we have shown to the conviction of our readers, that much injustice has been done to the enterprising individuals who have embarked in *man-*

ufacturing at the South. And by such injustice a wound has been inflicted on the whole country, which no ordinary skill can heal.

But shall we stop at this point—may we not proceed to show that our *importers* have been also unjustly dealt with? A public sentiment has been allowed to grow up against them, and in favor of Northern men of that class, and by that means our strength has not only been impaired, but we have interwoven our pecuniary and commercial affairs in the meshes of Northern commerce to our own detriment, and thereby have added vigor and strength to Northern political power.

The political sentiment of the South is decidedly and universally against the North, but the more powerful pecuniary and commercial sentiment has shown itself to be with the North and opposed to the South, and if continued will lead to our ruin, both economically and politically. It is so thoroughly interwoven in the body politic, that it may be seen in the every-day acts of our people, from the lowest grade of society to the highest. If additional evidence is necessary, to prove the positions above assumed, what better proof do we want than the fact that an humble, unpretending country or village merchant, who has not the means of going beyond Charleston, to lay in his stock of merchandise, should consider it necessary to obliterate every mark on a box, which would betray the fact that his stock of goods was purchased in Charleston, and not in New-York. It has, for years past, been a common thing for country merchants to request that their packages should be so marked as to leave no clue to their having been bought in Charleston. Does not every one know that a widespread public sentiment has long existed all over the South, which has caused a preference to be given to articles purchased at the North? It was quite a plume in the cap of a trader, to be able to say he was just from New-York, and had purchased his supplies there. So highly has that advantage been esteemed, by all classes of men, that the idea of enabling a merchant to go to New-York, to lay in his stock, would enlist the kindly friendship of rich endorsers, and if anything could induce a board of bank directors to make any extraordinary effort to *accommodate*, it would most surely be in the *good cause* of enabling a neighbouring merchant to transfer his custom from Charleston to New York. That such a course is wrong all must see and admit; yet matters have been suffered to run so long in that direction, that a commercial and political power has been created at the North, which now threatens to annihilate us.

Why should a Southern country or village merchant go to New York to purchase his supplies? Almost every country merchant who visits Charleston has a through ticket to New York in his pocket. Some buy a few boxes of goods in Charleston; others will be drifted on North by meeting with the slightest impediments in the way of trade in Charleston. And many, from a desire to mix in the great whirlpool of fashion, sight-seeing, &c., pay their $30 passage money to and from New York, and cannot resist the temptation of doing something more than is embraced in the stale idea of buying a stock of goods in South

Carolina. While others, under the delusion that they can buy cheaper in New York, go there year after year to get cheated every time and never find it out.

To those acquainted with the nature and complicated operations of commerce, it is plain enough to be seen that Charleston can undersell New York, even if the goods be first landed there, and pay a duty to the New York custom-house. Goods are either imported by large dealers, or sent out by foreigners to agents, to sell by the case or large quantity. These importing houses, or agents, are bound to the jobbing trade not to break packages, or sell in such small quantities as to interfere with their customers. Any importer, or foreign agent, who violates this rule, must expect to lose the custom of the jobbing trade, not only of New York, but of Charleston, Chicago, Cincinnati, St. Louis, Louisville, Nashville, and other jobbing cities and towns scattered over our vast country. Now, we wish our readers to understand the groundwork: That imported goods first come into hands that are bound by the strongest ties to the wholesale dealer, more commonly termed jobbing merchant, who purchases by the package and retails out to merchants, a class of smaller dealers, located in towns, villages, and country places; this class of men sell immediately to the customer. The jobber, in turn, is bound to this latter class of merchants not to interfere with their customers, by selling small quantities.

We will now try to illustrate the subject by following a Southern merchant to New York, where he may desire to purchase an assorted stock of goods amounting from ten to thirty or fifty thousand dollars; even the last named sum will not procure him admission into an importing or agent's stock. If he insists on buying from such houses, the price will be fixed at much higher rates than the jobbing merchant pays, and the custom of not breaking packages will almost invariably rule him out; and he is, of necessity, thrown into the hands of the jobbing merchants of New York, the keenest and most adroit dealers known in the world—men who live by their wits, and who cannot sustain themselves except by exorbitant profits. Just for a moment look at things as they really are. A jobbing merchant in New York, paying from fifteen to thirty thousand dollars a year for store rent; clerk hire, from one to six thousand dollars a year; having two or three partners in the concern, each living in palaces at the most princely expenditure—compare this picture with the same class of merchants in Charleston, where the most commodious and best-located stores rent from fifteen hundred to two thousand dollars, and where clerks are now begging for situations; willing to pay their own board, work, and receive no pay for the first year or two, while the most expert receives for their services but from five hundred to two thousand dollars a year. Can you not see that the Charleston jobber is able to sell cheaper than the New Yorker?

Merchants of the city, town, village, and country! consider, and say whether you have not been treading unprofitable paths, which, if persevered in, will ultimately lead your country to ruin. Your notions of mercantile thrift are warped by errors as glaring as those by which abolition fanaticism is urged on at the

North. The Charleston wholesale merchants, as a class, have as good credit as any in the world. They purchase largely, and procure their stocks at the lowest rates.

The trade of New York is of a different class altogether; one half and probably three fourths of them live from hand to mouth, under exorbitant and extraordinary expenses; they buy to-day and sell to-morrow, are in many instances reckless of character, and pay higher prices for their goods than good reliable merchants do. If they cheat a man this year who lives fifteen hundred miles off, and lose his custom, what do they care?—the next year brings two in his place. So great are the profits made by merchants in New York, that every six or eight years of fair sailing, and undisturbed commercial prosperity, transforms a large number of those men of straw—jobbing merchants—into millionaires. But when a monetary crisis overtakes them, they are swept off into bankruptcy by hundreds.

New York is the last place to which an experienced, impractical merchant should venture to purchase a stock of goods, and there is no reason whatever why Charleston, New Orleans, Mobile, Savannah, and Augusta, should not become points of distribution, and be relied on entirely for supplies. Charleston can become so without waiting to establish lines of steamers to Europe. If she can obtain her fair proportion of the jobbing and distributing trade, she will soon number 200,000 in population, and the lines of steamers will follow, and so will the ability to build railroad outlets.

The mere importing business cannot make a city. If New York were to lose the jobbing trade, which rightfully belongs to Southern cities, she would immediately retrograde in population, or remain for a long time stationary. If her commerce was confined to importing houses and foreign agencies, that city would settle down to be the Liverpool of the United States, instead of the "London of America."

In order to render Charleston a great centre of distribution, and a fortress of political power, all that is requisite is the assurance of receiving in future all the trade that naturally belongs to her, with the hearty co-operation and patronage of Southern merchants; with this she would be prepared to make a doubled or quadrupled trade.

The present merchants would most willingly enlarge their trade fourfold, and the prospect of increased business would induce others to embark, and the money power would follow in the train. That portion of the money capital that belongs South, and which has centred in New York to buy up Southern merchants' paper with, would, as a matter of course, be transferred to Charleston, and an extended jobbing trade would bring with it large direct imports, of the heavier articles not sent to agents in this country, such as iron, salt, coffee, and many European articles made only to supply orders.

We are rejoiced to see the work of reformation already commenced, and we trust that such assurances of permanent increase of patronage to Charleston

merchants will be given, that their usual fall stock may be doubled. And although it is said that some of the hotel keepers feed their guests on turkeys and chickens fattened in abolition Ohio, and brought to Charleston by the way of New York, the change in the mercantile currents, which are so devoutly desired, will, no doubt, bring us back to poultry of our own raising, with which our back country abounds.

But, how is this change to be effected? It can be done only through the people—the great body of consumers. They should meet in primary assemblies, and put the mark of reprobation and proscription on every merchant who will not obey the call to abstain from a traffic that leads to our impoverishment and political ruin. Each individual who buys a coat, a silk dress, a piece of muslin, or any article from a home dealer—and gives his orders to a Southern mechanic and nurseryman, instead of sending it to the North—lends his or her aid in cutting off some of the springs. And the whole South, collectively acting together, will dry up many considerable branches, if not the great stream which carries away millions of our treasure, and is fast drifting us commercially and politically into the vortex of Northern power. To be politically independent of the free States, we must render ourselves commercially so, for commerce holds the sceptre that rules the world. The despots who have for ages swayed their power over nations of Europe, have been compelled to give way to it, and all nations bow to the unbounded power of commerce—which has whitened every sea with its sails, and driven by the wings of steam power, is now traversing every country known to civilized man. Her power will subdue and overrun the Chinese empire, and will ultimately civilize and Christianize benighted Africa, as well as every other inhabited portion of the globe. One of the greatest despotisms on earth has been forced into a strife for pre-eminence in manufacture and commerce.

The wise men who have the power of control in Russia, have very considerately come to the conclusion, that by agriculture alone, their country cannot keep pace with the growing power of manufacturing and commercial nations; hence the immense efforts of that nation to introduce manufactures, railroads, and all the appliances necessary to an extended commerce with the world.

In all civilized nations, the political power has yielded to the sceptre of commerce; and no nation in modern times has become commercial without the aid of manufactures; and so surely as we follow up the system which is advocated by many, as the true policy of the South of remaining an exclusively agricultural people, neglecting all other industrial occupations, and buying from others the commonest necessaries of life, and wearing out and exhausting our soil as fast as we can, so surely will we become vassals to some power. If we release ourselves from one, we must immediately fall into the hands of another.

To be independent, we must be our own merchants. Let us, then, set about a reformation that shall disenthral us from the tyranny of the North. Let us

resolve to patronize no merchant who will refuse his aid toward building up a distributing city at the South. Let us encourage the extension of manufactures, and by all means encourage and give our patronage to every article the product of Southern domestic industry.

For the Southern Planter.

LOUDOUN COUNTY, Va., December 26th, 1860.

Respected Friends—Permit me to inquire, through the Planter, what has become of Professor Campbell, of the Washington College. In reply to my criticism on his views on "Vegetable Physiology," in the April number of the Planter, he professes to be "a learner—a mere gleaner in the great field of scientific research;" and voluntarily says, "Willingly, therefore, would I sit at the feet of Mr. Taylor, or any one prepared to give me instruction," &c. Having thus placed himself under my instruction, and as I gave a few lessons for him to look over at his leisure, in my reply to his essay, I, as teacher, am anxious to know how my pupil is coming on in his studies. Is he earnestly endeavoring to solve the problems presented, or is he behaving truant and taking no notice of his lessons. Being so highly honored with so illustrious a pupil, I cannot think of giving him up. If he has found any difficulty in those problems presented, and will point them out, I will readily endeavor to assist him in his difficulties; it is the duty of teachers to give all proper instruction to pupils.

Will the editors be so kind as to inquire, whether the Professor is studying the facts presented by me in opposition to his theory, for he freely offered, that if I would bring forward facts well authenticated, and by a legitimate process of reasoning, based upon these facts, could show him that he was entertaining erroneous views, or advocating unsound theories in any department of science, instead of quarrelling with me, he would tender me his sincere thanks, and class me among his real benefactors. I shall hold him to this position. I consider that I gave him facts, in support of my views, that set his theory aside, and unless he can show that these facts are not true, or are not applicable, he must, if consistent, acknowledge their correctness. It will not do for him to say he has not time to attend to it, he had time to reply to my first essay, and an earnest seeker after scientific truth, will only seek the more earnestly after truth when he meets with a fact, or idea, that crosses what he considered the line of that truth.

I wait for a reply. YARDLEY TAYLOR.

YORKSHIRE PUDDING.—Mix five spoonfuls of flour with a quart of milk and four eggs well beaten; butter a shallow pan, and bake under the meat; when quite brown, turn the other side upwards, and brown that. It should be made in a square pan, and cut into pieces to come to table. It is a good plan to set it over a chafing-dish at first, and stir it some minutes.

On the Sources of the Nitrogen of Vegetation;

With Special Reference to the Question whether Plants Assimilate free or uncombined Nitrogen—By John Bennet Lawes, Esq., F.R.S., F.C.S.; Joseph Henry Gilbert, Ph.D., F.R.S., F.C.S.; and Evan Pugh, Ph.D., F.C.S.

[*From the Proceedings of the Royal Society of London for June* 21, 1860.]

After referring to the earlier history of the subject, and especially to the conclusion of De Saussure, that plants derive their nitrogen from the nitrogenous compounds of the soil and the small amount of ammonia which he found to exist in the atmosphere, the Authors preface the discussion of their own experiments on the sources of the nitrogen of plants, by a consideration of the most prominent facts established by their own investigations concerning the amount of nitrogen yielded by different crops over a given area of land, and of the relation of these to certain measured, or known sources of it.

On growing the same crop year after year on the same land, without any supply of nitrogen by manure, it was found that wheat, over a period of 14 years, had given rather more than 40 lbs.—barley, over a period of 6 years, somewhat less —meadow-hay, over a period of 3 years, nearly 40 lbs.—and beans, over 11 years, rather more than 50 lbs. of nitrogen, per acre, per annum. Clover, another Leguminous crop, grown in 3 out of 4 consecutive years, had given an average of 120 lbs. Turnips, over 8 consecutive years, had yielded about 45 lbs.

The Graminaceous crops had not, during the periods referred to, shown signs of diminution of produce. The yield of the Leguminous crops had fallen considerably. Turnips, again, appeared greatly to have exhausted the immediately available nitrogen in the soil. The amount of nitrogen harvested in the Leguminous and Root-crops was considerably increased by the use of "mineral manures," whilst that in the Graminaceous crops was so in a very limited degree.

Direct experiments further showed that pretty nearly the same amount of nitrogen was taken from a given area of land in *wheat* in 8 years, whether 8 crops were grown consecutively, 4 in alternation with fallow, or 4 in alternation with beans.

Taking the results of 6 separate courses of rotation, Boussingault obtained an average of between one-third and one-half more nitrogen in the produce than had been supplied in manure. His largest yields of nitrogen were in the Leguminous crops; and the cereal crops were larger when they next succeeded the removal of the highly nitrogenous Leguminous crops. In their own experiments upon an actual course of rotation, without manure, the Authors had obtained, over 8 years, an average annual yield of 57.7 lbs. of nitrogen per acre; about twice as much as was obtained in either wheat or barley, when these crops were, respectively, grown year after year on the same land. The greatest yield of nitrogen had been in a clover crop, grown once during the 8 years; and the wheat crops grown after this clover in the first course of 4 years, and after beans

in the second course, were about double those obtained when wheat succeeded wheat.

Thus, Cereal crops, grown year after year on the same land, had given an average of about 40 lbs. of nitrogen, per acre, per annum; and Leguminous crops much more. Nevertheless the Cereal crop was nearly doubled when preceded by a Leguminous one. It was also about doubled when preceded by fallow. Lastly, an entirely unmanured rotation had yielded nearly twice as much nitrogen as the continuously grown Cereals.

Leguminous crops were, however, little benefited, indeed frequently injured, by the use of the ordinary direct nitrogenous manures. Cereal crops, on the other hand, though their yield of nitrogen was comparatively small, were very much increased by direct nitrogenous manures, as well as when they succeeded a highly nitrogenous Leguminous crop, or fallow. But when nitrogenous manures had been employed for the increased growth of the Cereals, the nitrogen in the immediate increase of produce had amounted to little more than 40 per cent. of that supplied, and that in the increase of the second year after the application, to little more than one-tenth of the remainder. Estimated in the same way, there had been in the case of the meadow grasses scarcely any larger proportion of the supplied nitrogen recovered. In the Leguminous crops the proportion so recovered appeared to be even less; whilst in the root-crops it was probably somewhat greater. Several possible explanations of this real or apparent loss of the nitrogen supplied by manure are enumerated.

The question arises—what are the sources of all the nitrogen of our crops beyond that which is directly supplied to the soil by artificial means? The following actual or possible sources may be enumerated:—the nitrogen in certain constituent minerals of the soil; the combined nitrogen annually coming down in the direct aqueous depositions from the atmosphere; the accumulation of combined nitrogen from the atmosphere by the soil in other ways; the formation of ammonia in the soil from free nitrogen and nascent hydrogen; the formation of nitric acid from free nitrogen; the direct absorption of combined nitrogen from the atmosphere by plants themselves; the assimilation of free nitrogen by plants.

A consideration of these several sources of the nitrogen of the vegetation which covers the earth's surface showed that those of them which have as yet been quantitatively estimated are inadequate to account for the amount of nitrogen obtained in the annual produce of a given area of land beyond that which may be attributed to supplies by previous manuring. Those, on the other hand, which have not yet been even approximately estimated as to quantity—if indeed fully established qualitatively—offer many practical difficulties in the way of such an investigation as would afford results applicable in any such estimates as are here supposed. It appeared important. therefore, to endeavour to settle the question whether or not that vast storehouse of nitrogen, the atmosphere, affords to growing plants any measurable amount of its *free* nitrogen. Moreover, this question had of late years been submitted to very extended and laborious experimental

researches by M. Boussingault, and M. Ville, and also to more limited investigation by MM. Mène, Roy, Cloez, De Luca, Harting, Petzholdt and others, from the results of which diametrically opposite conclusions had been arrived at. Before entering on the discussion of the own experimental evidence, the Authors give a review of these results and inference; more especially those of M. Boussingault who questions, and those of M. Georges Ville who affirms the assimilation of *free* nitrogen in the process of vegetation.

The general method of experiment instituted by Boussingault, which has been followed, with more or less modification, in most subsequent researches, and by the Authors in the present inquiry, was—to set seeds or young plants, the amount of nitrogen in which was estimated by the analysis of carefully chosen similar specimens; to employ soils and water containing either no combined nitrogen, or only known quantities of it; to allow the access either of free air (the plants being protected from rain and dust)—of a current of air freed by washing from all *combined* nitrogen—or of a limited quantity of air, too small to be of any avail so far as any compounds of nitrogen contained in it were concerned; and finally, to determine the amount of combined nitrogen in the plants produced and in the soil, pot, &c., and so to provide the means of estimating the gain or loss of nitrogen during the course of the experiment.

The plan adopted by the Authors in discussing their own experimental results, was—

To consider the conditions to be fulfilled in order to effect the solution of the main question, and to endeavour to eliminate all sources of error in the investigation.

To examine a number of collateral questions bearing upon the points at issue, and to endeavour so far to solve them, as to reduce the general solution to that of a single question to be answered by the results of a final set of experiments.

To give the results of the final experiments, and to discuss their bearings upon the question which it is proposed to solve by them.

Accordingly, the following points are considered:—

1. The preparation of the soil, or matrix, for the reception of the plants and of the nutriment to be supplied to them.

2. The preparation of the nutriment, embracing that of mineral constituents, of certain solutions, and of water.

3. The conditions of atmosphere to be supplied to the plants, and the means of securing them; the apparatus to be employed, &c.

4. The changes undergone by nitrogenous organic matter during decomposition, affecting the quantity of combined nitrogen present, in circumstances more or less analogous to those in which the experimental plants are grown.

5. The action of agents, as ozone; and the influence of other circumstances which may affect the quantity of combined nitrogen present in connexion with the plants, independently of the direct action of the growing process.

In most of the experiments a rather clayey soil, ignited with free access of air, well-washed with distilled water, and re-ignited, was used as the matrix or soil. In a few cases washed and ignited pumice-stone was used.

The mineral constituents were supplied in the form of the ash of plants, of the description to be grown if practicable, and if not, of some closely allied kind.

The distilled water used for the final rinsing of all the important parts of the apparatus, and for the supply of water to the plants, was prepared by boiling off one-third from ordinary water, collecting the second-third as distillate, and redistilling this, previously acidulated with phosphoric acid.

Most of the pots used were specially made, of porous ware, with a great many holes at the bottom and round the sides near to the bottom. These were placed in glazed stone-ware pans with inward-turned rims to lessen evaporation.

Before use, the red-hot matrix and the freshly ignited ash were mixed in the red-hot pot, and the whole allowed to cool over sulphuric acid. The soil was then moistened with distilled water, and after the lapse of a day or so the seeds or plants were put in.

Very carefully picked bulks of seed were chosen; specimens of the average weight were taken for the experiment, and in similar specimens the nitrogen was determined.

The atmosphere supplied to the plants was washed free from ammonia by passing through sulphuric acid, and then over pumice-stone saturated with sulphuric acid. It then passed through a solution of carbonate of soda before entering the apparatus enclosing the plant, and it passed out again through sulphuric acid.

Carbonic acid, evolved from marble by measured quantities of hydrochloric acid, was passed daily into the apparatus, after passing, with the air, through the sulphuric acid and the carbonate of soda solution.

The enclosing apparatus consisted of a large glass shade, resting in a groove filled with mercury, in a slate or glazed earthenware stand, upon which the pan, with the pot of soil, &c., was placed. Tubes passed under the shade, for the ingress and the egress of air, for the supply of water to the plants, and, in some cases, for the withdrawal of the water which condensed within the shade. In other cases, the condensed water was removed by means of a special arrangement.

One advantage of the apparatus adopted was, that the washed air was forced, instead of being aspirated, through the enclosing vessel. The pressure upon it was thus not only very small, and the danger from breakage, therefore, also small, but it was exerted upon the inside instead of the outside of the shade; hence, any leakage would be from the inside outwards, so that there was no danger of unwashed air gaining access to the plants.

The conditions of atmosphere were proved to be adapted for healthy growth, by growing plants under exactly the same circumstances, but in a garden soil. The conditions of the artificial soil were shown to be suitable for the purpose, by

the fact that plants grown in such soil, and in the artificial conditions of atmosphere, developed luxuriantly, if only manured with substances supplying combined nitrogen.

Passing to the subjects of collateral inquiry, the first question considered was, whether plants growing under the conditions stated would be likely to acquire nitrogen from the air through the medium of ozone, either within or around the plant, or in the soil; that body oxidating free nitrogen, and thus rendering it assimilable by the plants.

Several series of experiments were made upon the gases contained in plants or evolved from them, under different circumstances of light, shade, supply of carbonic acid, &c. When sought for, ozone was in no case detected. The results of the inquiry in other respects, bearing upon the points at issue, may be briefly summed up as follows:

1. Carbonic acid within growing vegetable cells and intercellular passages suffers decomposition very rapidly on the penetration of the sun's rays, oxygen being evolved.

2. Living vegetable cells, in the dark, or not penetrated by the direct rays of the sun, consume oxygen very rapidly, carbonic acid being formed.

3. Hence, the proportion of oxygen must vary greatly according to the position of the cell, and to the external conditions of life, and it will oscillate under the influence of the reducing force of carbon-matter (forming carbonic acid) on the one hand, and of that of the sun's rays (liberating oxygen) on the other. Both actions may go on simultaneously according to the depth of the cell; and the once outer cells may gradually pass from the state in which the sunlight is the greater reducing agent to that in which the carbon-matter becomes the greater.

4. The great reducing power operating in those parts of the plant where ozone is most likely, if at all, to be evolved, seems unfavourable to the oxidation of nitrogen; that is under circumstances in which carbon-matter is not oxidized, but on the contrary, carbonic acid reduced. And where beyond the influence of the direct rays of the sun, the cells seem to supply an abundance of more easily oxidized carbon-matter, available for oxidation should free oxygen or ozone be present. On the assumption that nitrates are available as a direct source of nitrogen to plants, if it were admitted that nitrogen is oxidated within the plant, it must be supposed (as in the case of carbon) that there are conditions under which the oxygen compound of nitrogen may be reduced within the organism, and that there are others in which the reverse action, namely, the oxidation of nitrogen, can take place.

5. So great is the reducing power of certain carbon-compounds of vegetable matter, that when the growing process has ceased, and all the free oxygen in the cells has been consumed, water is for a time decomposed, carbonic acid formed, and hydrogen evolved.

The suggestion arises, whether ozone may not be formed under the influence of the powerful reducing action of the carbon-compounds of the cell on the oxygen eliminated from carbonic acid by sunlight, rather than under the direct action of the sunlight itself—in a manner analogous to that in which it is ordinarily obtained under the influence of the active reducing agency of phosphorus? But, even if it were so, it may be questioned whether the ozone would not be at once destroyed when in contact with the carbon-compounds present. It is more probable, however, that the ozone said to be observed in the vicinity of vegetation, is due to the action of the oxygen of the air upon minute quantities of volatile carbo-hydrogens emitted by plants.

Supposing ozone to be present, it might, however, be supposed to act in a more indirect manner as a source of combined and assimilable nitrogen in the Authors' experiments, namely—by oxidating the nitrogen dissolved in the condensed water of the apparatus—by forming nitrates in contact with the moist, porous, and alkaline soil—or by oxidating the free nitrogen in the cells of the older roots, or that evolved in their decomposition.

Experiments were accordingly made to ascertain the influence of ozone upon organic matter, and on certain porous and alkaline bodies, under various circumstances. A current of ozonous air was passed over the substances for some time daily, for several months, including the whole of the warm weather of the summer; but in only one case out of eleven was any trace of nitric acid detected, namely, that of garden soil; and this was proved to contain nitrates before being submitted to the action of ozone.

It is not, indeed, hence inferred that nitric acid could under no circumstances be formed through the influence of ozone on certain nitrogenous compounds, on nascent nitrogen, on gaseous nitrogen in contact with porous and alkaline substances, or even in the atmosphere. But, considering the negative result with large quantities of ozonous air, acting upon organic matter, soil, &c., in a wide range of circumstances, and for so long a period, it is believed that no error will be introduced into the main investigation by the cause referred to.

Numerous experiments were made to determine whether free nitrogen was evolved during the decomposition of nitrogenous organic compounds.

In the first series of six experiments, wheat, barley, and bean-meal were respectively mixed with ignited pumice, and ignited soil, and submitted for some months to decomposition in a current of air, in such manner that any ammonia evolved could be collected and estimated. The result was, that in five out of the six cases, there was a greater or less evolution of free nitrogen—amounting, in two of the cases, to more than 12 per cent of the original nitrogen of the substance.

The second series consisted of nine experiments; wheat, barley, and beans being again employed, and, as before, either ignited soil or pumice used as the matrix. In some cases the seeds were submitted to experiment whole, and allowed to grow, and the vegetable matter produced permitted to die down and

decompose. In other cases, the ground seeds, or "meals," were employed. The conditions of moisture were also varied. The experiments were continued through several months, when from 60 to 70 per cent of the carbon had disappeared.

In eight out of the nine experiments, a loss of nitrogen, evolved in the free state, was indicated. In most cases, the loss amounted to about one-seventh or one eighth, but in one instance to 40 per cent of the original nitrogen. In all these experiments the decomposition of the organic substance was very complete, and the amount of carbon lost was comparatively uniform.

It thus appeared that, under rare circumstances, there might be no loss of nitrogen in the decomposition of nitrogenous organic matter; but that, under a wide range of circumstances, the loss was very considerable—a point, it may be observed, of practical importance in the management of the manures of the farm and the stable.

Numerous direct experiments showed, that when nitrogenous organic matter was submitted to decomposition in water, over mercury, in the absence of free oxygen, there was no free nitrogen evolved. In fact, the evolution in question appeared to be the result of an oxidating process.

Direct experiments also showed, that seeds may be submitted to germination and growth, and that nearly the whole of the nitrogen may be found in the vegetable matter produced.

It is observed that, in the cases referred to in which so large an evolution of free nitrogen took place, the organic substances were submitted to decomposition for several months, during which time they lost two-thirds of their carbon. In the experiments on the question of assimilation, however, but a very small proportion of the total organic matter is submitted to decomposing actions apart from those associated with growth, and this for a comparatively short period of time, at the termination of which the organic form is retained, and therefore but very little carbon is lost. It would appear, then, that in experiments on assimilation no fear need be entertained of any serious error arising from the evolution of free nitrogen in the decomposition of the nitrogenous organic matter necessarily involved, so long as it is subjected by the ordinary process of germination, and exhaustion to supply materials for growth. On the other hand the facts adduced afford a probable explanation of any small loss of nitrogen which may occur when seeds have not grown, or when leaves, or other dead matters, have suffered partial decomposition. They also point out an objection to the application of nitrogenous organic manure in such experiments.

Although there can be no doubt of the evolution of hydrogen during the decomposition of organic matter under certain conditions, and although it has long been admitted that nascent hydrogen may, under certain circumstances, combine with gaseous nitrogen and form ammonia—nevertheless, from considerations stated at length in the paper, the Authors infer that there need be little apprehension of error in the results of their experiments, arising from an unaccounted

supply of ammonia, formed under the influence of nascent hydrogen given off in the decomposition of the organic matter involved.

Turning to their direct experiments on the question of the assimilation of free nitrogen, the Authors first consider whether such assimilation would be most likely to take place when the plant had no other supply of combined nitrogen than that contained in the seed sown, or when supplied with a limited amount of combined nitrogen, or with an excess of combined nitrogen? And again—whether at an early stage of growth, at the most active stage, or when the plant was approaching maturity? Combinations of these several circumstances might give a number of special conditions, in perhaps only one of which assimilation of free nitrogen might take place, in case it could in any.

It is hardly to be supposed that free nitrogen would be assimilated if an excess of combined nitrogen were at the disposal of the plant. It is obvious, however, that a wide range of conditions would be experimentally provided, if in some instances plants were supplied with no more combined nitrogen than that contained in the seed, in others brought to a given stage of growth by means of limited extraneous supplies of combined nitrogen, and in others supplied with combined nitrogen in a more liberal measure. It has been sought to provide these conditions in the experiments under consideration.

In the selection of plants, it was sought to take such as would be adapted to the artificial conditions of temperature, moisture, &c., involved in the experiment, and also such as were of importance in an agricultural point of view—to have representatives, moreover, of the two great Natural Families, the Graminaceæ and the Leguminosæ, which seem to differ so widely in their relations to the combined nitrogen supplied within the soil—and finally, to have some of the same descriptions as those experimented upon by M. Boussingault, and M. G. Ville, with such discordant results.

Thirteen experiments were made (4 in 1857 and 9 in 1858,) in which the plants were supplied with no other combined nitrogen than that contained in the original seed. In 12 of the cases prepared soil was the matrix, and in the remaining one prepared pumice.

Of 9 experiments with Graminaceous plants, 1 with wheat and 2 with barley were made in 1857. In one of the experiments with barley there was a gain of 0·0016, and in the other of 0.0026 gramme of nitrogen. In only two cases of the experiments with cereals in 1858, was there any gain of nitrogen indicated; and in both it amounted to only a small fraction of a milligramme. Indeed, in no one of the cases, in either 1857 or 1858, was there more nitrogen in the *plants themselves*, than in the seed sown. A gain was indicated only when the nitrogen in the soil and pot—which together weighed about 1500 grammes—was brought into the calculation. Moreover, the gain only exceeded 1 milligramme in the case of the experiments of 1857, when slate, instead of glazed earthenware stands were used as the lute vessels; and there was some reason to believe that

the gain indicated was due to this circumstance. In none of the other cases was the gain more than would be expected from error in analysis.

The result was then, that in no one case of these experiments was there any such gain of nitrogen as could lead to the supposition that *free* nitrogen had been assimilated. The plants had, however, vegetated for several months, had in most cases more than trebled the carbon of the seed, and had obviously been limited in their growth for want of a supply of available nitrogen in some form. During this long period they were surrounded by an atmosphere containing free nitrogen; and their cells were penetrated by fluid saturated with that element. It may be further mentioned, that many of the plants formed glumes and paleæ for seed.

It is to be observed that the results of these experiments with cereals go to confirm those of M. Boussingault.

The Leguminous plants experimented upon did not grow so healthily under the artificial conditions as did the cereals. Still, in all three of the cases of these plants in which no combined nitrogen was provided beyond that contained in the original seed, the carbon in the vegetable matter produced was much greater than that in the seed—in one instance more than 3 times greater. In no case, however, was there any indication of assimilation of free nitrogen, any more than there had been by the Graminaceous plants grown under similar circumstances.

One experiment was made with buckwheat, supplied with no other combined nitrogen than that contained in the seed. The result gave no indication of assimilation of free nitrogen.

In regard to the whole of the experiments in which the plants were supplied with no combined nitrogen beyond that contained in the seed, it may be observed that, from the constancy of the amount of combined nitrogen present in relation to that supplied, throughout the experiments, it may be inferred, as well that there was no evolution of free nitrogen by the growing plant, as that there was no assimilation of it; but it cannot hence be concluded that there would be no such evolution if an excess of combined nitrogen were supplied.

The results of a number of experiments, in which the plants were supplied with more or less of combined nitrogen, in the form of ammonia-salts, or of nitrates, are recorded. Ten were with Cereals; 4 in 1857, and 6 in 1858. Three were with Leguminous plants; and there were also some with plants of other descriptions—all in 1858.

In the case of the cereals more particularly, the growth was very greatly increased by the extraneous supply of combined nitrogen; in fact, the amount of vegetable matter produced was 8, 12, and even 30 times greater than in parallel cases without such supply. The amount of nitrogen appropriated was also, in all cases many times greater, and in one case more than 30 times as great, when a supply of combined nitrogen was provided. The evidence is therefore sufficiently clear that all the conditions provided, apart from those which depended upon a supply of combined nitrogen, were adapted for vigorous growth; and that

the limitation of growth where no combined nitrogen was supplied was due to the want of such supply.

In 2 out of the 4 experiments with cereals in 1857, there was a slight gain of nitrogen beyond that which should occur from error in analysis; but in no one of the 6 in 1858, when glazed earthenware instead of slate stands were used, was there any such gain. It is concluded, therefore, that there was no assimilation of free nitrogen. In some cases the supply of combined nitrogen was not given until the plants showed signs of decline; when, on each addition, increased vigour was rapidly manifested. In others the supply was given earlier and was more liberal.

As in the case of the Leguminous plants grown without extraneous supply of combined nitrogen, those grown with it progressed much less healthily than the Graminaceous plants. But the results under these conditions, so far as they go, did not indicate any assimilation of free nitrogen.

The results of experiments with plants of other descriptions, in which an extraneous supply of combined nitrogen was provided, also failed to show an assimilation of free nitrogen.

Thus, 19 experiments with Graminaceous plants, 9 without and 10 with an extraneous supply of combined nitrogen—6 with Leguminous plants, 3 without and 3 with an extraneous supply of combined nitrogen, and also some with other plants, have been made. In none of the experiments, with plants so widely different as the Graminaceous and the Leguminous, and with a wide range of conditions of growth, was there evidence of an assimilation of free nitrogen.

The conclusions from the whole inquiry may be briefly summed up as follows:

The yield of nitrogen in the vegetation over a given area, within a given time, especially in the case of Leguminous crops, is not satisfactorily explained by reference to the hitherto quantitatively determined supplies of *combined* nitrogen.

The results and conclusions hitherto recorded by different experimenters on the question whether plants assimilate *free* or *un*combined nitrogen, are very conflicting.

The conditions provided in the experiments of the Authors on this question were found to be quite consistent with the healthy development of various Graminaceous Plants, but not so much so for that of the Leguminous Plants experimented upon.

It is not probable that, under the circumstances of the experiments on assimilation, there would be any supply to the plants of an unaccounted quantity of combined nitrogen, due to the influence either of ozone, or of nascent hydrogen.

It is not probable that there would be a loss of any of the combined nitrogen involved in an experiment on assimilation, due to the evolution of free nitrogen in the decomposition of organic matter, except in certain cases, when it might be presupposed.

It is not probable that there would be any loss due to the evolution of free nitrogen from the nitrogenous constituents of the plants during growth.

In numerous experiments with Graminaceous plants, under a wide range of conditions of growth, in no case was there any evidence of an assimilation of free nitrogen.

In experiments with Leguminous plants the growth was less satisfactory, and the range of conditions was, therefore, more limited. But the results with these plants, so far as they go, do not indicate any assimilation of free nitrogen. It is desirable that the evidence of further experiments with such plants, under conditions of more healthy growth, should be obtained.

Results obtained with some other plants, are in the same sense as those with Graminaceous and Leguminous ones, in regard to the question of the assimilation of free nitrogen.

In view of the evidence afforded of the non-assimilation of *free* nitrogen by plants, it is very desirable that the several actual or possible sources whence they may derive *combined* nitrogen should be more fully investigated, both qualitatively and quantitatively.

If it be established that plants do not assimilate free or uncombined nitrogen, the source of the large amount of combined nitrogen known to exist on the surface of the globe, and in the atmosphere, still awaits a satisfactory explanation.

For the Southern Planter.

The Supposed Calcareous Character of Certain Rocks and Soils in Florida Practically Tested.

BEECHWOOD, *Prince George Co., Va.*, Jan. 19th, 1861.

MESSRS. EDITORS—Having been called to Florida recently, I had designed to use the opportunity thus afforded to see something of the country, and to investigate some curious and obscure questions in relation to the soils. Several causes for disappointed effort, or delay, among which were an unusual prevalence of rainy weather, and my own indisposition, produced by exposure on my journey, allowed me but a few days for my designed examinations and inquiries. These particular examinations were confined to a few plantations, in one neighborhood, in Marion county. More slight and general views were added on my journeys from Fernandina to Marion, and thence to Tallahassee. Though I am inclined to believe that the very remarkable facts which I observed in a limited locality are general through a large portion of Florida, I will not assume so broad a position on so limited an amount of actual observations. But I will assume as true and general, for the neighborhood in which my personal observations were made, the particular and peculiar qualities of soil which I observed. That area embraced the pine-land estate of Gen. Wm. Owens (and his residence,) the Fort Duane plantation, belonging to him and his brother Col. S. Owens, and the intermediate pine forest land, all stretching some 12 miles. The Fort Duane land is very extensively known, owing to its having been settled, as a sugar plantation, by Gen. Clinch, before the Seminole war, and to the place being occupied as a

military post during that war. This plantation also is strongly illustrative, in its character, of the peculiarities of soils and rock of which I shall speak. Thus, by reference to the Fort Duane lands, so well known to many, the importance of my observations may be made more impressive. And many may be ready to admit that if qualities of soil, so entirely different from what were universally supposed, are true as to the Fort Duane lands, and their vicinity, they may well be true as to all of Florida, where the like apparent qualities of rocks and soils extend.

This was my first sight of Florida—and I had never before had an opportunity to examine even a hand specimen of its soil or rock. But as far back a 25 years, the descriptions published of the soils and products had presented to me puzzling or incredible propositions, which I had never before been able to examine and scrutinize by actual experiment. The opportunity, now incidentally afforded by the main pursuit of other and now more important political objects, limited as it was, was used for this purpose; and though having but little leisure or inclination, at this exciting time of political revolution, for other studies or discussions, I will constrain myself to write some hasty statements of my observations, before they may fade from my frail memory.

The general description of the lands of Florida, as given by all visitors and residents, and without exception, so far as I have known, has been that the land was generally underlaid with "rotten limestone," on a very hard marl, which rock often cropped out at the surface, and was seen in detached masses on almost all the lands, in greater or less abundance. The quantity of this rock was greater on the rich hammock lands, but it was not wanting on the poorer pine lands. No resident, or planter, had doubted that these rocks were generally calcareous, or that the soils were necessarily generally and also abundantly supplied with lime. Indeed, certain bad results of cotton culture on some of the richest lands, and their failure to produce good cotton, were ascribed to the excessive quantity of lime in these soils.

From all the numerous and intelligent witnesses, testifying to the like general facts, and concurring in the same inferences and conclusions, I myself could never have doubted their correctness, except that they contradicted (for all the great extent of the pine lands,) my theoretical views of the antagonism of calcareous soil and healthy and natural pine growth. Because of the contradiction of the universally believed facts to my theoretical doctrine, I could not admit the alleged facts. And when, at last, I was enabled to test their accuracy, in places where they were deemed most certain and undeniable, I found them, without a single exception, so far as observed, to be mistaken, and fallacious.

In my first drive by day-light, and otherwise than on a railway, from Micanopy to Gen. Owens' residence, I was soon furnished with enough apparent proofs of the correctness of the general opinions. The scattered surface rocks, to my eye, seemed like the hard calcarecus rock of Marengo, Ala., or of Charleston District, S. C., and fully as calcareous as these, which contain from 70 to 90 per cent. of

carbonate of lime. I saw such rock on pine-land as well as hammock. I saved specimens for accurate testing by the touch of acid—but with little expectation of finding any contradiction to what appearances indicated to the eye.

In this hasty sketch I cannot state particular cases—and it would be useless, inasmuch as the general results were found to be all alike. It is enough to say, that in trying, by the touch of muriatic acid, numerous specimens of soils, both of pine land and hammock, and of the surface or buried gravel, or of the surface stone, and on soils supposed by the intelligent owners to be most certainly and strongly calcareous, I did not find any *carbonate* of lime, in either soil or gravel, or rock—nor was lime in any other form indicated to be present in any of the surface stones, or in any near the surface, except in the numerous depressions, or "lime-sinks," in which the lower lying stone was always found to be calcareous, whether very pure, or impure as more usual. Yet, the stones at or near the general surface, not only in their color, soft texture, and general form, seemed to be calcareous, but many of them are full of the impressions, (or casts,) of shells, and some even of the harder shells (*pecten* and *ostræa*,) remaining in form. These strange results were sufficient to re-establish my here controverted doctrine that pine trees would not naturally grow and thrive on a calcareous soil—or, at least, that there is no evidence to disprove that doctrine presented in the growth of the pine forests of Florida. Also, my testings and observations, limited as they were in extent of surface, were enough to prove, for these lands at least, that the universal opinion of the abundance (or excess) of lime in these soils is entrely mistaken. I infer that no soil which I examined has too much lime, and that all the pine lands would be much benefitted by having more lime added. And this essential ingredient of good soil, though absent at and near the surface, is to be found at some moderate depth, where indicated by "sink-holes," on sundry different parts of almost every plantation in Marion county, if not of most lands of the whole state. I brought away some specimens of the rocks, which obviously had been calcareous at some former time, but are no longer so, which will be sent with this writing, for inspection, to the office of the Southern Planter.

It is proper for me to state that Dr. Robert Archer, then a Surgeon in the U. S. Army, and stationed at Fort King, in Florida, in 1833, made observations similar to mine, in regard to that locality, and which were induced by the like causes, and led to the same conclusions. I noticed, with great and personal interest, this statement of Dr. Archer's, when he favored me and the public by the communication containing it, and which I then published in the Farmers' Register, (vol. iv., p. 185, for 1836*). But the facts stated, important as they

* Extract of Dr. Archer's letter, above referred to:

"The country about Fort King is called a lime-stone country. The pine lands, which constitute four-fifths of this region, to all appearances, are very little more than barren sands, producing scarcely any undergrowth but rank [coarse] grass, and interspersed, in every direction, with what has been called rotten lime-stone, containing the impression

were, probably attracted no notice of any of the cultivators or proprietors of Florida lands, who were so deeply interested in the question. And the general, if not universal calcareous character of the soils and rocks of Florida has continued, since as before, to be the universally accepted opinion of the residents and cultivators of the country.

I believe that the surface and higher-lying under beds of the peninsula of Florida were, at some remote ancient era, calcareous, both the rocks and soils, as they are now erroneously believed to be. The low-lying rock, probably extending under the whole of the Peninsula, is still of lime-stone. As of all lime-stone formations, this great under-bed is penetrated by innumerable hollow passages and caverns, many of which are channels of rapid and bold streams, or even considerable rivers, and all of which are full of water, if not being actual open communications between the numerous lakes and large ponds. By some great and long-continued operation of Nature, which I do not pretend to explain, it seems that the carbonate of lime has been removed from the soils, and the carbonate and probably all other forms of lime from the rocks, and for some or many feet of depth from the surface.

That such a change may take place is even more evident from other facts which I have observed elsewhere. In St. Matthew's Parish, and elsewhere in Orangeburgh District, S. C., I had long ago seen numerous and unquestionable evidences that soils and rocks, and especially numerous shells, had lost their former calcareous ingredients, and received instead, and in precisely the same form, as to the shells, silicious in place of the lost calcareous parts. There are there found beds of silicious rock or earth, which manifestly were once beds of shell marl. The shells (of the *eocene* era,) are perfectly preserved, and where imbedded in sand (as at Legare's mill,) are separate and distinct, and in many cases are as perfect in form, even to the most delicate and sharp edges, and the minutest prickle, as if the living animal were still enclosed. Yet these perfect and beautiful shells are entirely silicified, and contain not the least remains of lime.

There are other peculiar and remarkable characteristics of Florida which well deserve notice, and which perhaps I may speak of at some other time, when more leisure and convenience may permit. EDMUND RUFFIN.

LIME.—Lime will descend down as far as the earth is pulverized, and it should, therefore, be placed on the top of the ground.

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of various marine shells. Pursuing still the inquiry how such immense forests of pine should grow in a soil evidently calcareous, I concluded to analyze it, and, to my surprise, found that it did not contain one particle of carbonate of lime. This appeared the more extraordinary, as the rotten lime-stone was all around me in large masses, as well as disintegrated. I then undertook to ascertain what proportion of the carbonate was contained in this rotten lime-stone; and to my still greater surprise, could not detect the existence of the smallest quantity."—p. 186.

Man cannot Act upon Nature,

Or appropriate her forces to his own use, without having an ultimate acquaintance with her laws.

An equal appreciation of all branches of mathematical, physical and natural sciences, is a special requirement of the present age, in which the material wealth and the growing prosperity of nations are principally based upon a more enlightened employment of the products and forces of nature. The most superficial glance at the present condition of Europe shows that a diminution, or even a total annihilation of national prosperity, must be the award of those States who shrink with slothful indifference from the great struggle of rival nations in the career of the industrial arts. It is with nations as with nature, which, according to a happy expression of Göethe, "knows no pause in progress and development, and attaches her curse on all inaction." The propagation of an earnest and sound knowledge of science can therefore alone avert the dangers of which I have spoken. Man cannot act upon nature, or appropriate her forces to his own use, without comprehending their full extent, and having an intimate acquaintance with the laws of the physical world. Bacon has said that, in human societies, knowledge is power. Both must rise and sink together. But the knowledge that results from the free action of thought, is at once the delight and the indestructible prerogative of man; and, in forming part of the wealth of mankind, it not unfrequently serves as a substitute for the natural riches, which are but sparingly scattered over the earth. Those States which take no active part in the general industrial movement, in the choice and preparation of natural substances, or in the application of mechanics and chemistry, and among whom this activity is not appreciated by all classes of society, will infallibly see their prosperity diminish in proportion as neighboring countries become strengthened and invigorated under the genial influence of arts and sciences.

As in nobler spheres of thought and sentiment, in philosophy, poetry, and the fine arts, the object at which we aim ought to be an inward one—an ennoblement of the intellect—so ought we likewise, in our pursuit of science, to strive after a knowledge of the laws and the principles of unity that pervade the vital forces of the universe; and it is by such a course that the physical studies may be made subservient to the progress of industry, which is a conquest of mind over matter. By a happy connection of causes and effects, we often see the useful linked to the beautiful and the exalted. The improvement of agriculture in the hands of freemen, and on properties of a moderate extent—the flourishing state of the mechanical arts freed from the trammels of municipal restrictions—the increased impetus imparted to commerce by the multiplied means of contact of nations with each other—are all brilliant results of the intellectual progress of mankind, and of the amelioration of political institutions, in which this progress is reflected. The picture presented by modern history ought to convince those who are tardy in awakening to the truth of the lesson it teaches.

Nor let it be feared, that the marked predilection for the study of Nature, and

for industrial progress, which is characteristic of the present age, should necessarily have a tendency to retard the noble exertions of the intellect in the domains of philosophy, classical history, and antiquity; or to deprive the arts by which life is embellished of the vivifying breath of imagination. Where all the germs of civilization are developed beneath the ægis of free institutions and wise legislation, there is no cause for apprehending that any one branch of knowledge should be cultivated to the prejudice of others. All afford the State, precious fruits, whether they yield nourishment to man and constitute his physical wealth, or whether, more permanent in their nature, they transmit in the works of mind the glory of nations to remotest posterity. The Spartans, notwithstanding their Doric austerity, prayed the gods to grant them "the beautiful with the good."—*Humboldt's Cosmos.*

Curiosities of the Patent Office.

Among the thousands of marvelous inventions which American genius has produced within the last few years, are the following, compiled in an abstract from the Patent Office Report:

The report explains the principle of the celebrated Hobb Lock. Its "unpickability" depends upon a second or false set of tumblers, which prevents instruments used in picking from touching the real ones. Moreover, the lock is powder-proof, and may be loaded through the key-hole and fired off till the burglar is tired of his fruitless work, or fears that the explosion will bring to view his experiments more witnesses than he desires.

A harpoon is described which makes the whale kill himself. The more he pulls the line the deeper goes the harpoon.

An ice-making machine has recently been patented, which is worked by a steam engine. In an experimental trial, it froze several bottles of sherry, and produced blocks of ice the size of a cubic foot, when the thermometer was up to eighty degrees. It is calculated that for every ton of coal put into the furnace, it will make a ton of ice.

From Dr. Dale's examiner's report, we gather some idea of the value of patents. A man who had made a slight improvement in straw-cutters, took a model of his machine through the Western States, and after a tour of eight months, returned with forty thousand dollars. Another man had a machine to thresh and clean grain, which in fifteen months he sold for sixty thousand dollars. These are no ordinary cases—while such inventions as the telegraph, the planing machine, and India rubber patents are worth millions each.

Examiner Lane's report describes new electrical inventions. Among these is an electrical whaling apparatus, by which the whale is literally "shocked to death." Another is an electro-magnetic alarm, which rings bells and displays signals in case of fire and burglars. Another is an electric clock, which wakes you up, tells you what time it is, and lights a lamp for you at any hour you please.

There is a "sound gatherer," a sort of huge ear-trumpet to be placed in front of a locomotive, bringing to the engineer's ears all the noise ahead, perfectly distinct, notwithstanding the noise of the train.

There is an invention that picks up pins from a confused heap, turns them around with their heads up, and sticks them in papers in regular rows.

Another goes through the whole process of cigar-making, taking in leaves and turning out finished cigars.

One machine cuts cheese; another scours knives and forks; another rocks the cradle; and seven or eight take in washing or ironing.

There is a parlor chair patented that cannot be tipped back on two legs, and a railway chair that cannot be tipped back in any position, without any legs at all.

Another patent is for a machine that counts passengers in an omnibus and takes their fares. When a very fat gentleman gets in, it counts two and charges double

There are a variety of guns patented that load themselves; a fishing line that adjusts its own bait, and a rat trap that throws away the rat, and then baits itself, and stands in the corner for another.

There is a machine also by which a man prints, instead of writes, his thoughts. It is played like a piano forte. And speaking of pianos, it is estimated that nine thousand are made every year in the United States, giving constant employment to 1,900 persons, and costing over $2,000,000.

Young America Wonders.

Wonders why mamma keeps Bridget at home from church to work all day, and says it is wicked for me to build my rabbit house on Sunday?

Wonder why our minister bought that pretty cane with the yellow lion's head on the top, and then asked me for my cent to put in the missionary box? Don't I want a jewsharp just as much as he wants a cane?

Wonder what makes pa tell such nice stories to visitors about hiding the master's rattan when he went to school, and about his running away from the schoolmistress when she was going to whip him, and then shut me up all day in a dark room because I tried, just once, to be as smart as he was?

Wonder why mamma tells pa he is cross when he comes home at night and says his tea is weak, and ties a handkerchief over my mouth so that I can neither speak nor breathe because I happen to say she is cross?

Wonder what made pa say that wicked word when Bessy upset the ink all over his papers, and then slapped my ears because I said the same thing when my kite-string broke?

Oh, dear! there are lots of things that I want to know! How I wish I was a man!

Alderney or Jersey Cattle.

A correspondent of the New England *Farmer*, speaking of Mr. Fay's sale of Alderneys, remarks:

A few years ago this breed was introduced into Exeter, N. H., and many half-blooded heifers have been bred from a full blood bull on all sorts of cows. The universal opinion, I think, in that neighborhood, is, that this is the best cross that has ever been tried by the farmers there.

The half-bloods seem to take the hard and more compact form of the dam, with the milking qualities of the breed of the sire. It is remarked that the heifers came in very early, often before they are two years old, that their milk yields far more butter than that of common stock, and that the quantity is also large. I know of none more than four years old in that region, so that the experiment is not yet fully tried. The general characteristics of the breed are, that they are small, somewhat delicate, yielding a fair quantity of milk daily, keeping in milk nearly or quite all the year, surpassing all other breeds in their butter-making qualities. They are not the milkman's cow, because they do not give water enough with their milk, and do not weigh heavy when turned off for beef. Their butter is yellow as gold, and many English dairies keep one Jersey cow to about four others, to give rich color and flavor to their dairy products. So much for the full blood. What the grades may do for us is a question of importance.

I will close with a tolerably good story, of my own experience. I had a calf from an ordinary red cow, by a Jersey bull, dropped April 9th, 1857. She had her first calf, which she picked up in the pasture from a half-bred Jersey bull, April 1st, 1859. She gave a fair quantity of milk through the season, which was not measured or used separately from that of the other cows. She was dry about five weeks, and dropped her second calf about May 31st, 1860. In June, during one week, she made about ten pounds of butter, and we estimated that she made nearly that quantity weekly; then she was sold at auction with my other goods and chattles, on the 28th of July last, when she and her calf brought $61.15. I sold her first calf, at about six months old, for $16. My impression is that it will pay to raise half-blood Jerseys, if this is a fair specimen."

Poverty Not so Great a Curse.

If there is anything in the world that a young man should be more thankful for than another, it is the poverty which necessitates his starting in life under very great disadvantages. Poverty is one of the best tests of human quality in existence. A triumph over it is like graduating with honor from West Point. It demonstrates stuff and stamina. It is a certificate of worthy labor, creditably performed. A young man who cannot stand the test, is not worth anything. He can never rise above a drudge or a pauper. A young man who cannot feel

his will harden, as the yoke of poverty presses upon him, and his pluck rise with every difficulty poverty throws in his way, may as well retire into some corner and hide himself. Poverty saves a thousand times more men than it ruins; for it only ruins those who are not particularly worth saving, while it saves multitudes of those whom wealth would have ruined. If any young man who reads this, is so unfortunate as to be rich, I give him my pity. I pity you, my rich young friend, because you are in danger. You lack one stimulus to effort and excellence, which your poor companion possesses. You will be very apt, if you have a soft spot in your head, to think yourself above him, and that sort of thing makes you mean, and injures you. With full pockets and full stomach, and fine linen and broadcloth on your back, your heart and soul plethoric, in the race of your life you will find yourself surpassed by all the poor boys around you, before you know it.

No, my boy, if you are poor, thank God and take courage; for He intends to give you a chance to make something of yourself. If you had plenty of money, ten chances to one it would spoil you for all useful purposes. Do you lack education? Have you been cut short in the text book? Remember that education, like some other things, does not consist in the multitude of things a man possesses. What can you do? That is the question that settles the business for you. Do you know your business? Do you know men, and how to deal with them? Has your mind, by any means whatsoever, received that discipline which gives to its action power and faculty? If so, then you are more of a man, and a thousand times better educated than the fellow who graduates from college, with his brains full of stuff that he cannot apply to the practical business of life—stuff, the acquisition of which has been in no sense a disciplinary process as far as he is concerned. There are very few men in this world less than thirty years of age, unmarried, who can afford to be rich. One of the greatest benefits to be reaped from great financial disasters, is the saving a large crop of young men.—*Timothy Titcomb.*

A True Woman.

When a man of sense comes to marry, it is a companion he wants, not an artist. It is not merely a creature who can paint and play, sing and dance; it is a being who can comfort and counsel him—one who can reason and reflect, and feel and judge, and discourse and discriminate—one who can assist him in his affairs, lighten his sorrows, purify his joys, strengthen his principles and educate his children. Such is the woman who is fit for a mother and the mistress of a family. A woman of the former description may occasionally figure in the drawing-room and attract the attention of the company; but she is entirely unfit for a helpmate to a man, or to train up a child in the way he should go.—*Maine Farmer.*

The best way to humble a proud man is to take no notice of him.

The Trust Providentially Committed to the South in Relation to the Institution of Slavery.

[On the occasion of a public thanksgiving appointed by the Chief Magistrate of Louisiana, for the 29th of November last, the Rev. B. M. Palmer, D. D., delivered a sermon to the people of his pastoral charge on the existing crisis in our public affairs, from which we make the following extract in relation to the obligations of the South, to conserve the trust providentially committed to them, "and to perpetuate the institution of Slavery as now existing," &c. As his views are striking, able, and somewhat original, we have thought it would prove acceptable and instructive to our readers who are slaveholders, and who, of course, are anxious to know the nature of the obligations they are under in their relations to this institution that we should lay that part of the sermon before them.]—Ed.

Extract.—It is my purpose,—not as your organ, compromiting you, whose opinions are for the most part unknown to me, but on my sole responsibility,—to speak upon the one question of the day; and to state the duty which, as I believe, patriotism and religion alike require of us all. I shall aim to speak with a moderation of tone and feeling almost judicial, well befitting the sanctities of the place and the solemnities of the judgment day.

In determining our duty in this emergency, it is necessary that we should first ascertain the nature of the trust providentially committed to us. A nation often has a character as well defined and intense as that of the individual. This depends, of course, upon a variety of causes operating through a long period of time. It is due largely to the original traits which distinguish the stock from which it springs, and to the providential training which has formed its education. But, however derived, this individuality of character alone makes any people truly historic, competent to work out its specific mission, and to become a factor in the world's progress. The particular trust assigned to such a people becomes the pledge of Divine protection, and their fidelity to it determines the fate by which it is finally overtaken. What that trust is must be ascertained from the necessities of their position, the institutions which are the outgrowth of their principles and the conflicts through which they preserve their identity and independence. If, then, the South is such a people, what, at this juncture, is their providential trust? I answer, that it is to *conserve and to perpetuate the institution of domestic slavery as now existing.* It is not necessary here to inquire whether this is precisely the best relation in which the hewer of wood and drawer of water can stand to his employer; although this proposition may perhaps be successfully sustained by those who choose to defend it. Still less are we required, dogmatically, to affirm that it will subsist through all time. Baffled as our wisdom may now be, in finding a solution of this intricate social problem, it would nevertheless be the height of arrogance to predict what changes may or may not occur in the distant future. In the grand march of events, Providence may work out a solution undiscoverable by us. What modification of soil and climate may hereafter be produced, what consequent changes in the products on

which we depend, what political revolutions may occur among the races which are now enacting the great drama of history; all such inquiries are totally irrelevant, because no prophetic vision can pierce the darkness of the future. If this question should ever arise, the generation to whom it is remitted will doubtless have the wisdom to meet it, and Providence will furnish the lights in which it is to be resolved. All that we claim for them and for ourselves is liberty to work out this problem, guided by nature and God, without obtrusive interference from abroad. These great questions of providence and history must have free scope for their solution; and the race whose fortunes are distinctly implicated in the same is alone authorized, as it is alone competent to determine them. It is just this impertinence of human legislation, setting bounds to what God only can regulate, that the South is called this day to resent and resist. The country is convulsed simply because "the throne of iniquity frameth mischief by a law." Without, therefore, determining the question of duty for future generations I simply say, that for us, as now situated, the duty is plain of conserving and transmitting the system of slavery, with the freest scope for its natural development and extension. Let us, my brethren, look our duty in the face. With this institution assigned to our keeping, what reply shall we make to those who say that its days are numbered? My own conviction is, that we should at once lift ourselves, intelligently, to the highest moral ground and proclaim to all the world that we hold this trust from God, and in its occupancy we are prepared to stand or fall as God may appoint. If the critical moment has arrived at which the great issue is joined, let us say that, in the sight of all perils, we will stand by our trust: and God be with the right!

The argument which enforces the solemnity of this providential trust is simple and condensed. It is bound upon us, then, by the *principle of self-preservation*, that "first law" which is continually asserting its supremacy over others. Need I pause to show how this system of servitude underlies and supports our material interests? That our wealth consists in our lands and in the serfs who till them? That from the nature of our products they can only be cultivated by labor which must be controlled in order to be certain? That any other than a tropical race must faint and wither beneath a tropical sun? Need I pause to show how this system is interwoven with our entire social fabric? That these slaves form parts of our households, even as our children; and that, too, through a relationship recognized and sanctioned in the Scriptures of God even as the other? Must I pause to show how it has fashioned our modes of life, and determined all our habits of thought and feeling, and moulded the very type of our civilization? How, then, can the hand of violence be laid upon it without involving our existence? The so-called free States of this country are working out the social problem under conditions peculiar to themselves. These conditions are sufficiently hard, and their success is too uncertain, to excite in us the least jealousy of their lot. With a teeming population, which the soil cannot support—with their wealth depending upon arts, created by artificial wants—with an eternal friction

between the grades of their society—with their labor and their capital grinding against each other like the upper and nether mill-stones—with labor cheapened and displaced by new mechanical inventions, bursting more asunder the bonds of brotherhood; amid these intricate perils we have ever given them our sympathy and our prayers, and have never sought to weaken the foundations of their social order. God grant them complete success in the solution of all their perplexities! We, too, have our responsibilities and our trials; but they are all bound up in this one institution, which has been the object of such unrighteous assault through five and twenty years. If we are true to ourselves, we shall, at this critical juncture, stand by it and work out our destiny.

This duty is bound upon us again *as the constituted guardians of the slaves themselves.* Our lot is not more implicated in theirs, than is their lot in ours; in our mutual relations we survive or perish together. The worst foes of the black race are those who have intermeddled on their behalf. We know better than others that every attribute of their character fits them for dependence and servitude. By nature the most affectionate and loyal of all races beneath the sun, they are also the most helpless; and no calamity can befall them greater than the loss of that protection they enjoy under this patriarchal system. Indeed the experiment has been grandly tried of precipitating them upon freedom which they know not how to enjoy; and the dismal results are before us in statistics that astonish the world. With the fairest portions of the earth in their possession, and with the advantage of a long discipline as cultivators of the soil, their constitutional indolence has converted the most beautiful islands of the sea into a howling waste. It is not too much to say that if the South should, at this moment, surrender every slave, the wisdom of the entire world, united in solemn council, could not solve the question of their disposal. Their transportion to Africa, even if it were feasible, would be but the most refined cruelty; they must perish with starvation before they could have time to relapse into their primitive barbarism. Their presence here, in the presence of the vigorous Saxon race, would be but the signal for their rapid extermination before they had time to waste away through listlessness, filth and vice. Freedom would be their doom; and equally from both they call upon us, their providential guardians, to be protected. I know this argument will be scoffed abroad as the hypocritical cover thrown over our own cupidity and selfishness; but every Southern master knows its truth and feels its power. My servant, whether born in my house or bought with my money, stands to me in the relation of a child. Though providentially owing me service, which, providentially, I am bound to exact, he is, nevertheless, my brother and my friend; and I am to him a guardian and a father. He leans upon me for protection, for counsel, and for blessing; and so long as the relation continues no power, but the power of Almighty God, shall come between him and me. Were there no argument but this, it binds upon us the providential duty of preserving the relation that we may save him from a doom worse than death.

It is a duty which we owe, further, *to the civilized world.* It is a remarkable

fact that, during these thirty years of unceasing warfare against slavery, and while a lying spirit has inflamed the world against us, that world has grown more and more dependent upon it for sustenance and wealth. Every tyro knows that all branches of industry fall back upon the soil. We must come, every one of us, to the bosom of this great mother for nourishment. In the happy partnership which has grown up in providence between the tribes of this confederacy, our industry has been concentrated upon agriculture. To the North we have cheerfully resigned all the profits arising from manufacture and commerce. Those profits they have, for the most part, fairly earned, and we have never begrudged them. We have sent them our sugar and bought it back when refined; we have sent them our cotton and bought it back when spun into thread or woven into cloth. Almost every article we use, from the shoe-latchet to the most elaborate article of luxury, they have made and we have bought; and both sections have thriven by the partnership as no people ever thrived before since the first shining of the sun. So literally true are the words of the text, addressed by Obadiah to Edom, "All the men of our confederacy, the men that were at peace with us, have eaten our bread at the very time they have deceived and laid a wound under us." Even beyond this, the enriching commerce which has built the splendid cities and marble palaces of England as well as of America, has been largely established upon the products of our soil; and the blooms upon Southern fields, gathered by black hands, have fed the spindles and looms of Manchester and Birmingham not less than of Lawrence and Lowell. Strike now a blow at this system of labor and the world itself totters at the stroke. Shall we permit that blow to fall? Do we not owe it to civilized man to stand in the breach and stay the uplifted arm? If the blind Samson lays hold of the pillars which support the arch of the world's industry, how many more will be buried beneath its ruins than the lords of the Philistines? "Who knoweth whether we are not come to the kingdom for such a time as this?"

EASY AND SAFE METHOD OF REMOVING GREASE SPOTS FROM WOOLEN.—Fuller's earth, or tobacco pipe-clay, being first wet, on an oil spot, absorbs the oil as the water evaporates, and leaves the animal or vegetable fibres of the cloth clean, on being beaten or brushed well. When the spot is caused by tallow or wax, it is necessary to treat the part cautiously by an iron on the fire, while the cloth is drying. In some kinds of goods, bran or raw starch may be used to advantage.

HORACE MANN says: "To put your children on a short allowance of fresh air, is as foolish as it would have been for Noah, during the deluge, to put his family on a short allowance of water. Since God has poured out an hemisphere fifty miles deep, it is enough to make a miser weep to see children stinted in breath."

For the Southern Planter.

Guano and Fertilizers on Corn, &c.

MESSRS. EDITORS:—While travelling through the State during the past year, I have gained the following information in relation to the use of Guano and Fertilizers on corn, &c.:

An intelligent gentleman, in Spotsylvania county, told me that a spoon full of guano to the hill, on their lands, gave corn a quick start and enabled them to make good corn on land that would not pay for cultivation without it. While passing through that section I halted to ask a stranger about the roads, &c., and asked how such land, as then surrounded us, produced. Oh, says he, we could not make bread in this country if it were not for guano. I was shown corn that had been treated with a small quantity to the hill, which promised well, it then being about three feet in height. One of the largest users of guano, of different sorts, in all Eastern Virginia that I met with, (and I met with some persons who used from ten to eighty and ninety odd tons per year,) told me guano paid as well, if not better, on corn than on any other crop, and that, for the future, he should grow large crops of corn with guano, and aim at very small crops of wheat. I met with persons who had used No. 1 Peruvian Guano and Fowle & Co.'s Phosphated Guano, with satisfactory results, on wheat and tobacco. In the Valley of Virginia I spent a night with an intelligent gentleman, who told me he had used a good phosphate of lime at the rate of 175 lbs. per acre, as nearly as he could come at it, in the hill and broadcast, and that he had the corn carefully measured, and the increase over the corn without phosphate was three barrels (15 bushels) per acre—and the broad-casted portion measured rather the most. A gentleman in Frederick county used No. 1 Peruvian Guano and Fowle & Co.'s Phosphated Guano of equal quantities on his corn last spring, he was equally satisfied with the effect from each, and ordered five tons of Fowle & Co.'s Phosphated Guano for his wheat crop last fall, being $8 or $10 the cheapest. I saw a field of corn myself that had had about half a gill of Fowle & Co.'s Phosphated Guano applied to the hill after it was eight or ten inches above the ground. It was sprinkled on and around the hill for a foot,—it killed fully half the blades, there being little or no rain for five weeks; but in the fall, the rows so treated were easily distinguished, being better in every respect. I saw oats to which the same had been applied at the rate of 75 pounds per acre, as nearly as it could be come at; the effect was very marked over that on each side of it. I met with persons who thought it wonderful, how bones enough could be had to manufacture so much phosphate of lime. They fell upon the plan of soaking and washing a pan full to satisfy themselves, as well as they could, what proportion would dissolve in the soil. The result was, that they found a fair proportion of it would not dissolve in water, and they were at a loss what to call that part, and finally concluded it was nice sand, designed to glaze well the stalks of corn and wheat. I witnessed an experiment myself of the sort about three years since, and what we could not dissolve in water we concluded was stone-coal—

charcoal and possibly stone-coal ashes, we could not exactly tell. Notwithstanding these experiments, a large proportion of the phosphates produced good results last season—J. J. & F. Turners, especially. I advise every farmer to test any manure he may purchase to his own satisfaction, with water, and if he finds *sand* or *stone-coal* in it, not to use it.

A few years since a friend of mine and myself used largely of a phosphate that did us no more good than if it had been all sand, while others near by made fine crops with an article with the same stamp on it. I believe the lot I got was stone-coal ashes, dashed with charcoal and sand, and then powdered with guano. I saw a crop of wheat, in June last, that had been drilled in on sandy land. There was a good road through the field dividing it into two parts; the owner requested me to view it, remarking that one side had 60 lbs. of No. 1 Peruvian Guano put in with the wheat, and the other had 60 lbs. of Fowle & Co.'s Phosphated Guano to the acre. I thought the field would average 18 or 20 bushels per acre. He asked me to say which was the best. The wheat was then ripening. I told him the part with Fowle & Co.'s guano I thought was the best; he replied, I am of the same opinion.

If this statement, in your opinion, will do you, the farmers, or the manufacturers of fertilizers any good, you are at liberty to publish it, with my name attached. I. I. HITE.

P. S.—I neglected to state that I met with an experienced farmer from Louisa county, who contended guano had proven an injury to his land, but said plaster improved it rapidly. As an offset to this, a gentleman in Frederick county told me he had put $25 worth of ground bones per acre, on two acres, and 200 lbs. of guano per acre along side of it, and that the guanoed portion showed as much improvement as that with $25 worth of bones per acre. He also stated he had used guano for six or seven years, and his land improved all the time—that he had galls now covered with grass that were always naked until he commenced the use of guano. He also stated, guano brought in late varieties of wheat so as to be harvested as early as early varieties could be without it. This he said was a great recommendation to guano, as our late varieties of wheat, when they can mature without rust or blight, invariably produce the most per acre.

I. I. H.

[*For the Southern Planter.*

Three days in Chester County, Pa.

Allow me instead of another Essay on Improved Farming, to offer you some account of the real thing itself, as lately seen on a short visit to this famous farming region.

The soil of Chester and Delaware counties—except just along the Delaware river—is quite rolling and even hilly, much like our Albemarle lands, but not so red and with decidedly more sand. In old times the exhausting effects of rude cultivation were almost destructive; and tradition says, the

first efforts at improvement were accompanied by the introduction of clover and plaster. These, with their great attention to manures, grasses, &c., stimulated by ready access to market, have carried them rather ahead of any locality I have seen. In reaching and passing through this region, one is delighted with the scenery no less than the fertility—but scarcely hoping to convey any adequate impression I must come to particulars.

1*st day*. This was devoted chiefly to reviewing a farm of 300 acres which I had visited just 33 years ago. It was then, I thought, the most highly cultivated and improved I had seen—belonging to Mr. Abram Starpless—now to his son of the same name. What first struck me on approaching the neat and substantial stone house was, the see the hill which it crowns all covered with the richest growth of trees, chiefly evergreens of several choice kinds—planted almost entirely by the present owner—a boy when I was there before. This lesson should not be lost on us. The comfort, as well as ornament of such a grove is readily appreciated when seen—but how few of us begin in time to enjoy it. Then the grass! not only on this lawn and in favored lots, but literally over the whole surface of the farm, excepting, of course, that in actual crop. To give some idea of their estimate of good grass, I may state, that some of these fields which I saw in clover and timothy 33 years ago, have never had a plow in them since. They are now covered with green sward like the corners of fences in our best fields; and the cattle in grazing, rather avoid the most luxuriant parts. An Englishman lately in walking over these fields stamped his foot on the turf and said, "I have seen no better grass in England than this!"

Their usual rotation is simple—corn, oats, and wheat, chiefly Mediterranean—then 5 to 7 years in grass.

With farms of from 100 to 300 acres, and from 7 to 10 fields, they cultivate thoroughly, manure highly and raise good crops, though not much better than our good ones—but their grass is quite another thing. The clover heads in the first crop seem packed together, and after a year or two the Timothy is immense. After several years cutting for hay, it is then devoted to pasture. They get from two to three tons of hay per acre through the field—high land and low land.

Their farm buildings are most capacious and substantial. The barn is usually of stone, on a hill side, with a mound or bridge for loaded wagons to drive into a passage in the second story, with immense hay mows on either side, stable room underneath for horses, cows and fattening cattle. The spring-house too, with its floors covered with water and filled with vessels of milk, is well worthy of notice. The churning by horse power is the usual custom.

The superior fat cattle—they work oxen—such as I may have seen at a fair, but never on a farm before; the improved farming implements and various other objects of interest, made my visit very satisfactory.

The 2nd day being Sunday, I attended a well filled village church. Its history—as indeed that of most churches—was full of interest; what would our country be without them? The only strange thing to me was, amongst the chil-

dred baptized, to hear one named John Fremont! Out of our latitude decidedly. It reminded me of some I had known called Aaron Burr, and of others called after some French apostles of Liberty—such liberty as proved a curse instead of a blessing, or as a statesman once said, "suicidal to themselves and others."

The 3rd day I saw several choice specimens of farming, beginning with one of about a mile square under a thorough English manager with a salary of $700 to $750. He says that when a youth he left his father and other good farmers making 30 bushels of wheat to the acre; but in a late visit there, he found them raising 60 bushels.

This, though not entirely new to me, I never could realize so fully, till in my own harvest I observed a spot which looked as if you had gathered both armsfull and drawn them together till the straws almost touched. This was where a brush pile had been burned in fallowing the field, and gave me some idea of a 60 bushel crop. The English farmer does his part well—at least so that I saw no fault. His management of some freshly cleared ground was peculiar. After cutting a heavy growth of timber from a rich flat, he ditched the springy places, and filled up other low parts so that the water could drain off, and by grazing and the briar blade kept down the sprouts and weeds till it formed a natural turf. This is often practised as you go North. He used Atkin's Raking Reaper, and Ketchman's Mower; but they prefer Manny's machine if one only is kept for both purposes.

My friend, who was kindly taking me around to see these farms, and who had been with us in Virginia many years ago, had pressed me very hard to know why we could not manure ALL our lands as they did, and to my surprise asked me to state our system of farming as I had done before to him. This in few words I did. We put our land in corn, then wheat with guano, sowing clover and plaster: fallow the first or second year for wheat, and then let the grass stand as long as we could, plastering fully and helping thinner places by covering with straw and coarse manure—grazing very little and that on the older grass---the finer manure used chiefly for tobacco.

The Englishman said, "he did not see how we could do better in our circumstances." My friend then said, "if John Bennington says so, I give it up."

Our next visit was to Mr. Caleb Bunton, whose house stands on a height overlooking the Brandywine. The approach is on a broad ridge through a superb lawn of perfect green sward, ornamented by some fine Southdowns and a few choice cattle. His pasture land is in the low grounds extending to 'Chadds' ford, and has been unbroken, so far as he knows. I saw a lot of cattle just purchased at $52 dollars round, on which he expected to make $30 each by letting them run there till November. The beauty of this place is striking. After dining at my friend's house, who has a nice farm and the best water ram I have seen, we visited their model farmer, Mr. John Starpless. His father was to them what Mr. John Rogers was to us; and after being improved for 70 years by father and son, it is indeed a pattern farm. In showing me his cornfield—the

best of course—my eye was attracted by one adjoining in the first year's grass, and I asked him the history of that. He said, when he put that in wheat, he had so much use for his manure nearer the barn, that he guanoed this, 500 lbs. to the acre, and sold from the 20 acres 800 bushels of wheat! I saw his cows—about 40—each with brass knobs on their horns, and driven in and out with the help of a shepherd's dog. They yield about 250 lbs. of butter per week, and fatten on the butter-milk I dont know how many Chester County pigs. Here is where they come from. His farm of about 400 acres brings him in about $7,000 per annum; he is still buying land. One of his lots having a remarkable turf of green sward neither he nor his father had ever broken up. Our friend Barbour, in his eloquent phrase, sets us a task to perform, "to improve our lands till gulleys should be traditional, and broomstraw be reckoned a fabulous growth."

This task has been here accomplished—for in this day's ride of 20 miles, I did not see a gully, nor could I make them understand what broomstraw was.

For the Southern Planter.

TRANQUILLA, Madison Co., January 5th, 1861.

Gentlemen:—I want some information in regard to building a Tobacco House to cure from eight to ten hogsheads of Tobacco—can you inform me what size house it will take, and the best manner of putting it up? Any information with regard to this matter will be thankfully received by a subscriber to your most valuable paper. If you can give the desired information, be good enough to give it in the January number, as I want to go on with the building.

Yours very respectfully, A SUBSCRIBER.

One house is too large for the purposes of holding this quantity of Tobacco, because there is always some risk of *fire*. More than one house will be necessary.

NOTE.—The above letter was received too late for insertion in our January number; since its receipt we have requested a friend—whose tobacco houses we think are the best we have ever seen—to furnish us with his plans and estimates for publication. He promised to comply with our request, and hand them in in time for insertion in the present number, but failed to do so. We will see to it ourselves that they shall appear in our next issue. If any of our subscribers will furnish us with plans of good and suitable buildings for the purposes mentioned in the above letter, we will cheerfully give them place in our publication.

When Aristotle was asked what were the advantages of learning, he replied: "It is an ornament to a man in prosperity, and a refuge in adversity."

As the world grows more polite it grows more hypocritical. Truth is not always palatable, and it is so easy to varnish it over with a little of that compound which society calls "good breeding."

Solitude and society are the two great magnets which attract mankind, and both have exclusive claims to merit, and both have their votaries.

Editor's Department.

Horticulture.

In order to keep our readers in mind, that the Planter is a journal devoted to Horticulture as well as Agriculture, and because this is the season to put in practice any suggestions that we may make upon the subject, we propose to devote a small space to the discussion of horticultural matters.

In what we have to say on this subject, it is not our design, at this time, to enter into the practical details of gardening, fruit growing, &c.; our aim will be to show their importance, and to urge upon our readers the propriety of giving them more attention than they ordinarily receive. Every farm has its garden, and most farms of any pretension at all, have their orchards; but how few of these farms or gardens are what they should to be; how few of either, even on well cultivated farms, bear the same marks of care and attention that the farm does, or that their importance demands. Certain vegetables and fruits—the great staples, if we may so express ourselves—are, it is true, always produced in sufficient quantity for home consumption; but how few farmers gardens are capable of supplying the family with a constant succession of the finest fruits and vegetables, from early spring until its return, such as we see displayed in our city markets. Now, if it were a difficult matter for the farmer to make a provision, which all must admit is calculated to add so much to the comfort, pleasure, and even health of the family, we should be content to say but little on the subject; but when we know how easy it would be for the great majority of our readers to enjoy, in perfection, the comfort and luxury of both the garden, and orchard, we feel that we are doing good service in calling attention to it.

To those who, having an indifferent vegetable garden, and yet are desirous of knowing how they may have a constant succession of the finest vegetables, we would say, get such a work as Buist's Kitchen Garden and go to work without delay; prepare your ground, procure good seed—the best of its kind—plant, and cultivate, and our word for it, you will thank us for our suggestions.

But while we would thus urge attention to the kitchen garden, we would, with still greater earnestness, counsel the cultivation of fruit. Only those who enjoy the luxury of good fruit, from the first dish of strawberries and cream in May, until the disappearance of the last of the apples the following spring, can thoroughly appreciate the importance of giving some attention to the fruit garden and the orchard. Plants and young trees of the very best varieties, and suited to our climate, can be had from reliable nurserymen all over the country, and at such prices, that their expense can be no argument against their cultiva-

tion, even among farmers of the most limited means. A small bed of say 200 strawberry plants, such as Hovey's or Wilson's seedlings, properly taken care of, will, in the second year after planting, afford as many fine large strawberries as a common sized family can possibly consume; from 50 to 100 raspberry bushes, such as the Red Antwerp, will in the same time yield an equally abundant supply of raspberries. A few grape vines properly selected and cared for, will soon reward the grower with an abundance of luscious grapes; and so will peaches, pears—dwarf pears—cherries, plums, &c.; while a small orchard of well-selected apples, standard pears, &c.. would leave nothing to be desired.

In this connection we would most cordially recommend Barry's Fruit Garden, wherein the processes of propagating, cultivating, and preserving fruit trees, &c., &c., are fully discussed, and where all who are interested in such matters, may learn with how little trouble or outlay, a constant supply of delicious fruit may be secured.

There is another argument in favor of fruit growing—we will only detain our readers long enough to advert to it; the ease, rapidity, and certainty with which now the most delicate fruits may be transported from distant points to our large cities, makes the growing of certain kinds of fruit a matter of great pecuniary importance, and an orchard of well selected trees frequently becomes by far the most profitable portion of the farm. At this moment, a barrel of good apples is worth almost as much in Richmond, as a barrel of flour—and as to pears, why they cant be had at any price.

Farm Arrangement.

We have several times had occasion to express our views of the importance of a radical change in some of our farming customs, particularly as regards manuring in such quantities as will greatly increase the crop on a given surface. Labor has commanded such prices, for several years past, that he must be a good manager indeed, who after hiring a few hands on his farm, and receiving our current rates for produce, can make buckle and tongue meet at the end of the year.

Good management requires something more to explain it than the mere act of doing well some of the most necessary and important services of the farm, such as plowing, &c. There must be a systematic arrangement of the work to be done—that each job of work may have its own hour, or day, as the case may require. By the exercise of this forecaste, all confusion is avoided; and if a man chooses to take the trouble, he can know weeks and months ahead what ought to be done on his farm, how long it will take to do it, and *when* he has a better right to expect a few days of limited employment during some month or other, for reasons more tangible than the uncertainties of the weather.

Every farmer should have a list of work to be done, and as each item of it is accomplished, let it be marked off. This list should be carefully revised, for the

purpose of classifying the different jobs, that some may be postponed to a more convenient season, others getting that precedence of attention which their importance demand.

Perhaps the best winter arrangement a farmer can make, is to get ready during the cold and inclement months every implement which will be needed during the year. See first, that every wagon and cart is in perfect order for hauling out the manures which have accumulated about the stables and barn yards. Having these properly cared for, have every part of the plantation harness overhauled, repaired, *and fitted snugly to the animal which is expected to work in it.* If this is not done, in all probability the farmer who neglects it, will have a parcel of teams more dead than alive—with shoulders galled, backs skinned, and mouths badly cut. Apart from the positive loss which must accrue to every man who owns stock who are thus maltreated, we think he is justly liable to censure for such gross carelessness, on the score of proper humanity.

With the present number of labor saving machines, (i. e., machines which substitute the labor of horses and mules for that of men), on most of our farms, it is absolutely necessary that our Teams should emerge from Winter Quarters fat, strong and healthy, since they are likely to have little rest until winter sets in again.

To secure for them proper condition to stand *hard* work, they should be *well fed* and *thoroughly groomed,* besides having a warm comfortable stable all winter, since they cannot take on fat, if they are allowed to suffer with cold, because the amount of food they consume will be required to furnish them with animal heat. Without a good team, all the operations of the farm must be badly conducted: therefore, we would advise every farmer to rid himself of every indifferent animal he possesses.

The next thing in order, is to overhaul all the ploughs, cultivators, &c. Put on points and landsides to the former and strengthen and renew handles and rounds. Harrows and cultivators should have their teeth sharpened, any missing teeth replaced and wedged up tightly and thoroughly. A full sett of swingletrees should be made for each and all of them, and properly secured to them by lap links, so that all of these implements may be started into the field at any day, upon half an hour's notice. The man who neglects to take these precautions, will certainly lose much valuable time, which he cannot overtake, and instead of pushing his work, will find throughout the year that his work is sorely pushing him, thereby subjecting him to grievous discomfort and annoyance.

The first genial weather of Spring more properly belong to "seed time," than to a period of the year when a farmer can afford to wait for any thing or any body, for even a short while. "Everything is to do," and we all want to make good headway as soon as the frost is out of the ground. It is important, therefore, that all the farm "fixing up" should be gotten through with before our busy season sets in. Winter work is usually not very abundant with the mechanics who do our repairing, and they have time enough to turn out for us "a

good job," which we are by no means sure of getting later in the season, when work pours into their shops, and is always wanted directly.

From the time March sits in (to say nothing of January and February) until Christmas arrives, there is plenty of work for the farmer,

"To plow and to hoe,
To reap and to mow,

And there is no time for anything but the regular work.

Another hint as to the preparation for Spring work and we have done. Mark out a plan of your farm in such a manner that your overseer and yourself will understand the drawing, and it does not matter if no one else does. Lay off on your plat all your fields and patches, and write on each field represented, the crop it has now on it, or that you expect to sow on it, and also mark down any job of work which is particularly wanting there—grubbing, or draining, for instance, or manures of certain kinds which you expect to apply at some future time.

A plat of this sort will be a mutual benefit to the farmer and overseer, as it enables the latter to understand the plans for the year, and serves as a memorandum of jobs which can be executed at leisure times, if any such occur.

Just as we were finishing up the last "form" of our present No. of the Planter, the mail brought us the interesting account of a visit of our friend Dr. Meriwether to Chester Co., Pa. We congratulate our readers that it is in time for their perusal in this issue.

We think the rule of the H. and C. Club, applying to visiting members, a good one, and wish that all farmers would consider themselves under a like obligation whenever they travel. Were this the case, we should have much information and amusement afforded us, which we now loose, besides an occasional spur given us to tempt us to try and overtake some enterprising and strong thinking brother farmer.

If all men are "imitation animals," it is well for us to have a plenty of good examples to look at occasionally.

The farm accounts offered by Mr. T. J. Randolph, Jr., which were kindly sent us also by the Club, came to hand at an opportune season, and will appear in our next issue. The "old fashioned farmers" of Virginia must wake up, and put a new spoke in their wheels. We must all know what we are doing—and we cannot know this *without farm accounts*—or soon we shall find our occupation, or at least its profits, gone.

Let us turn over a new leaf for 1861, and see if we cannot better our condition by a fresh stock of caution and industry, with a keen glance *at the papers sometimes—once a month at all events.*

☞ Persons wishing to forward packages to Major Wm. Gilham, containing substances for analysis, are invited to leave them at this office. Such packages should be small, and need not contain more than a few ounces.

Fruit Trees.

We tender our grateful acknowledgments to *George W. Johnson, Esq., of Milton, N. C.*, for a very acceptable present of choice fruit trees. We wish every nurseryman of our acquaintance could have had a look at the bundle, which was so neatly and thoroughly put up as to afford them a sample worthy of general imitation, if so be any of these gentlemen *should prove* at any time, either unskilful or negligent in their manner of securing trees for shipment.

We shall take great pains in setting out these trees, and in their after culture. We hope we shall yet have the pleasure of eating some of their fruits in company with Mr. Johnson, at our own home.

The Hog Premiums of our late Fair.

A subscriber calls our attention to a report of the Committee on Swine, at the exhibition held last fall in this city, under the joint auspices of the Virginia State and Central Agricultural Societies, which he has seen published in *The American Farmer as a copy of a report published in this paper.* The only premium for swine which we did publish, was one for the best pen of fat hogs. The premiums on other classes were submitted to the Executive Committees of the two Societies for final settlement, and they have as yet made no report.

We suspect our neighbors of the *American Farmer* got the report alluded to from one of our daily city papers, probably the *Dispatch*, and the printers (as we know they are very apt to do) made a mistake in crediting copy.

By the way, the show of good swine at our Fair was the very best we ever saw, and it is a hard task to decide the premiums in any class of animals where the competition is as spirited as it was in several classes of animals exhibited at that time.

Pennsylvania Farm School.

We are under many obligations to Evan Pugh, Esq., of this Institution, for some interesting agricultural pamphlets, extracts from which we propose to lay before our readers in our next number.

We are glad to learn that this school has reason to expect a liberal patronage, and hope it may certainly receive it.

For the Southern Planter.

Inquiries.

Those who have experimented with the Drill putting in fertilizer and wheat at the same time, and can speak for or against the use of the Drill, in comparison with broad-casting the same quantity of fertilizer per acre, will oblige many farmers, who want information, by giving their opinions, based on experience, through the columns of the *Planter*.

If there be any farmers in the State who have used a Subsoil Plow for five or more years in succession, and who uses clover and plaster as improvers, they will oblige a number of inexperienced farmers by giving their opinions, after long experience, through the columns of the *Planter*.

Information is wanted among wheat growers as to the success of Manny's combined Reaper and Mower as a self-raker the past season. A FARMER.

THE

SOUTHERN PLANTER,

ADVERTISING SHEET.

No. 2. RICHMOND, VA. FEBRUARY, 1861.

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Richmond, December 23, 1858.

—

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RICHMOND, VA.

GREAT REDUCTION in THE PRICE OF

HATS AND BOOTS.

FROM 15 to 20 per cent. saved by buying from J. H. ANTHONY, Columbian Hotel Building.

Moleskin Hats of best quality, $3½; do. second quality, $3; Fashionable Silk Hats, $2 50; Fine Calfskin Sewed Boots, $3 50; Congress Gaiter Boots, $3 25; Fine Calfskin Sewed Shoes, $2 25.

J. H. ANTHONY has made arrangements with one of the best makers in the city of Philadelphia to supply him with a handsome and substantial Calf-skin Sewed BOOT, which he will sell at the unprecedented low price of *Three Dollars and a Half.*

July 59—1y

Southern Clothing House

RICHMOND, VA.

The subscriber keeps constantly on hand a large and Fashionable assortment of Ready-made Clothing, of his own manufacture, of the latest and most approved Styles. Also a large assortment of Gentlemen's furnishing Goods, such as Handk'fs, Cravats, Neck Ties, Shirts, Drawers, Gloves and Suspenders, Collars, Umbrellas.

In addition to which he keeps a large and general assortment of Piece Goods of every Style and Quality, which he is prepared to make to measure at the shortest notice and in the best and most fashionable style.

E. B. SPENCE,
No. 120, Corner of Main and 13th Sts.

July 59—1y

HOSPITAL FOR SLAVES.

This Hospital is situated near the corner of Main and 26th streets, and is admirably adapted in airness, privacy and healthfulness of position, to the purposes for which it has been instituted, namely: For MEDICAL, SURGICAL and OBSTETRICAL treatment of SLAVES. The rules and regulations governing this institution have already been published. A circular containing full particulars will be furnished those who may desire further information.

TERMS.—Patients per week, $5; less than a week, $1 per diem; *but the aggregate shall not exceed the charge for a full week.* Patients attending the daily examinations, (not fit subjects for HOSPITAL CONFINEMENT,) charged the regular fee adopted by the profession at large. The above charges include board, medicine, medical attendance and nursing. Surgical operations charged according to rules of other Hospitals of the city. For further information apply to the Physician resident at the Hospital, or to either of the undersigned Physicians and Proprietors.

FRS. W. HANCOCK, M. D.,
Main st., bet. 3d and 4th, or No. 130 Main st.

ST. GEO. PEACHY, M. D.,
Exchange Hotel, or Grace st., bet. 5th and 6th.

R. S. VEST, M. D.,
Franklin Street, below Ballard House.

PHILIP S. HANCOCK, M. D.,
Resident Physician.

CYRUS BROOKS,
Resident Assistants.

July 60—1y

ALBANY DRAIN TILE WORKS,

Corner Clinton Avenue and Knox Sts.,

ALBANY, N. Y.

1¼ inches Round,.....	$ 8,00	per 1000 feet.
2¼ " "	12,00	" " "
3½ " "	40,00	" " "

2½ inches Rise,.....	$10,00	per 1000 feet.
3½ " "	15,00	" " "
4½ " "	18,00	" " "
5½ " "	35.00	" " "
6½ " "	55,00	" " "
7½ " "	75,00	" " "

2 inches Rise,.....	$ 10,00	per 1000 feet.
3 " "	16,00	" " "
4 " "	30,00	" " "
5 " "	50,00	" " "
6 " "	80,00	" " "
9 " "	200,00	" " "

Orders solicited. Terms Cash.

Address C. & W. McCAMMON,

April 00—1y Albany, N. Y.

SOUTH DOWN LAMBS
FOR SALE.

I have for sale several South Down Buck Lambs. My flock is now the finest in Tide Water Virginia. The Lambs are one-half, three fourths, seven-eighths, fifteen-sixteenths, and thorough bred, and I sell them at ten, fifteen, and twenty dollars, according to purity of blood. I shall have not more than eight or ten for sale. FRANK. G. RUFFIN.

April 60—tf

J. R. KEININGHAM,

DEALER IN

BOOKS AND STATIONERY,

211 Broad Street, between 4th and 5th,

RICHMOND, VIRGINIA.

arch, 1859.

Cephalic Pills
CURE
Sick Headache
CURE
Nervous Headache
CURE
All kinds of
Headache.

By the use of these Pills the periodic attacks of *Nervous or Sick Headache* may be prevented; and if taken at the commencement of an attack immediate relief from pain and sickness will be obtained.

They seldom fail in removing the *Nausea* and *Headache* to which females are so subject.

They act gently upon the bowels,—removing *Costiveness.*

For *Literary Men, Students*, Delicate Females, and all persons of *sedentary habits* they are valuable as a *Laxative*, improving the *appetite*, giving *tone* and *vigor* to the digestive organs, and restoring the natural elasticity and strength of the whole system.

The CEPHALIC PILLS are the result of long investigation and carefully conducted experiments, having been in use many years, during which time they have prevented and relieved a vast amount of pain and suffering from Headache, whether originating in the *nervous* system or from a deranged state of the *stomach.*

They are entirely vegetable in their composition, and may be taken at all times with perfect safety without making any change of diet, *and the absence of any disagreeable taste renders it easy to administer them to children.*

BEWARE OF COUNTERFEITS!

The genuine have five signatures of Henry C. Spalding on each Box.

Sold by Druggists and all other Dealers in Medicines.

A Box will be sent by mail prepaid on receipt of the

PRICE 25 CENTS.

All orders should be addressed to

HENRY C. SPALDING,

48 Cedar Street, New-York.

Dec.

RUFFIN'S

PHOSPHOR-PERUVIAN GUANO,

TOBACCO MANURE,

AGRICULTURAL SALT AND GROUND BONE ASH.

F. G. RUFFIN,

CORNER ELEVENTH AND CARY STREETS, ON THE BASIN,

RICHMOND, VA.,

Offers to the farmers the following MANURES, all of his own manufacture, viz:

RUFFIN'S PHOSPHOR-PERUVIAN GUANO,

Containing 8 per cent Ammonia, and 40 to 50 per cent Bone Phosphate Lime, per ton of 2,000 pounds, $50.

RUFFIN'S BONE ASH GUANO,

Containing 5 per cent Ammonia, and about 70 per cent Bone Phosphate Lime, per ton of 2,000 pounds, $50.

RUFFIN'S TOBACCO MANURE.

Containing 5 per cent Ammonia, 34 per cent Bone Phosphate Lime, 22 Chloride of Sodium, and 17 per cent Sulphate Lime, per ton o 2,000 pounds, $45.

RUFFIN'S GROUND BONE ASH,

Containing about 80 per cent Bone Phosphate Lime, dry and pure, per ton of 2,000 pounds, $35.

AGRICULTURAL SALT,

Loose in bags, per ton of 2,000 pounds, $11.

AGRICULTURAL SALT,

In bags, per to of 2,000 pounds, $13.

THE ABOVE MANURES are put up in strong bags, containing 167 pounds each, twelve bags of which make a fraction over a ton, and can be had of F. G. RUFFIN, at his mill, of any Commission Merchant in Richmond; of THOMAS BRANCH & SONS, Petersburg; M. HOLLINS & CO., Lynchburg; LEIGH & BROTHER, Norfolk; MASON, MARTIN & CO., Scottsville; JOHNSON, CLARKE & CO., Danville.

April 60—tf

SOMBRERO GUANO,

SOMBRERO GUANO AGENCY, 73 SMITH'S WHARF,
BALTIMORE, 8th October, 1860.

To Messrs. August & Williams:

I have just returned from Sombrero Island, and beg leave to say a few words in reference to the series of strictures upon Sombrero Guano, which have been published in your journal and in the "*Farmer*" during my five months absence. So long as honorable means are used to promote any opposing enterprise, I have not a word of complaint to utter; but when the proprietor of Navassa or other Guano, puts himself in opposition to our business upon premises which he has invented, and well knows to be utterly groundless, it becomes me to speak out and expose the fraud which is thus designed upon me and the public.

Sombrero Guano is not known for the first time to-day; for it was inaugurated in 1856, as an institution upon a solid basis. Then it was analyzed, and repeatedly since it has been analyzed by all the competent chemists in the United States, and by many abroad. In each instance, the result attested its pre-eminent richness in available phosphate. Years of practical experince in its use by planters, have further strengthened and established its claims to be "the" standard bone phosphate; and now at this day, it is well known, that those soluble or manipulated fertilizers, such as made by Fowle, Reese, and the Petersburg Company, into which it enters as material, enjoy a reputation, and exert an efficiency, which no competing compound has been able to accomplish without it. Thus it is that the real excellence, and high repute of our Guano, have provoked the jealousy of the proprietor of the Navassa, who seeks to divert attention from the intrinsic worthlessness of his own article, by decrying the Sombrero, with the hope of making a ruin of us upon which to build a success for himself. Thus it is too, that he has deemed it necessary to tip an inspiration to a collegiate chair to plead for Navassa, and against Sombrero Guano, so that by the prestige of such accidental position the words of the "*Professor*" may strike the unthinking and unsuspecting with a force of authority which is not justified by either their substance or their truth.

Now, with a profound reverence for science and its true followers, but contemptuous in my regard of those unscrupulous ones, who affect its accomplishments when they are ignorant of even its simplest rudiments, I protest indignantly against the unfairness of the publications in point.

But that the author may have the opportunity of vindicating himself before his profession and the public, if he can do so, I propose that his statements shall be submitted to a scientific tribunal of three persons, two of whom may be chosen by Mr. Cooper, the proprietor of the Navassa, leaving only one of the Chemists to be selected by our house. Premising that the whole expense of this commission shall be jointly incurred by Mr. Cooper and ourselves, I propose to prove before it in the most unqualified manner, upon a penalty of two hundred dollars, payable on default, to the Orphan Asylum of the City of Richmond.

AS TO NAVASSA GUANO,

1st. That Navassa Guano is nearly "dirt poor" as a fertilizer.

2d. That apart from its poverty in Bone Phosphate it is inferior in other respects.

3d. That Navassa Guano is inferior to "COPROLITES" for any and all of the purposes of a Phosphatic material.

4th. That the solubility of Navassa Guano under atmospheric influences is barely appreciable compared with that of Sombrero Guano.

5th. That Navassa Guano will not make either a Commercial or Agricultural Super-phosphate of Lime.

6th. That on account of the large proportion of Iron and Alumina which it contains, the Navassa might almost be considered a raw material for the manufacture of Copperas and Alum.

AS TO SOMBRERO GUANO,

1st. That Sembrero Guano is the most efficient and economical of the Phosphate Guanos.

2d. That it contains nearly twice the amount of actual Bone Phosphate that Navassa Guano does.

3d. That Sombrero Guano is not "*Coprolite*" nor of that species.

4th. That Sombrero Guano is a most serviceable material for Super-phosphate and Manipulating purposes.

5th. That Dr. Stewart's published statements in depreciation of Sombrero, compared with Navassa Guano, are incorrect in nearly every particular.

Believing that this is the fairest method of coming to the right of the contest imposed upon us, and in the hope that Mr. Cooper may respond manfully to this call, I ask that you will insert this paper as a communication, and oblige

Dec. '60—6mo Your obedient servant, **ANDREW C. ELLIOTT.**

RARE AND BEAUTIFUL FLOWERS.

A. BORNEMAN,

Seedsman and Florist,

VERSAILLES, WOODFORD COUNTY, KENTUCKY,

Would inform his friends and patrons that his New Descriptive Catalogue of *Flower and Vegetable Seeds* for 1861, will be ready for delivery early in February, and will be mailed to all applicants inclosing a three cent stamp. Much pains has been taken in preparing it, and it will contain, in addition to the information that is usually found in such lists, many descriptive and cultural notes for the benefit of the amateur and unprofessional florist.

It will embrace all that is *new* and *most desirable* among annuals, Biennial, Perennial and Green House Seeds—alike suitable for the Flower Garden, Pleasure Grounds, Lawns, Shrubberies and the Conservatory, as well as many matchless novelties of the highest merit, which have been selected by his European correspondents from the most reliable sources. Collections of

FLOWER SEEDS BY MAIL, POSTAGE PAID.

The following collections now so favorably known in every part of the country, have been sent out from his establishment for six years past. He will continue to give especial attention to this branch to render them complete and satisfactory in every respect They will be found to embrace many novelties, and only such as are well worthy of cultivation. They are equally adapted for the requirements of those who have large, as well as others who have only small gardens. The uninitiated may therefore order them without fear of disappointment, and the experienced cultivator will find them equally acceptable. Full directions for culture will accompany each package, which will be sent, postpaid, to any address in the Union, under 3000 miles, at the following prices:

ASSORTMENT No. 1—Contains twenty choice varieties of Annuals..... $1 00

ASSORTMENT No. 2—Contains twenty choice varieties of Biennials and Perennials,..... 1 00

ASSORTMENT No. 3—Contains ten extra fine varieties of Annuals and Perennials, embracing many of the new and choicest in cultivation,... 1 00

ASSORTMENT No. 4—Contains five very choice varieties selected from *Prize Flowers* of English Pansies, German Carnation, and Picotee Pinks, Verbenas, Truffaut's French Asters, Double Hollyhocks,..... 1 00

Any one remitting $3 will receive the four assortments, postage free.

The following additional assortments will also be sent at the prices annexed, *free of postage.*

ASSORTMENT No. 5—Contains fifteen very select varieties of Greenhouse Seeds.... $3 00

ASSORTMENT No. 6—Contains one hundred varieties of Annuals, Biennials, and Perennials, including many new and choice varieties..... 5 00

ASSORTMENT No. 7—Contains fifty varieties of Annuals, Biennials, and Perennials,..... 2 50

ASSORTMENT No. 8—Contains twenty varieties of Annuals, Biennials and Perennials, for sowing in the Autumn..... 1 00

The seeds contained in the above assortments are of his own selection. Purchasers who prefer to make their selection from the Catalogue, will be entitled to a discount proportionate to the quantity ordered. See schedule of prices annexed.

Great Inducements for the Formation of Clubs.

Being desirous of introducing his Flower Seeds as extensively as possible throughout the country, he offers the following inducements to those who wish to purchase in large quantities, or for the formation of Clubs, by which a great saving may be effected. The seeds will be forwarded *by mail, post paid*, to any address in the United States *under* 3000 *miles*, on receipt of the amount of the order. Those who reside beyond 3000 miles, are requested to remit two ten cent stamps, or their equivalent, in addition to the amount named, for every dollar's worth of seed ordered.

Purchasers remitting

$ 1 00	may select seeds at	Catalogue	prices	amounting to	.....	$ 1 10
2 00	"	"	"	"	.....	2 25
3 00	"	"	"	"	.....	3 50
4 00	"	"	"	"	.....	4 75
5 00	"	"	"	"	.....	6 00
10 00	"	"	"	"	.....	12 50
20 00	"	"	"	"	.....	26 00
30 00	"	"	"	"	.....	40 00

All orders must be accompanied with the cash.

Prices to dealers in larger quantities, will be given upon application.

COLLECTIONS OF BULBOUS ROOTS.

For the convenience of those who desire a fine collection, but are unacquainted with the varieties, we have put them up in collections as follows, with full directions for culture:

COLLECTION No. 1—PRICE $10—CONTAINS

20 *Double and Single Hyacinths*, (all named flowers,) and those varieties only which are best adapted for culture in glasses or pots.
20 *Double and Single Hyacinths*, for the open border.
20 *Early Double and Single Tulips*, for pot culture or the open border.
20 *Late Tulips*, for the border.
6 *Polyanthus Narcissus*, for pot culture or border.
6 *Double Roman Narcissus*, (very fragrant.)
2 *Crown Imperials.*
12 *Double Jonquins.*
100 *Crocus*, finest mixed.
2 Strong plants of the new and splendid Chinese Plant *Dielytra Spectabilis.*
4 *Peonies*, distinct and fine.

COLLECTION 2—PRICE $5—CONTAINS

One-half of each of the above varieties, with the exception of the Dielytra.

Jan 61—4t **A. BORNEMAN,** Versailles, Woodford Co., Ky.

MANIPULATED GUANO! MANIPULATED GUANO!

We offer to the Planters of Virginia a Guano prepared by us as follows:

1000 lbs. of the best Peruvian Guano that can be procured;
800 lbs. of the best Sombrero Guano, containing *full* 80 ℔ cent of the Phosphate of Lime.
200 lbs. of the best Ground Plaster, for which we pay $2 ℔ ton extra.

Planters and others are invited to examine the article. From the best information we can obtain, we believe the mixture is one of the best that can be prepared for the Virginia lands.

Price to Planters, $18 ℔ ton, or $2 ℔ ton less, where they furnish bags.

For sale by EDMOND DAVENPORT & CO.

Also for sale by Commission and Grocery Merchants in this City.

We refer to Planters who have used the Sombrero and the Manipulated Guano—among them James Galt, Esq., A. Warwick, Esq., Joseph Allen, Esq., R. H. Styll. Esq., and others.

Below we give D. K. Tuttle's (Chemist at University of Virginia) report of the same, samples from 72 bags, *and it shall be kept to that standard.*

"I am now able to give you the results of analysis. They show the Mixture to be what you stated in a former letter, and I judge that you are very fortunate in the selection of materials, especially of Peruvian Guano. The per centage of Ammonia shows the pure Peruvian to contain 12·4 per cent., which is more than the average. The Analysis is as follows:

Moisture (given off at boiling point of water,)	10.05
Phosphate of Lime,	48.26
Sulphuric Acid, 5.45 } Lime, 3.64, }	9.09
Ammonia,	6.20
Insoluble Matter,	1.55
A small quantity of Alkali—undetermined. } Water in combination and *Organic Matter*, }	24.85
	100.00

Hoping that your Fertilizer may meet with the success which it deserves.

I remain, very respect yours,

Jan—tf D. K. TUTTLE."

CO-PARTNERSHIP NOTICE.

I have this day admitted as a partner, Mr. JOHN N. JENNINGS. The business will in future be conducted at my old stand, No. 118 Main Street, under the firm and style of SAMUEL S. COTTRELL & CO., where we have on hand a fine assortment of Saddles, Bridles, Whips, Carriage, Cart and Wagon Harness, of every description and quality, and will continue to manufacture to order and for sale, every class of goods in our line.

There was awarded me at the United States Fair last Fall, three silver Medals for SUPERIOR SPECIMENS OF WORKMANSHIP; since which time our facilities have greatly increased, and we now flatter ourselves that we can furnish every article in our line, not to be surpassed in quality, and at as low prices as any other establishment in this country.

I beg leave to return my sincere thanks to my old friends and the public generally for the liberal patronage heretofore bestowed upon me, and respectfully solicit a continuance of the same to the new concern, pledging ourselves to use our utmost endeavors to please our friends and patrons.

Feb 1859- 1y SAMUEL S. COTTRELL.

DRAINING TILE.

"MARYLAND TILE AND FIRE-BRICK WORKS,"

SOUTH SIDE OF BASIN,

Office Corner of Pine and Lexington Sts., Baltimore, Md.

The subscribers have constantly on hand any quantity of DRAINING TILE, of the most improved patterns, which they will dispose of at low rates.

HORSE SHOE TILE.		SOLE TILE.	
1½ inch bore,	2½ inch bore,	1½ inch bore,	2½ inch bore,
3 " "	4 " "	3 " "	4 " "

July 60—tf

LINTON, RITTENHOUSE & CRAWFORD.

RHODES' SUPER-PHOSPHATE.

The Standard Manure.

FOR TOBACCO, COTTON, CORN AND WHEAT CULTURE, ROOT CROPS, &c.

Manufactured under the supervision of Eminent Manufacturing Chemists, and warranted "*pure and free from all adulteration.*"

B. M. RHODES & CO.,

Office 82 South Street, Bowly's Wharf, Baltimore, Md.

AGENTS IN VIRGINIA.

Richmond—SCHAER, KOHLER & CO,
Petersburg—VENABLE & MORTON.
" THOS. BRANCH & SONS.
Lynchburg—M. HOLLINS & CO.
Norfolk—B. T. BOCKOVER.
Alexandria—WM. H. MAY.
Fredericksburg—HUGH SCOTT.
Farmville—HOWELL E. WARREN.
Blacks & Whites—JEFFERSON & WILLIAMSON.
Clarksville—JAMES E. HASKINS.

Jan. 60—tf

WAGONS AND CARTS.

I have now on hand and am constantly making Wagons and Carts; Threshers, plain and with Separators and Cleaners; Horse-powers, from 2 to 12 horse power; Reapers; Hay Presses; Cider Mills; Seed Drills; Land Rollers; Clod Breakers; Wheat Fans; Wheat Gleaners; Hay Rakes; Plows; Harrows; Cultivators; Straw Cutters; Corn Shellers, for power, and several sizes for hand. A very superior fixture for raising water from wells, being a combined curb windlass, self-emptying bucket brake, and is all in about the compass of a barrel, and warranted superior to any thing in use. Price, small size, $9, larger $12. Garden seeds, and general assortment of Garden and Farm Tools.

I am prepared to do repairs to all kinds of Reapers, Threshers, Fans, &c. Orders by mail for new work promptly filled and shipped with care, without charge for drayage.

Feb 61—3t H. M. SMITH.

FOR SALE.

I have for sale two YOUNG JACKS, one 5 and one 4 years old, trained to serve mares, and proved as foal-getters. For terms, visit or address

Feb 61—4t SHARPE CARTER,
Jeffress' Store, Nottoway County, Va.

IMPORTANT TO FARMERS!

VANDEMARK'S SELF-FASTENING, OR HOOK AND EYE

PORTABLE FENCE.

(SEE CUT IN READING COLUMNS.)

The observing farmer will readily perceive the numerous advantages of a PORTABLE FENCE which can be easily put up, taken down and removed from place to place, as convenience may require, at so little cost of time and labor.

The cost of this fence is only about *one-half* that of ordinary board fence with posts, and is more durable, there being *no posts* to rot off.

Not more than one-half the fence being required when portable, as the fence between growing crops can be removed to where it is wanted; thereby saving one-half by this mode of fencing, and prevent the growth of briers and bushes along your fence.

From the fact that the panels constructed upon the plan of this patent will make either a Worm, Straight, Square or Circular Fence, it possesses a double advantage over every other invention of the kind. To make 4 feet worm in 10 feet panels, the end batten should be 5½ inches apart on inch lumber. The Fence is not only the cheapest that can be made, where boards are used, but it has other great and good advantages.

1st. It can be made in bad weather or in the winter, when farm hands are commonly idle.

2nd. The fence being all above ground, will last without repair twice as long as a post and board fence.

3rd. The fence being portable, can be changed and moved without injury, and in a short time.

4th. It is all made of inch boards, and so simple in its construction that any farmer can make it, and all the tools necessary is a hand saw and hammer, avoiding the necessity of a carpenter, as in most cases necessary.

5th. The panels all being so that the same panel will make either a straight or zigzag fence, a square or circular enclosure, gives it material advantages over all other fences. When straight, it is supported by a triangular brace put in between the end battens or uprights, as shown in the cut, and made of the same material as the fence. The panels of this patent are so constructed that they will conform to the surface of uneven ground.

It is estimated that a log 12 feet long and 24 inches diameter, will make only 24 good sized rails, which will make only about two rods of fence, seven rails high without stakes; the same log sawed into 1 by 4 fence boards will make 300 feet—the same put in this kind of fence will make over eight rods of fence—so that if a farmer should give one-half his lumber for sawing, the balance would make more than double the fence the rough crooked rails would, and make use of timber that cannot be split into rails; and a man can certainly put up, take down, or remove 8 or 10 rods of the board fence, while he can one rod of the clumsy rail.

When the materials are furnished, this Fence can be built cheaper than an ordinary post and board fence. In building 20 rods of this Fence where lumber is worth $12 per M., and posts cost 13 cents each, we can save the builder $8, $40 on the 100, $400 on the 1000 rods of fence.

County or Farm Rights will be sold on the most liberal terms, in Augusta, Rockbridge, New Kent, Chesterfield, Powhatan, Hanover, King William, Buckingham, Amelia, Prince Edward, Prince George, Nottoway, Charlotte, Caroline, and Goochland counties, in the State of Virginia.

TERMS:

For a farm of 50 acres or under, $2,50; 100 acres, $5; and $2 for every additional 50 acres up to 300, and over 300 acres, the price to be arranged by the parties.

Correspondents are particularly requested to give the name of their Post Office and County in full. Address

JAMES A. AUGUST, Agent, Richmond, Va.

Dec.

SMALL FARMS NEAR THIS CITY FOR SALE.

One, containing eighty acres. IMPROVEMENTS GOOD AND NEW. Dwelling House has five rooms and eight closets. Two Wells of excellent water in the yard. Distance from the centre of the city three miles. Stables and out-houses as usual.

Two Tracts of unimproved land, each containing 100 acres, in less than five miles of this city.

The most accommodating terms given to purchasers. Enquire at the office of THE SOUTHERN PLANTER, or of Messrs. GODDIN & APPERSON.

PAINTS. PAINTS. PAINTS.

PURCELL, LADD & CO.,

DRUGGISTS,

No. 122 Main Street, corner 13th, **RICHMOND, VIRGINIA,**

Offer at low prices, a large and well assorted stock of articles in their line—embracing

PAINTS, COLORS, VARNISHES, OILS, &C.

LEWIS' WHITE LEAD,
NEW J. WHITE ZINC, Horsehead brand,
CHROME GREEN,
VERDIGRIS.
TERRA DI SIENNA,
LINSEED OIL,
MACHINE OIL.
PARIS GREEN,
CHROME YELLOW,
TURKEY UMBRE,
LAMP OILS,
SPTS. TURPENTINE.

All Colors for Painters, Coach Makers, and others, Dry and in Oil, Paint Brushes, Sand Paper, and a very large stock of best

WINDOW GLASS,

Comprising nearly every size made. We are also prepared to take orders for Imported

Polished Plate, Sky Light and Ornamental Glass.

☞ Particular attention to packing and forwarding all goods—and the quality warranted.

PURCELL, LADD & CO, *Druggists*,

June 1858. 122 Main Street, Richmond.

WM. L. HILL, N. M. NORFLEET.

HILL & NORFLEET,

GENERAL COMMISSION AND FORWARDING

MERCHANTS,

OFFICE---SHOCKOE SLIP,

RICHMOND, VIRGINIA.

AGENTS FOR

FOWLE & CO.'S

SOLUBLE PHOSPHATED PERUVIAN GUANO.

Oct 60—1y

1853. GEORGE STARRETT 1860.

Has in store his Fall Stock, comprising 284 varieties and sizes of STOVES, RANGES and FURNACES, many of them new and desirable articles, of his own make. He is also prepared to supply Northern Stoves at Wholesale or Retail, having contracted early in the season for two entire cargoes of the very best made in this country, at lower prices than the same goods can now be obtained. Also, Pumps and Pipe of all kinds, Plumbing, Gas Fitting and Tin work done in the best manner and cheap. Extra castings always on hand.

GEORGE STARRETT, Belvin's Row,

Oct 60—6mo Governor Street, Richmond, Va.

RICHMOND FERTILIZER MANUFACTURING MILLS!

ROCKETTS, RICHMOND, VA.

S. HARTMAN, GENERAL AGENT,

OFFERS FOR SALE

EXTRA FINE BONE DUST,

HARTMAN'S AMMONIATED SUPER PHOSPHATE OF LIME,

HARTMAN'S IMPROVED MANIPULATED GUANO,

Adapted to WHEAT, CORN, OATS, TOBACCO, COTTON, and all Vegetables and Grasses.

☞ **THESE MANURES ARE WARRANTED GENUINE.** ☜

The BONE DUST is made of Bones in their Natural State, with all their organic matter.

SUPER PHOSPHATE OF LIME is manufactured from Crushed Bones, which also have all their organic matter.

IMPROVED MANIPULATED GUANO is composed of one half Best Phosphatic Guano, decomposed by Sulphuric Acid, the balance of the Best Peruvian.

To be had at the MILLS, or of Messrs. WOMBLE & CLAIBORNE, BLAIR & CHAMBERLAYNE, ALEX. GARRETT, Richmond; D. GRIGG, Esq., Petersburg, and Messrs. GUY & WADDELL, Staunton. April 60—tf

GUANO!

We would call the attention of Guano Dealers, Planters, and Farmers, to the article which we have on hand and for sale at

40 PER CENT LESS THAN PERUVIAN GUANO,

which we claim to be superior to any Guano or Fertilizer ever imported or manufactured in this country.

THIS GUANO IS IMPORTED BY

WM. H. WEBB, OF NEW YORK,

FROM

BAKER'S AND JARVIS' ISLANDS, IN THE SOUTH PACIFIC OCEAN.

Sold genuine and pure as imported by the Cargo, or at retail, by

JOHN B. SARDY, General Agent,
No. 58 South Street, Corner of Wall Street, New York.

It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent and popular Agricultural Chemists, and found to contain (as will be seen by our circular) a large per centage of

BONE PHOSPHATE OF LIME AND PHOSPHORIC ACID,

and other animal organic matter, yielding ammonia sufficient to produce immediate abundant crops, besides substantially enriching the soil. It can be freely used without danger of burning the seed or plant, by coming in contact with it, as is the case with some other Fertilizers; retaining a great degree of moisture, it causes the plant to grow in a healthy condition, and as experience has proved, **FREE OF INSECTS.**

For orders in any quantity, (which will be promptly attended to,) or pamphlets containing full particulars of analyses and tests of Farmers, apply as above.

Oct 60—1y

FOWLE & CO.'S

SOLUBLE PHOSPHATED

PERUVIAN GUANO.

MADE OF GUANOS OF

DIRECT IMPORTATION,

Under the personal supervision and direction of Dr. R. H. STABLER, Chemist, of this City.

THIS FERTILIZER we confidently recommend, as the most permanent and cheapest yet offered to the public. Being composed of

NO. 1 PERUVIAN AND SOMBRERO GUANOS

OF OUR OWN

DIRECT IMPORTATION,

FROM THE

CHINCHA AND SOMBRERO ISLANDS,

WE WARRANT IT IN EVERY RESPECT.

THE SOMBRERO GUANO

Before being mixed, is rendered *immediately soluble*, by the addition of Sulphuric Acid. This treatment is universally recommended by the most eminent Agricultural Chemists. Without it, the action of the two Guanos, when mixed, is not simultaneous, and consequently comparatively inefficient.

This is the ONLY mixture of the Ammoniated and Phosphatic GUANOS we know of, yet offered to the Agricultural Community, in a REALLY SOLUBLE form.

Price, $50 per Ton of 2.000 lbs.

Our reports from those who applied the above FERTILIZER to their crops last fall, are *highly satisfactory*—so much so, indeed, as to convince us that our *Soluble Phosphated Peruvian Guano* will ere long be altogether used in this section, as a substitute for the Peruvian Guano, which, *without the addition of Phosphates*, tends rather to exhaust than permanently improve the soil.

FOWLE & CO.,

ALEXANDRIA, VA

May 60—tf.

VALUABLE LOUISA LAND FOR SALE.

Wishing to dispose of my Real Estate, in order to divide the proceeds among my children, I offer for sale, privately, my Farm,

SUNNING HILL.

This most desirable tract of Land lies in the heart of the valuable tobacco Lands of Louisa, on both sides of the south branch of the North Anna river, adjoining the lands of H. P. Poindexter, Gabriel Jones, Joseph M. Baker and others, eight miles from Louisa Court-House and Tolersville, on the Virginia Central Railroad, and equally convenient to both.

This Farm contains 1,010 acres, of which 200 are wood land, more than three-fourths of which are heavily timbered with oak, pine and hickory of original growth. The arable land is fertile and in a high state of improvement—well adapted to the growth of wheat, corn and tobacco. There is a comfortable DWELLING, with eight rooms, a good barn, tobacco houses, and all necessary out buildings. The locality is healthy and the neighborhood pleasant. Presuming that any one wishing to purchase will visit the Farm and see for themselves, I deem it unnecessary to speak farther. The Farm is capable of being divided into three tracts, if desired. Being very desirous of selling, terms will be made to accommodate purchasers.

My manager, Mr. GROOM, will take pleasure in showing the premises to any one who wishes to purchases. JULIA A. HOLLADAY.

For further information, apply to Dr. W. C. N. Randolph, Charlottesville, Va.; or, H. T. Holliday, Rapid Ann Station, Orange and Alexandria Railroad, who is authorized to sell. Feb 60—tf

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THE GREAT SOUTHERN
Hat and Cap Manufactory and Depot.
JOHN DOOLEY,

No. 81, Main Street, Richmond Va.

MANUFACTURER of HATS and CAPS on the largest scale, and in every possible variety, and Importer of North American and European FURS, HATS, CAPS, PLUSHES, TRIMMINGS, and all other articles belonging to the Trade, is always supplied with a splendid stock of Goods, for Wholesale and Retail, which in quality and quantity cannot be excelled by any other house in the South. His manufacturing arrangements are of the completest kind, and his facilities for supplying country merchants at the shortest notice cannot be surpassed.

July 1858—1y

BARKSDALE & BROS.,
COMMISSION MERCHANTS,

Corner of 13th and Cary Sts., Up Stairs,

CLAIBORNE BARKSDALE,
C. R. BARKSDALE,
CHAS. H. BARKSDALE,

RICHMOND, VA.

Feb 60—1y

ALEXANDER GARRETT,

Cary Street, second door below 13th street, Adjoining the Old Columbian Hotel,

RICHMOND, VA.,

GENERAL COMMISSION MERCHANT,

AND DEALER IN

GROCERIES,

PERUVIAN, ELIDE ISLAND, AND RUFFIN'S PHOSPHO GUANO, PLASTER, &C.

Particular attention paid to the sale of all kinds of country produce:

Wheat, Corn, Flour, Tobacco, Oats, &c.

I have made arrangements with Mr. JNO. M. SHEPPARD, Jr, one of the best judges and salesmen of TOBACCO in this city, to attend to the sale of all tobacco consigned to me. July 59—1y

---

PURE BRED STOCK
FOR SALE.

Pure Bred Durham Cattle, from $50 to $200.
Spanish Merino Sheep, and French Merino Sheep, at $10 to $30
Madagascar Rabbits at $10 per pair.
Improved White Pigs, at $8 each.
Brood Mares, served by "Bush Messenger," Morgan, Messenger and Basham, at $125 to $300.
Stallions from colts to well broke and trained animals, from $75 to $600.

All animals sold will be carefully boxed or haltered, and placed at the Express office.

My residence is 4½ miles east of Brownsville, Fayette County, Pa.

POST OFFICE BOX No. 6.

JOHN S. GOE.

Feb 60—1y

WM. P. LADD,

No. 319, head Broad Street, Shockoe Hill,

RICHMOND, VA.

Wholesale and Retail Detail Dealer in English, French and American

DRUGS, MEDICINES, CHEMICALS,

Paints, Oils, Varnishes and Dye-Stuffs; Window Glass Putty, Glue and Sand Paper; Paint, Camel's Hair and Whitewash Brushes; Cloth Hair, Flesh, Nail and Tooth Brushes.

Fine and Choice Perfumery, Fancy Goods,

PURE LIQUORS AND WINES,

For Medicinal and Sacramental Purposes.

Surgical Instruments, Trusses, Shoulder Braces, Supporters, &c.

Landreth's Celebrated Garden Seeds,

In great variety. Also,

DRS. JAYNES AND ROSE'S

FAMILY MEDICINES,

MEXICAN MUSTANG LINIMENT.

Together with all the most popular PATENT AND BOTANICAL MEDICINES, direct from the Proprietors.

Orders from Country Merchants and Physicians thankfully received and promptly attended to.

☞ All articles from this Establishment are warranted pure, fresh and genuine. dec 58—1y

SOMBRERO GUANO.

OCTOBER, 1860.

Attempts having been made, recently, to depreciate the enviable character of SOMBRERO GUANO as a fertilizer, by partisan and untruthful publications, the Proprietors beg leave to submit to the Agricultural community, the annexed portion of a letter from the most authentic chemical source in the United States, setting forth the REAL facts of the case upon the only reliable basis, that of an analytical examination of the several Phosphatic Guanos in Commerce. The data obtained by Dr. Morfit are incontrovertible, and not only attest the superiority of SOMBRERO GUANO, as the richest and most efficient Phosphatic Manure, but are suggestive also of the futility of any attempt to bring the Navassa or other similar Guano into successful competition with it. Orders received by ROSS W. WOOD & SON, New York,

Or, ANDREW C. ELLIOTT & CO., Baltimore.

EDMOND, DAVENPORT & CO., AGENTS, Richmond, Va.

CHEMICAL LABORATORY, No. 19 East 12th Street,
NEW YORK, 21st March, 1860.

Messrs. Patten & Miller, and
E. C. Wade & Co, Savannah, Georgia:

Gentlemen—In reply to your joint letter of 9th February, requesting my professional opinion upon certain points of Agricultural interest, and which more immediately concern you as honorable dealers in Fertilizers, I have given the subject its due consideration, and now submit my report.

1. Your first question, as to the rank which belongs, properly, to SOMBRERO GUANO, compared with the Phosphatic Guanos from Navaza, Jarvis and Baker's Islands, will be best answered by the annexed table, which shows their relative composition. Baker's Island Guano is omitted, however, from the comparison, for the just reason, that no cargo has been imported, it being known here, at this time, only by sample.

CONSTITUENTS.	Sombrero.	Navaza.	Jarvis Island.
Water	3.52	2.20	8.17
Sand and Silica,	.68	5 60	.16
Organic matter, insoluble,	....	1.48	.81
Organic matter, soluble,	5 36	10.20	5.77
Fluorid Calcium,	....	Traces.	Traces.
Sulphate Lime,	.86	2.49	44.81
Lime, (with Organic Acids,)	6.97	12 47	....
Carbonate Lime,	5.34	2.00	.. .
Bone Phosphate Lime,	64.67	37.72	13.33
Common Phosphate Lime,	....	....	25.94
Phosphates Magnesia,	2.39	2.70	.84
Phosphate Alumina,	3.62	10.56	....
Phosphate Iron,	1.95	2.20	....
Chlorid Sodium,	....	Traces.	.19
Chlorid Potassium,	.09	....	....
Silicate Potassa and Lime,	.76	....	....
Oxide Iron,	1.10	3.50	Traces.
Alumina,	3.13	7.04	.63
Total,	100.44	100.06	100.65

COMMERCIAL AND AGRICULTURAL EXPRESSION.

Actual Bone Phosphate,	67.96	40.44	44.73
Or,			
Calculated Bone Phosphate,	73 78	50.76	44.73

All the analyses were conducted with the rigid care of a scientific investigation. The samples employed were also of assured integrity. *The Navaza was obtained directly from the State Inspector of Maryland, as an average of six ca goes imported in 1859; consequently, the eighty and odd per cent of Bone Phosphate claimed for it in circulars and advertisements are a fabulous estimate, or else were deduced from extraordinary samples.* Jarvis Island Guano is represented by an average of the "Henry Brigham's" cargo, which is the best of the kind that has come under my observation. The Sombrero sample was also a fair average of several cargoes, and from a reliable source.

In the Commercial and Agricultural expression for the several Guanos, as above noted, I have distinguished the Phosphoric Acid, which exists in combination with Lime and Magnesia, as ACTUAL Bone Phosphate, while I give the title of CALCULATED Bone Phosphate to the actual phosphate, conjointly with that portion of Phosphoric Acid present in the Guanos as Phosphate of Alumina and Phosphate of Iron, because the equivalent of the latter in Bone Phosphate Lime is determined by calculation. The Alumina and Iron Phosphates, it may be proper to add, though of value in the fertilization of soils, are, in degree, inferior, for that purpose, to actual Bone Phosphate Lime. With this explanation, it will be evident, then, from the Table, that *precedence belongs to Sombrero Guano*, not only because of its *very much greater richness in Phosphoric Acid*, but also for the reason that nearly the whole of that constituent occurs in the Guano as ACTUAL Bone Phosphate of Lime. Moreover, Sombrero Guano is characterized by much uniformity of dryness and composition, as well as *by a very limited amount of matters which would be valueless to crops.*

2. The presence of oxide of Iron is detrimental to a fertilizer, when the proportion may be excessive and in indissoluble combination. But these conditions do not pertain to *Sombrero Guano;* for it holds only a small quantity of iron, and will yield with sufficient readiness to the solvent power of atmospheric agencies in the soil. I base my judgment upon a large, Laboratory experience with this Guano.

And I may remark, further, that the idea of its being deficient in capacity for making Superphosphate, as pronounced by others, is founded in ignorance of the true nature of the Guano. Indeed, with the proper knowledge, a Super-phosphate of the highest fertilizing efficiency can be made from it at a reasonable economy of cost. * * * * * *

Respectfully yours,

Oct 60—3t CAMPBELL MORFIT.

SOMBRERO GUANO.

OCTOBER, 1860.

The proprietors of Sombrero Island fully confident that this locality is the richest known source of Phosphatic Guano, have established a Laboratory on the spot, and appointed a resident chemist, with strict instructions to select all cargoes by preliminary assays prior to their shipment from the Island, so that all Guano exported from the Island shall be of the standard of 70 to 80 per cent bone phosphate of lime. Cargoes of late importation have been, and those to arrive hereafter will be of that standard, and in order to give the consumers of Sombrero Guano the best advantages of the deposit a higher grade will be fixed as soon as arrangements can be completed for developing its still richer portions. It is the determination of the proprietors not only to maintain the present superior character of their Guano, but to increase its value by sending it ere long into market with a per centage of Bone Phosphate of Lime, even greater than that by which it now excels every other phosphatic material.

The following analysis by Drs. Piggot and Pitt represent several cargoes of late importation:

1860.							
June 22nd,	cargo	Champion,	by Dr. Piggot,	70.00	Bone	Posphate	of Lime.
June 28th,	do	do	by Dr. Pitt,	72.67	do	do	do
June 25th,	do	Golden Rod,	by Dr. Piggot,	73.02	do	do	do
June 28th,	do	do	by Dr. Pitt	70.20	do	do	do
July 25th,	do	St. Mary,	by Dr. Piggot,	74.62	do	do	do
June 28th,	do	do	by Dr. Pitt,	70.96	do	do	do
July 25th,	do	D. H. Baldwin,	by Dr. Piggot,	71.61	do	do	do
Aug. 22nd,	do	Sequine,	by Dr. Pitt,	74.64	do	do	do
Aug. 22nd,	do	do	by Dr. Piggot,	79.06	do	do	do
Aug. 22nd,	do	Ianthe,	by Dr. Pitt,	74.88	do	do	do
Aug. 22nd,	do	do	by Dr. Piggot,	78.72	do	do	do

Orders received by **ROSS W. WOOD & SON, 90 Front Street, New York.**

Or, **ANDREW C. ELLIOTT & CO., 73 Smith's Wharf, Baltimore.**

EDMOND, DAVENPORT & CO., AGENTS, Richmond, Va.

Oct 60—tf

CITY SAVINGS BANK OF RICHMOND.

Chartered in 1839.

Capital, - - - $100,000.

HORACE L. KENT, PRESIDENT.

N. AUGUST, *Cashier.*

W. GODDIN, *Secretary.*

This *old, well-known,* and *prompt-paying* Institution continues to receive deposites, on which interest is paid (semi-annually if desired,) at the rate of 6 per cent. per annum on sums remaining on deposite six months or longer, and at the rate of 5 per cent. for shorter periods.

OFFICE, No. 148, *Main Street.* Jan 61—tf

BLACK HAWK,

THE PROPERTY OF R. H. DULANY,

Will stand at Wilbourne, near Upperville, Loudoun County, Virginia, at thirty dollars the season, fifty dollars to insure and fifty cents to the groom. Pasturage, &c., at usual prices. Every care taken of mares sent from a distance, but no responsibility for accidents. All bills due at the close of the season

BLACK HAWK is a beautiful black, stands fifteen hands three inches high, has fine muscle, strong bone, good action, great endurance, and is perfectly docile.

BLACK HAWK'S Colts are very large for the breed, many of them being sixteen hands high. They have been shown at the "Upperville Club for the improvement of horses," at the Leesburg Fair and the last Fair of the State of Virginia and Central Societies, and *never been beaten.*

Two of BLACK HAWK'S Colts, Walter Morgan and Lady May, took both the purses for colts at the last State Fair, Lady May trotting her mile very easily in 2m. 54¼s. Fifteen hundred dollars was offered and refused for each of these colts.

Feb 61—3t

SEPTEMBER 1st, 1860.

I have a large number of Farms for Sale in different parts of Virginia. With some of these Farms the negroes, stock, &c., will be sold. Those wishing to purchase in any portion of Virginia will be furnished descriptive letters, by enclosing me a stamp. When negroes are sold one per cent will be charged the purchaser. I. I. HITE, Land Agent.

I solicit business in any capacity an agent may be wanted. I refer to Messrs. Williams & August, Richmond, Va. Other references given if desired. I. I. H.

LOVINGSTON, NELSON COUNTY, VA. Oct 60—tf

PIEDMONT FEMALE ACADEMY.

A few vacancies will occur in this School on the 1st of February. TERMS for five months: Board and Tuition in English, $65; Latin, 10; Greek $10; German, $10; French, $5; Music on Piano, $17.50; Melodean, $7.50: Guitar, $7 50; Harp, $17.50. For further particulars see Catalogue. Address the subscriber at "Stony Point, Albemarle, Va.

Jan 61—2t JAS. W. GOSS.

SHOCKOE MILL RICHMOND GROUND PLASTER.

The Subscriber is prepared with a full stock of Windsor (Nova Scotia) Lump Plaster, to supply fresh Ground Plaster to any extent. He begs leave at the present time specially to invite the attention of the Farmers to the article as a CHEAP, PERMANENT and VALUABLE IMPROVER, prepared AT HOME, from selections of fine, rich lump, quality guaranteed, and furnished at less cost than in any other market, for similar quality.

Jan 61—3t **JOHN H. CLAIBORNE,** Office No. 11, Pearl Street.

THE GARDENER'S MONTHLY,

AND HORTICULTURAL ADVERTISER,

A MONTHLY PERIODICAL, devoted to the Dissemination of Practical and reliable Information on the Culture of FRUITS, FLOWERS, CULINARY VEGETABLES, and ORNAMENTAL TREES and SHRUBS; On the Management of HOT and GREENHOUSES, VINERIES, ORCHARD and FORCING HOUSES, and on the Culture of EXOTIC FRUITS and FLOWERS; and LANDSCAPE-GARDENING, RURAL ARCHITECTURE, and RUSTIC ADORNMENTS; And to furnishing the Latest Discoveries, Improvements, and Inventions of a Horticultural character in the kindred Arts and Sciences, such as BOTANY, ENTOMOLOGY, CHEMISTRY, MECHANICS, &c. And, also, to afford an Effective and Economical ADVERTISING MEDIUM to Nurserymen, Florists, &c.

EDITED BY THOMAS MEEHAN,

Formerly Head Gardener to Caleb Cope, Esq., at Springbrook, and at the Bartram Botanic Garden, near Philadelphia; Graduate of the Royal Botanic Garden, Kew, London, England; Member of the Academy of Natural Sciences; Author of "The American Hank-book of Ornamental Trees, &c." Assisted by an able Corps of AMERICAN and FOREIGN CORRESPONDENTS.

It is published on the first of every month, at the office,

NO. 23 NORTH SIXTH STREET, PHILADELPHIA,

where all *Business* communications should be addressed.

TERMS OF SUBSCRIPTION:

One copy for one year, payable in advance,	$1 00
Two copies, " " " "	1 75
Five " " " " "	4 00
Ten " " " " "	7 00
Fifteen " " " " "	10 00
Twenty " " " " "	12 00

☞ The THIRD VOLUME commences on the first of January, 1861.
Sample copies furnished gratis on application.

Dec 60—tf

FOR SALE---LARGE OR SMALL QUANTITIES.

Victoria Rhubarb, $3 per 100, $25 per 1000. Allen's Hardy Raspberry, $1 per 100, $8 per 1000. Silver Maple Seedlings, 50 cts. per 100, $4 per 1000. Twelve Acres Lawton or New Rochelle Blackberry. Two Acres Dorchester Blackberry. Twenty thousand Peach Trees, choice varieties. Strawberries, Cranberries, and a good supply of other NURSERY STOCK, of the best quality. *Send for a Catalogue gratis.*

Feb 61—1t **WILLIAM PARRY,** Cinnaminson, N. J.

MACFARLANE & FERGUSSON,

Book, Job,

AND

ORNAMENTAL PRINTERS,

Corner Bank and 12th Streets, Richmond, Va.

HOMES FOR THE INDUSTRIOUS,

IN THE

GARDEN STATE OF THE WEST.

THE ILLINOIS CENTRAL RAILROAD CO., HAVE FOR SALE

1,200,000 ACRES OF RICH FARMING LANDS,

IN TRACTS OF FORTY ACRES AND UPWARD,

ON LONG CREDIT AND AT LOW PRICES.

THE attention of the enterprising and industrious portion of the community is directed to the following statements and liberal inducements offered them by the

ILLINOIS CENTRAL RAILROAD COMPANY.

which, as they will perceive, will enable them, by proper energy, perseverance and industry, to provide comfortable homes for themselves and families, with, comparatively speaking, very little capital.

LANDS OF ILLINOIS.

No State in the Valley of the Mississippi offers so great an inducement to the settler as the State of Illinois. There is no portion of the world where all the conditions of climate and soil so admirably combine to produce these two great staples, CORN and WHEAT, as the Prairies of Illinois.

EASTERN AND SOUTHERN MARKETS.

These lands are contiguous to a railroad 700 miles in length, which connects with other roads and navigable lakes and rivers, thus affording an unbroken communication with the Eastern and Southern markets.

RAILROAD SYSTEM OF ILLINOIS.

Over $100,000,000 of private capital have been expended on the railroad system of Illinois. Inasmuch as part of the income from several of these works, with a valuable public fund in lands, go to diminish the State expenses, the TAXES ARE LIGHT, and must consequently every day decrease.

THE STATE DEBT.

The State debt is only $10,166,328 14, *and within the last three years has been reduced* $2,959,746 20, *and we may reasonably expect that in ten years it will become extinct.*

PRESENT POPULATION.

The State is rapidly filling up with population: 868,025 persons having been added since 1850, making the present population 1,722,663, a ratio of 102 per cent. in ten years.

AGRICULTURAL PRODUCTS.

The Agricultural Products of Illinois are greater than those of any other State. The products sent out during the past year exceeded 1,500,000 tons. The wheat crop of 1850 approaches 35,000,000 bushels, while the corn crop yields not less than 140,000,000 bushels.

FERTILITY OF THE SOIL.

Nowhere can the industrious farmer secure such immediate results for his labor as upon these prairie soils, they being composed of a deep rich loam, the fertility of which is unsurpassed by any on the globe.

TO ACTUAL CULTIVATORS.

Since 1854 *the Company have sold* 1,300,000 *acres. They sell only to actual cultivators, and every contract contains an agreement to cultivate. The road has been constructed through these lands at an expense of* $30,000,000. *In* 1850 *the population of forty-nine counties, through which it passes, was only* 335,598 *since which* 479,293 *have been added; making the whole population* 814,891, *a gain of* 143 *per cent.*

EVIDENCES OF PROSPERITY.

As an evidence of the thrift of the people, it may be stated that 600,000 tons of freight, including 8,600,000 bushels of grain, and 250,000 barrels of flour were forwarded over the line last year.

PRICES AND TERMS OF PAYMENT.

The prices of these lands vary from $6 to $25 per acre, according to location, quality, &c. First class farming lands sell for about $10 to $12 per acre, and the relative expense of subduing prairie land as compared with wood land is in the ratio of 1 to 10 in favor of the former. The terms of sale for the bulk of these lands will be

ONE YEAR'S INTEREST IN ADVANCE,

at six per cent per annum, and six interest notes at six per cent., payable respectively in one, two, three, four, five and six years from date of sale: and four notes for principal, payable in four, five, six and seven years from date of sale; the contract stipulating that one-tenth of the tract purchased shall be fenced and cultivated, each and every year, for five years from date of sale, so that at the end of five years one-half shall be fenced and under cultivation.

TWENTY PER CENT. WILL BE DEDUCTED

from the valuation for cash, except the same should be at six dollars per acre, when the cash price will be five dollars.

Pamphlets descriptive of the lands, soil, climate, productions, prices, and terms of payment, can be had on application to

J. W. FOSTER,

Land Commissioner, Illinois Central Railroad,

CHICAGO, ILLINOIS.

For the names of the Towns, Villages and Cities situated upon the Illinois Central Railroad, see pages 188, 189 and 190 Appleton's Railway Guide.

THE

SOUTHERN PLANTER,

DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

VOL. XXI. [MARCH.] NO. 3.

EDITED BY

DR. J. E. WILLIAMS AND PROF. WILLIAM GILHAM.

AUGUST & WILLIAMS, PROPRIETORS.

RICHMOND, VA.
MACFARLANE & FERGUSSON, PRINTERS.
1861.

MR. LEFEBVRE'S SCHOOL.

Grace Street, Between 1st and Foushee, Richmond, Va.

THE next session of our School begins on the first day of October, 1860, and terminates on the last day of June, 1861.

In consideration of the almost unprecedented success that has attended our efforts, we cannot refrain from expressing our thankfulness to our many friends and patrons, and think we may be pardoned for briefly referring to some of the many advantages afforded, on which the permanent prosperity of all such institutions must ultimately depend.

The buildings are large and commodious, planned for the wants and requirements of a large Female Institution—and affording almost unequalled advantages for the comfort and convenience of our pupils. Only two young ladies will occupy the same chamber, except when three may prefer to room together.

The Principal has made female education the study and business of his life, and has now been engaged in successful teaching for upwards of twenty years; his assistants are well qualified and experienced, selected with especial reference to the branches under their charge, and sufficiently tried in this Institution to be referred to with entire confidence.

Our system of education is thorough and complete, and while the best facilities are afforded for perfection in the accomplishments of female education, the greatest care is devoted to insure the acquirements of sound, practical learning; the reason and judgment are exercised in preference to memory, and the latter, while not wholely ignored, is made subsidiary to and dependent on the former.

Our daily system consists essentially in close, searching examinations, careful explanations, and familiar lectures. The plan pursued for many years in instruction in the French department has proved eminently successful. It is the language of the family, and much time and attention is given—indeed every facility afforded—to enable those pupils boarding with us to acquire an accurate knowledge of, and to speak with ease and fluency, the French of common conversation. In this respect, we think our School possesses advantages which can only be equalled by few Institutions of the kind in the country.

Music, Vocal and Instrumental, Drawing and Painting, both from models and from *nature*, are under the charge of Professors eminently qualified in their various branches. Most of these instructors are employed to teach exclusively in our school, that by devoting their time and attention entirely to our pupils, every advantage may be afforded for the acquisition of these accomplishments.

Such rules and regulations are enforced as are calculated to promote the welfare and interest of all the pupils.

TEACHERS.

HUBERT P. LEFEBVRE, A. M., *Principal*,
Natural Philosophy, Literature, Moral and Mental Philosophy, French.
WILLIAM G. WILLIAMS, A. B., *Vice Principal*, Astronomy, Mathematics, Chemistry, History, Latin.
EDWARD C. HOWARD, English Literature, History, Reading.
MRS. GRACE BENNETT, English Branches. MISS MARY C. GORDON, English Branches.
SENOR CARLOS-CARDOVEZ MERA, Spanish and Italian.
SIGNORINA ANTONIETTA ERBA, Vocal Music. SIGNORINA MARIETTA ERBA, Piano.
JOHN A. CALYO, Drawing and Painting. WILLIAM F. GRABAU, Piano, Organ, Sacred Music.
C. W. THILOW, Piano. HENRICH SCHNEIDER, Harp. O. ERICSSON, Guitar.
The REV. GEO. WOODBRIDGE and the REV. FRANK BAKER have kindly taken charge of the Bible Classes.

TERMS FOR THE SCHOLASTIC YEAR.

Beginning the first day of October, and ending the first day of July.

For Board,	$200 00	For two lessons (of an hour) a week,	80 00
For Washing,	20 00	For three lessons (of an hour) a week,	120 00
For Lights,	10 00	For four lessons (of an hour) a week,	160 00
For Fuel,	10 00	For Sacred Music in class,	8 00
For English Tuition,	40 00	For Harp,	Teacher's fees.
For Modern Languages, each,	20 00	For the use of Piano,	10 00
For French, when studied exclusively of the English branches,	40 00	For Drawing, from Models,	20 00
For Latin,	20 00	For Drawing, from Nature,	40 00
For Literature,	20 00	For Painting in Water Colors,	40 00
For Music on Piano, Guitar, Organ or Singing		For Oil Painting,	50 00
For one lesson (of an hour) a week,	40 00	Primary Department, for children under 11 years of age,	30 00

REFERENCES.

THE PATRONS OF THE SCHOOL.—Right Reverend Bishop Meade, Va.; Right Reverend Bishop Elliott, Ga.; Right Reverend Bishop Johns, Va.; Right Reverend Bishop Cobbs, Ala.; Reverend A. Empie, D.D., Wilmington, N. C.; Rev. D. S. Doggett, D. D., Richmond; Rev. Charles Read, Richmond; Rev. Nelson Head, Danville, Va.; Rev. G. Gildersleeve, Richmond, Va.; Rev. T. V. Moore, D. D., Richmond, Va.; Rev. Wm. H. Wheelwright, Richmond, Va.; Rev. John Saunders, Richmond, Va.; The Clergy of the Episcopal Church in Virginia.

Sept 60.--tf All letters to be addressed to HUBERT P. LEFEBVRE, *Richmond, Va.*

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.

J. E. WILLIAMS, M. D., Prof. W[illegible] GILHAM, } Editors. { AUGUST & WILLIAMS, Proprietors.

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For the Southern Planter.

A Premium Essay on the Practical, Economical and Profitable Arrangement of a Farm of 300 Acres devoted to the Cultivation of Corn and Wheat as Staple Crops.

BY EDMUND TAYLOR.

[A gold medal of the value of $100 was awarded to the author at the United Cattle Show and Fair of the Virginia State and Central Agricultural Societies, held in October last, for the best Essay on the practical management of a farm of not less than 300 acres, devoted to the cultivation of corn and wheat as staple crops. The necessary farm buildings to be described; the proper division of the farm into fields; the force in teams and farm hands necessary for its cultivation; the rotation of crops pursued; the artificial grasses cultivated; the green crops plowed in for manure; the quantity and kinds of stock which may be usefully and profitably kept upon it; and all other matters deemed necessary by the writer for its profitable and economical management to be distinctly stated. Also, the proper preparation of land for corn and wheat, the best times, in the opinion of the writer, for planting and sowing these crops, the method pursued in the management and disposal of the shucks, stalks, and fodder of the corn, and in harvesting, preserving and threshing the wheat crop, and preparing it for market.]—Ed.

In the following essay, the size of the farm is assumed to be 300 acres, divided into five fields of 40 acres each, four lots of 5 acres each, and 10 acres to be occupied by the necessary farm buildings, gardens, and for other purposes hereinafter mentioned; leaving 70 acres of wood-land for fuel, timber and fencing purposes, and as a general range for hogs.

The schedule requires that "the necessary farm buildings be described;" this requisition however is somewhat indefinite, as it leaves in doubt whether the buildings appertaining to the comfort of the *owner* are included or not.

As these, however, are so entirely controlled by the diversified and almost irreconcilable ideas of taste and comfort of different individuals, I shall assume that

only those buildings are designated which are exclusively necessary for the practical, and especially for the economical management of a farm of the assumed size.

The farm buildings should be located—as far as the nature of things will admit—near the centre of the farm.

This is essential in the application of manure, in going to and returning from work, in saving and securing the crops, and in giving the manager—from a central position—a complete and easy *oversight* of the entire premises. Such a position is not only economically beneficial, but also is practically suggestive of errors and improvements; for let the manager move as he will, much of the farm is brought under his inspection. Experiments are easily contrasted, and the stock is immediately under his eye and easily driven to and changed from such pastures as in his opinion may seem best.

I would enclose three acres as a *general* lot for stock of all kinds, to be subdivided as follows:

One acre for horses or mules, as the case may be, with a substantial log stable near its centre; the stable to be built of *barked* pine logs, and to have a loft its entire length for the storage of provender. The door to be on the South or Southe-western side, and stalls arranged on each side of the main length of the building at right angles to a passage-way, beginning at the door and running the entire length of the stable. The stalls should be at least 4½ feet wide, with a good passage or gangway. There should be a slope from the head of the stalls to the gangway of from three to four per cent., to carry off the liquid manure from the beds of the stalls. Opposite to the door of the other end of the passage, a hole should be cut in the logs of sufficient size to throw out the soiled litter and manure. This opening should have a sliding door, to be closed or left open as the weather may suggest. An open shed ought to be constructed over this manure pile to protect it from the weather. Heaps of manure exposed to the weather lose a large proportion of their valuable constituents, in solutions carried off by rains, rapid evaporation and undue heating, which produces burning or scalding.

One acre and a half to be appropriated to the comfort of cattle. A shed made of plank, with joints well broken, ought to be constructed for their protection; it should open to the South, and have an extension of ten or twelve feet at each end, and at right angles to the main length. These extensions or wings break off the East and West winds, and materially add to the comfort of the stock during the winter. Stalls of good width for the convenience of milking, say five feet wide, should be strongly made, and stout troughs slightly raised from the ground ought to run the entire length of the shed. Racks must be fixed at a convenient height under the shelter, and feeding racks should also be made in different parts of the lot, *always* to contain food when the cattle are penned. The racks *within* the shed only to be filled with food at stated times, and of a more nutritious kind than that with which the uncovered racks are

filled. The troughs are to serve for wash, vegetables, and such short corn as may be advantageously used for stock. The general slope—either natural or artificial—of cattle sheds should be *dished*, in order to hold the liquid manure. For the purposes of manure, marsh mud—if convenient—weeds, turf, and occasionally leaves must be hauled into the cattle sheds. Leaves should only be taken from ravines where they have accumulated, if taken elsewhere there is danger of *starving* the trees.

The remaining half acre of the general lot I would enclose and devote to the occasional protection of sheep in snowy or rainy weather—they require none at other times—calves, and for any emergency—such as the necessary separation of stock—which may arise.

It is to be *distinctly* understood, that if the location admits of it, each lot should include a stream of water. Should this be impossible from the nature of things, water must be conveyed to the lots by pipes, or a well be dug in such a position as to afford at all times an ample supply of water for the different kinds of stock. Nothing contributes more essentially to their health than pure water, to be used as instinct and nature direct.

I should devote two acres to the houses and gardens necessary for the manager and farm hands. A *quasi* holding of property by negroes tends to make them industrious and respectable, adds materially to their comfort and keeps them from wandering about on holidays and at unseasonable hours of the night.

The manager's house to be built of hewed-pine logs, one and a half stories high, pointed with mortar within and without, and containing four rooms. Such a building is substantial, comfortable and healthy; and, if occasionally white-washed, will last half a century.

Assuming that the farm hands are negroes, I should build for them one double cabin of plank; the planks to be vertical, and the joints broken by strips three or four inches wide. The cabin to be underpinned with stone or brick, with a tight, thick plank floor, a chimney in the centre, and a loft above sufficiently open to allow the noxious gases to escape, yet close enough to add comfort to the rooms below.

White-wash to be used freely within and without these buildings, and all filth and rubbish to be carefully removed, at stated intervals, to a compost heap, which must be sprinkled occasionally with lime.

In the neighborhood of the manager's house, but at a sufficient distance to prevent fire from communicating from building to building—a remark which is applicable to *all* the farm buildings—a wheat-barn must be built of sufficient size to insure the safe storage of the crop. It is almost impossible to say what the exact size should be, for under a gradual system of improvement, or in particular localities well or ill adapted to wheat culture, the size required might materially vary. Under no circumstances, however, would I build one of less size than 18 by 25 feet, with a loft over the main room, and a shed-room of 10 feet in width at each side. The loft and sheds will materially assist in storing

seed and refuse wheat, and serve at times for the temporary housing of other farm products. The construction, however, is of more importance than the size.

The usual plan of weather-boarding outside, and partly or entirely sealing within, is highly objectionable in my opinion. Such a plan affords a safe and comfortable harbor for rats—those destructive pests of the farmer.

I suggest, then, that the house be framed in the usual manner, and simply sealed up with tongued and grooved plank on the *inside* of the studs. This plan effectually excludes the rats, and saves a large outlay in weather-boarding and labor. For the protection of the exposed studs and frame-work, I would apply hot pitch or gas tar—the smell of the latter will soon disappear—and renew it at intervals of one or two years.

If grain garners are used, they should be placed head to head against the division walls of the main building and sheds; and they should be made of plank sliding in grooves on upright posts, for the convenience of throwing two or more together as well as for purposes of general storage, when the garners could be entirely removed.

I would here take occasion to say, that the roofs of all the farm buildings should be either painted with a think coat of metallic paint, or thoroughly saturated with hot pitch—the latter is the cheapest plan. And let it be *remembered* that this must be occasionally renewed in the ordinary course of a generation.

Where slate is cheap and accessible, it may be used advantageously for roofing, if *well* put on, otherwise it will only prove a source of annoyance and expense.

The main room as well as the sheds of the barn should have external doors, and the sheds must connect internally with the centre-room by doorless openings.

We come now to the corn crib.

It is best to build this of hewed pine logs also, and not less than 15 by 30 feet, with a passage-way at one gable end, into which the outer door should open. This passage will prove very convenient in shelling and separating corn, and serves a good purpose, by preventing mud and dirt from being carried into the room appropriated to the corn. The logs should be close enough to exclude the necessity of chinking, and the house itself should by all means *be rat-proof.* To secure this desirable end I would recommend the following plan:

Locust posts must be obtained, and one end tapered down into a spile-shape, insert the large end in the ground, resting on rock or other firm foundation. Before the sills are laid on the posts, pieces of tin or sheet iron of two or three feet in diameter must be nailed on top of the posts horizontally with the ground, leaving or making a hole in the middle for pinning down the sills, and on these the sills should rest. It must be carefully borne in mind, that the building must be sufficiently elevated above the ground to exclude the possibility of a rat's leaping from the earth to the crib.

It is utterly impossible, if this plan be carefully executed, for a rat to reach the crib by climbing the posts; and if a little care be taken to leave nothing

resting on the house by which a rat might climb up, the farmer may safely defy this noxious pest.

The other buildings required, would be sheds large enough to shelter *all* the farming implements from the weather. The loss annually sustained by neglecting this precaution, is a steady and continual drain upon the purse of the farmer.

An acre of land around these farm buildings will be sufficient for loading and unloading, turning and hitching up, and also furnish the necessary space required for performing the various local farm duties.

We have now four acres left of the ten set aside for farm use of a specific kind; I should set apart three acres of this in some moist position as a standing meadow, the annual crop of grass from which will add materially to the support of the stock. The other acre I should devote to the rearing of locust posts for fencing purposes. The seed may be sown in drills, or planted at regular intervals, and trimmed out if too thick or when large enough for stakes or posts. I have seen successful plantations of locusts raised in the drill; and land once set well, continues to yield indefinitely a valuable supply of timber, and the land will become year by year more fertile.

The subject of fencing is not adequately understood or appreciated by farmers generally. Live fences of Cedar and the Osage Orange should be thoroughly tested, and wherever it is possible, they—one or the other—should be substituted for the present expensive and laborious system of fencing. The cedar-wattle, closely interlaced and nicely trimmed is a valuable fence; but this sort of fence must rest on a ditch-bank, so that the wattle itself may not be higher than four feet; if the wattle is higher than this limit, it is apt to blow down in high winds.

While on the subject of fencing, I will say a few words in reference to fuel and wood-land. The indiscriminate *slaughter* of valuable wood for fuel is deplorable, and enough to drive an economical and judicious European farmer mad, could he witness the *sang froid* with which it is done by our farmers generally. Judicious cutting is beneficial; and for fuel, the crooked, half-decayed and wind-shaken trees should be used first; and it should be a *cardinal* rule to cut out such trees as shade or injure a young plantation, which will soon become very valuable if assisted by the judicious application of the axe, saw or knife.

I have not designated, be it observed, the size of the stable, sheds and some other buildings, but the requisite size will of course be suggested to the intelligent farmer when I come to enumerate the farm-hands, team and stock which in my opinion are sufficient for the judicious cultivation and profitable management of the farm.

The number of farm-hands required for the cultivation of a farm of the assumed size, I should designate as follows:

Five able-bodied men, to be employed exclusively in the care of the stock and the cultivation of the farm. One woman to cook, wash and mend for the manager and the hands, to milk also, and attend to the dairy. This woman to be assisted by a girl of some twelve or thirteen years of age.

Thus we have seven hands in all, which number I think is sufficient for the profitable cultivation of a farm of three hundred acres, devoted exclusively to the two staples of wheat and corn.

An ample team is necessary on every farm, and I would here remark that Southern farmers are more in this particular than perhaps in any other connected with the cultivation of our lands. The number of team upon many farms is often inadequate for performing the work well and at the *proper time*, and the *quality*—where this objection does not hold good—is frequently so *detestable* as utterly to destroy the effect of numbers.

I might dilate upon the subject of labor-saving machines and the substitution of animal for human labor, but the scientific experiments and practical results on the subject are so satisfactory and patent, that it seems as useless as to argue upon a foregone result. I would, however, most earnestly recommend the application of labor-saving machines in every reasonable form, and especially the substitution of animal for human labor in every shape and form, where it can possibly be substituted.

The number of good horses or mules—the latter preferred—I should fix then at six; this number will enable the manager to use *two* three horse plows for corn and wheat fallows.

Under no circumstances would I permit any land to be *first* broken by less than *three* horses to a plow, and at a *less* depth than eight inches, but rather at ten or twelve if the soil admits of it.

I am aware that some farmers say, that in light soils two horses will plow deep enough. There *may* be such soils, but I have never seen an acre of land in Virginia on which deep plowing would not be advantageous. In many parts of the State, where the land had been plowed, from time immemorial, only a few inches deep, deep plowing *alone* has changed the desert into a blooming Eden.

Of course I do not mean to assert that judicious cultivation and improvement must not contribute to the renovation of these worn out lands, but what I mean to say is, that the foundation and basis of improvement is *deep plowing;* deep enough to turn up the hidden treasure which has been accumulating for ages.

It is asserted by some farmers also, that only an inch or so of subsoil should be inverted at any original fallow, upon the ground that this is as much as can be improved. I disagree with this theory also, and for the following reasons:

Because the surface-soil is not injured by the admixture of the subsoil, but rather gains by the absorption of agents in the subsoil not possessed by the surface-soil. And because the subsoil feeds upon the atmosphere, obtaining ingredients hitherto not possessed; and, besides, derives and confers untold benefits—through the decomposing action of frost—by the hitherto undeveloped but now released chemical agents which it contains.

In addition, I may mention the ease of cultivation after deep plowing, the facility with which the roots of plants may extend in depth and breadth for feeding purposes; and especially the advantages in absorbing and carrying off sur-

plus water to spring channels below, which never would be reached but for deep plowing.

Deep plowing is the antidote, while shallow plowing is the cause of washes and gullies.

I would keep nine good cows, and the manager—consistently with other duties—should turn his attention to making butter for market, an article of agriculture too much neglected by our farmers.

Forty merino sheep I should advise as scarcely enough for a farm of three hundred acres, but say forty *choice* merinos. I prefer this breed to any other, because it is very hardy, perfectly healthy in the largest flocks, and easily managed; it yields large and heavy fleeces of wool, second to none for general utility * Four good oxen would complete the list of necessary stock.

I will suggest here, that it might be well to keep a good brood mare or two, to raise horses for supplying the wants of the farm, or for sale, as circumstances may suggest.

It is almost impossible to designate the number of brood sows, but the intelligent farmer will be able to estimate the required number when I come to mention the number of fatted hogs which should be annually killed. Let him be careful, however, to select a good and approved breed, this is a *sine qua non*, for it costs more, sometimes twice as much, to fatten a *land-pike* than his carcase will sell for when slaughtered.

Although not required to do so by the Schedule, I deem it proper to give the number and kind of farm implements which will be required for working the farm. Before doing so, however, I would again call attention to the fact, that the farmer who does not avail himself of the various labor-saving agricultural machines now in use, is, to say the least, behind the age, and wilfully neglecting his own interests. Especially on small farms, and with few hands, are these machines necessary and advantageous.

One good ox-cart, two light but strong two-horse wagons, one thresher, separator and cleaner *combined*, two three-horse plows of approved make, three one-horse plows, a heavy bull-tongue cultivator in harrow shape, two harrows, two light one-horse cultivators, one fan and two good cutting-boxes, I should enumerate as the principal farm implements required for the economical, *timely*, and thorough cultivation of the farm.

To these may be added one reaper, a good grain cradle for opening a way and for cutting such spots as are impracticable for the reaper, a corn-planter of the most approved make, and a light, substantial drill, without guano or other attachment, as we have nothing to do, in the present instance, with such manures.

It may not be amiss, however, to observe, in reference to bought manures, that as we call in the physician to heal the sick, we may likewise buy some of the

* The success of the merino sheep, in Culpeper county, is almost miraculous. See article "Merino Sheep," in last Patent Office Report, by a German sheep grazier.

most approved fertilizers to heal galls and filled up gullies, when there is not sufficient manure upon the farm for these purposes.

It may be well, also, to observe, that some few of the farm implements, such as plows, &c., had better be duplicated, or rather an *extra one* should be on hand in case of breakage in a busy season. It would be well, in fact it is necessary in some localities, to have a clod-crusher for pulverizing the soil. There are several cheap kinds which may be made upon the farm, one or two of which I will mention. A stout log, of about eight feet, sawed into sections and attached to the usual frame, is a cheap and efficient crusher. The sections may be made to revolve upon a single iron rod, thus moving together; or by a separate rod and separate frame—the whole on one large frame—they may revolve independently of each other, a very convenient form for curves and turning, as it allows the various sections to revolve in the proper ratio of a moving radius. There must be an interval between the sections, in each case, to allow for the effects of centrifugal and centripetal tendencies.

Another simple plan is to bore a stout log full of holes, a few inches apart, and insert pins, leaving them four or five inches long, this is a very effective crusher, especially where the clods are very hard.

As it is a farming maxim, "that he who hauls well generally farms well," it may be proper to say a few words about farm roads. These should extend *into, or to* every field, as the locality may require; they should be graded, and have no grade higher than five degrees, and especially should the manager not put off mending them "until a convenient season," but *always* keep them in order. If the manager has a *true* eye, he can run these roads without a level, but if not it will be necessary to use that valuable instrument. A cheap and *good* one must be constructed for farm use, and this involves a difficulty not generally overcome by farmers, for I consider the ordinary rafter-level as utterly useless. I know I am treading upon dangerous ground in attacking an instrument which is so highly thought of by distinguished gentlemen of Virginia, and especially do I regret to differ with *one* gentleman whose talents and accomplishments are only equalled by his curtesy and honor.

But I am constrained to say, that the idea of running levels by a bit of board fixed horizontally to the end of a pole, and stuck up here and there in a field and *sighted* over by the operator, is, to me, supremely ridiculous. It always reminds me of the "*devil on two sticks,*" seeking what mischief he can do. An instrument of this kind is used on many farms for running corn rows, and I have scarcely seen a farm upon which this practice was patent, that was not rapidly running away in washes and gullies. Instead of this worse than useless instrument, I recommend the following as cheap, accurate and valuable.

Take a piece of scantling and level one side with a plane, mortice a hole in it large enough to receive an elongated ounce vial. Fill the vial with spirit nearly to the top, cork and hermetically seal it. Then with putty, and by the *plumb* and the *air bubble* in the vial, imbed it in the mortice, and you have a cheap and

accurate level, sufficient for all farming purposes. Of course the level must be fixed on a leg or legs.

It will be recollected that the farm is divided into five fields of 40 acres each, and into four lots of 5 acres each. One of these 40 acre fields is to be cultivated in corn. The plowing and preparation of the ground, and everything connected with the cultivation of the crop, will now be stated.

The field is to be plowed with three-horse plows as early in the fall as possible. In the spring—previous to planting—the land is to be thoroughly torn to pieces with the bull-tongue cultivator, and afterwards nicely and well harrowed. The corn to be planted with the corn-planter, and as early in April as the weather permits; distance between the rows, or drills, to be four feet; distance in the drill, or of the hills, apart, to be two feet, leaving *one* stalk in the hill. This distance will give 5460 stalks of corn to the acre.

It is thought by some that planting portions of the crop at different times is best, in order to secure a favourable season for at least a part of the crop. This may be well in some soils and localities, but is liable to the objection of deranging the general and systematic working of the crop, and of giving different periods—often inconvenient—for securing the matured crop and the fodder, and materially interferes with the regular progress of wheat seeding.

I am convinced, however, by practice and observation, that entire early planting, in any series of years, will eventuate in a larger yield than any other plan, however much specific rules may suit particular localities or peculiar systems of farming.

There are many modes of cultivating the corn crop, which recommend themselves to the farmer, but the basis of all modes is to work in *time*, and to keep the land free of grass and weeds. I prefer the following mode, which is sanctioned by some of the most successful corn makers in the State.

As soon as the corn is up, the dirt must be thrown *from* the corn with single-horse plows, running two furrows in a row with the bar side of the plow next to the corn, and as close as possible without cutting it up. The hands not engaged in plowing to follow on and thin the corn to the required thickness; this should be done as early as posssible, so that the whole nutriment of the soil may be expended upon the stalk that is to bear the ear, and not on those which must eventually be destroyed. As soon as this operation is over, the earth to be thrown *back* to the corn, splitting the row out fully and clean, and *lapping* the dirt round the hills of corn.

The hands should again follow the plows and uncover and straighten any corn injured by the plowing, and chop up the weeds and grass not entirely destroyed by the plow. These two operations should, if possible, be finished before harvest. As soon as harvest is over, the corn must receive its last or laying-by working. Then the single horse cultivator comes into use; it must be run twice in a row, levelling the high beds made by the last plowing. Again the hands follow;

sucker the corn and chop up any weeds or grass not destroyed by the cultivator. This is all the working required by the corn crop.*

[TO BE CONTINUED.]

Love of Flowers.

No man can cultivate too earnestly a hearty love of flowers. We may not measure the value of them as we measure merchandise, for the influence flowing from them is ethereal and intangible; yet not more necessary is pure air to a healthy growth and broad development of body, than is a loving communion with these "sweetest thoughts of God" needful for all true up-building and expansion of the mind. The notion that it is a weak and feminine thing—a thing for children and women—to interest one's self in flowers, is utterly false. One of the most humanizing, and therefore *noblest* things in the world, is a devout study of these beautiful works of God. There are granite peaks lifting themselves bare and bald with forbidding aspect, which, though clothed with grandeur, are, nevertheless, the unloveliest objects of nature. There are other peaks which have as much of majesty, yet nestled in whose rifts and climbing up whose sides many colored flowers unfold their beauty, and by their soft hues relieve the sternness of the dull, harsh rock. He is the truest man whose character thus combines strength and conciliating tenderness—whose principles are firm as mountains, yet at the same time are always adorned by the verdure of a gentle charity. From no source can man gather so many gentle thoughts and unpolluted feelings, as from intercourse with flowers. If the Infinite is ever turning from the care of circling worlds to the adornment of the violet, surely it cannot be beneath the dignity of man to follow his Maker with a reverent step, and learn the lessons which he has written for him in the humble flower.—*Prairie Farmer.*

Management of Cream in Cold Weather.

For some reason not yet known, cream skimmed from milk in cold weather does not come to butter when churned, so quickly as that from the same cow in warm weather. Perhaps the pellicles which form the little sacs of butter are thicker and tougher. There are two methods of obviating this trouble in a great degree. One is to set the pan of milk on the stove, or in some warm place, as soon as strained, and let it remain until quite warm—some say until a skim of cream begins to form on the surface. Another mode recommended, is to add a tablespoonful of salt to a quart of cream when it is skimmed. Cream thus prepared will generally come to butter in a few minutes when churned. It is thought the salt acts upon the coating of the butter globules, and makes them tender, so that they break readily when beaten by churning.—*Maine Farmer.*

* Every farmer should have a calendar of work for each month, in which it would be well regularly to note "the stages of the game."

For the Southern Planter.

Farm Account.

Showing net per cent. made on Plantation by TH. J. RANDOLPH, Jr.

EXPENSES.

1855.

To Sundries,	$304 95
" Overseer's wages,	70 00
" Taxes,	64 00
" Hire of negroes,	316 88
" Railroad freight and commission,	484 46
" Guano, plaster and grass seeds,	923 00
Total amount of expenses,	$2,163 29
Capital invested in plantation stock, etc.,	$40,000 00

A Equal to ten per cent. on capital stock.
B " " 12 6-10 " " " "

RECEIPTS.

1855.

By 1892 bushels of wheat, @ $1 89,	$3,531 95
" 1314 " " corn, @ 70 cents,	1,001 44
" Cash for tobacco,	729 33
" " " lambs,	71 50
" 2306 lbs. of pork, @ 8½ cents,	190 01
" 38,939 " " oats, @ $1 15,	451 21
" Sundries,	211 97
Total amount of receipts,	$6,187 41
" " " expenses,	2,163 29
A Net amount of receipts exclusive of support of family,	$4,024 12
Support of family derived from farm,	800 00
B Net receipts including support of family,	$4,824 12

EXPENSES.

1856.

To Sundries,	$98 18
" Taxes,	90 00
" Hire of negroes,	254 03
" Railroad freight and commission,	642 23
" Guano, plaster and grass seeds,	990 24
" Seed oats,	51 40
Total amount of expenses,	$2,126 08
Capital invested in plantation, etc.,	40,000 00

C equal to 6 22-100 per cent. on capital.
D " " 8 72-100 " " " "

1856. RECEIPTS.

By 2145 20-60 bushels of wheat, @ $1 39,	$2,991 60
" 317 " " corn, @ 73 cents,	231 04
" 4203 lbs. of pork, @ 8¼ cents,	346 75
" 85,891 lbs. of oats, @ $1 12,	952 51
" 25½ cords of wood, @ $3 66,	93 33
Total amount of receipts,	$4,615 23
" " " expenses,	2,126 68
C Net receipts including support of family,	$2,489 15
Support of family derived from farm,	1,000 00
D Net receipts including support of family,	$3,489 15

1857. EXPENSES.

To Sundries,	$50 00
" Overseer's wages,	150 00
" Taxes,	90 00
" Railroad freight and commission,	316 35
" Guano, plaster and grass seeds,	731 56
Total amount of expenses,	$1,337 91
Capital invested in plantation, etc.,	44,000 00
E Equal to 6 46-100 per cent. on capital,	
F " " 8 73-100 " " " "	

1857. RECEIPTS.

By 2136 30-60 bushels of wheat, @ $1 19,	$2,546 51
" 4531 lbs. of pork, @ 7¼,	325 75
" Cash for beef,	93 80
" 73,840 lbs. of oats, @ 78,	582 81
" 8269 lbs. of tobacco, @ $7 68,	632 09
Total amount of receipts,	$4,180 96
" " " expenses	1,337 91
E Net receipts excluding support of family,	$2,843 05
Support of family derived from farm,	1,000 00
F Net receipts including support of family,	$3,843 05

1858. EXPENSES.

To Sundries,	$69 21
" Overseer's wages,	175 00
" Taxes,	90 00
" Railroad freight and commission,	294 75
" Guano, plaster and grass seeds,	750 30
Total amount of expenses,	$1,379 26
Capital invested in plantation, etc.,	45,000 00
G Equal to 4 38-100 per cent. on capital.	
H " " 7 04-100 " " " "	

1858. RECEIPTS.

By 1322 bushels of wheat, @ $1 35,	$1,789 42
" 20 " " potatoes,	20 00
" 149 " " corn, @ 95 cents,	141 82
" 8750 lbs. of pork, @ 7 cents,	612 50
" 6630 " " tobacco, @ $6 79,	450 26
" 18,900 lbs. of hay, @ 75 cents,	141 75
" Cash for beef,	195 50
Total amount of receipts,	$3,351 25
" " " expenses,	1,379 26
G Net receipts excluding support of family,	$1,971 99
Support of family derived from farm,	1,200 00
H Net receipts including support of family,	$3,171 99

1859. EXPENSES.

To Sundries,	$232 64
" Overseer's wages,	150 00
" Taxes,	108 00
" Railroad freight and commission,	432 53
" Guano, plaster and grass seeds,	830 60
" Twenty head of cattle,	400 00
" Negro clothing	90 00
Total amount of expenses,	$2,243 77
Capital invested in plantation, etc.,	45,000 00

O Equal to 5 62-100 per cent. on capital.
P " " 8 29-100 " " " "

1859. RECEIPTS.

By 2095 bushels of wheat, @ $1 10,	$2,312 33
" 100 bushels of corn, @ 90 cents,	90 00
" 8060 lbs. of pork, @ 7 71-100 cents,	621 63
" 23,040 lbs. of beef, @ $3 70,	851 45
" 524 lbs. of mutton, @ 08 cents,	41 92
" 388 lbs. of wool, @ 22½ cents	87 30
" 12,630 lbs. of tobacco, @ $5 17,	653 66
" 11,680 lbs. of oats, @ 80 cents,	116 80
Total amount of receipts,	$4,775 09
" " " expenses,	2,243 77
O Net receipts excluding support of family,	$2,531 32
Snpport of family derived from farm,	1,200 00
P Net receipts including support of family,	$3,731 32

Net per cent. from plantation for five years, excluding support of family, is 6 53-100.

Net per cent. from plantation for five years, including support of family, is 9 7-100.

The Miller, his Son, and his Ass.

A miller and his son once drove an ass to a neighboring market town in order to sell it. They had not gone far on the road before they were met by a number of girls, laughing and singing. As soon as they saw the father and son trudging after the ass, they said one to the other, "Did you ever see such a couple of dull fellows, to let the ass go in that manner when they might be riding?" The father overhearing this remark, immediately desired his son to mount the ass, while he proceeded cheerfuly by his side. After a while they came up to some old men, who seemed to be earnestly debating some important matter. When they saw the young man riding on the ass, and the old man walking patiently by his side, one of them exclaimed, "Do you see that young scapegrace riding while his old father walks by his side? Does not that prove what I have been saying? Is not that an instance of the respect shown to old age by the young of the present day? Get down you young rogue, and let the old man take your place!" As soon as the son heard these words, he immediately jumped off the ass, and let his father get up. In this manner they went some distance farther along a sandy road, when they were met by some peasant women. They immediately bawled out to the father, "You are a cruel old fellow to make yourself so comfortable on the ass, and to let your poor son toil through the deep sand. It is impossible for the lad to keep pace with you." The good-natured miller, wishing to oblige all parties, immediately desired his son to get up behind. In this way they were drawing near the town, when a shepherd, minding his sheep by the road-side, called out loudly, "Pray, my friend, does that ass belong to you?" "Yes," said the miller. "One would not have thought so by the unmerciful manner you have loaded him. Why, you two fellows are far better able to carry the poor animal than he you!" The father and son at once got down, and the son said to his father, "What now shall we do to satisfy the people? We must at least tie the ass's feet together, and carry him on a pole on our shoulders to market." So they tied the ass's legs together, and, by the help of a pole on their shoulders, they endeavored to carry him across a narrow bridge which led to the town. This was was so novel a sight that the people left their shops and houses to enjoy the fun. But the ass, patient as he is said to be, could not endure either his situation or the noise on all sides of him, so he commenced kicking away at the cords which bound him. He soon managed to burst them asunder, and tumbling off the pole, he fell into the river, and being carried away by the tide, he was drowned. Upon this, the old man, annoyed at having tried in vain to please everybody, and vexed at the loss of his ass into the bargain, made the best of his way home again.

It is impossible to please everybody.—*Fable-Book.*

A WINTER CAKE.—Take half a cup of butter, two of sugar, three of flour, and one of thick, sour cream, (instead of eggs,) get it ready for the oven in the usual way, then sprinkle and stir in a teaspoonful of soda, bake it slow.

From the Northwestern Farmer.

Improvement of Hogs—Selecting Breeders.

As regards this special department of stock, the farmer should be as careful to secure improvement in fattening proclivities, as in anything else. Mind, I do not say that he should ignore a careful selection of kind, but that after he has made improvement in that, to see farther that he improve his own, particular *lot* of hogs, by increasing their abilities to fatten. The whole school or agricultural philosophers may think that I am "beside myself" with a new theory; but, I care not a mite, since I believe, that all I have written for the agricultural press is founded on experience, and not on "theory"—at least I intended it to be so. Let me submit the following proposition, which if not correct, let some one tell me. I for one believe it to be an important element in this improvement of swine by cross and otherwise.

Proposition. If from any litter, we take a female, marked for fattening qualities, steady growth, plumpness &c., and from another litter of the same kind—but unrelated—we take a male noted for similar qualities; *the offspring of these two, with scarcely an exception will have so much of the qualities of their parents, as to excel the litters from which their parents were taken.* In the case of cross, we might impute their improvement to that; but it operates as well in the full blood, or with the offspring of unrelated parents of mixed blood.

If the above proposition be true, then whatever disappointment has been experienced by farmers in the selection of kind, may be in part, traceable to their carelessness in producing from the original.

If the above proposition be true, then no farmer should allow the hogs to deteriorate, by employing his neighbour's inferior stock to associate with his own superior—much less with inferior stock.

If the above proposition be true, then can we improve even our common stock; and that has verily been done, we may improve Suffolk, and Yorkshire, and Berkshire, and Chinese; if we can make an improvement by crossing, we can make an improvement upon that first improvement. Is that too mystical? *

* * Some kinds of hogs require a greater age for full growth than others. I think that those which require the greatest age may be made to weigh much heavier than those which attain full size early, but are not so profitable, in as much as they have to be kept so much longer through cold weather, when a larger quantity of food has to be provided which is not paid for by their growth. Hogs kept over one winter may pay well enough, but kept two winters pay poorly enough. For instance, I had three hogs 16 months old, killed the 22d of Nov., one of which weighed 378 lbs. A warrant of 200 lbs. increase in each one, would not pay me for another year's feed and trouble of feeding them. The Chinese, Suffolk, and crosses with these and the common, attain size early, and make thick pork. The Suffolk is invaluable in many respects.

"Some one" has said, "some where," I do not remember where, that "hogs should be kept thin through the summer; that they would fatten more rapidly

in the fall, &c., &c." Now all that may be true, and be very disastrous to the farmer in the end. Will a hog grow, and be stinted at the same time Impossible. For this process then to be profitable to the farmer, the hog must have a mushroom growth, which is contrary to experience. They should not be kept fat, but in good order to insure steady growth, and should be thoroughly fatted by the time cold weather sets in. for we do not get half price for our corn to keep our fat hogs till "Christmas" in this cold country; especially do we not, if we keep them exposed. We would not get full price to keep them in close pens till Christmas.

I keep my pigs in close, tight pens in the winter—allow them a small yard only in the summer, and put them up close again by the first of September. I do not feed pumpkins, squash, or "arms-full of Panic grass," to them, but all the corn or meal they can eat, and plenty of cold water to drink. A person need have no "flabby pork," nor pork that will "shrink in the pot," if he will take take pains to rear them properly—keep them close—feed those he intends to fatten, on perfectly sound corn, with plenty of pure water to drink.

Draining Orchards.

I visited, not long since, the successful orchard of seventy-five acres, owned by Mr. James Wakeman, of Cottage Hill, Du Page county. One of the leading features of this orchard was, the trees had the appearance of being planted on ridges, which was caused by annually ploughing towards the trees. He commences to plough next the tree first, which leaves a deep furrow in the centre between the rows, which acts as a partial drain—a very efficient surface-drain in winter. For when the snow is thawed by the influence of the sun, the ground being frozen, it runs into hollows. It cannot penetrate the soil. If the slope is completed to the dead furrow, it goes there. But if there is a hollow immediately about the body of the tree, it flows there. I have seen it stated recently that the expansion or lifting power of ice is nearly equal to twice the lifting power of gunpowder. Hence the effect of a body of ice immediately about the body of a tree; hence, too, the importance and benefits of banking up with earth, in the fall, immediately about it. I have had trees destroyed in this manner by ice forming about the collar. I have seen hardy grapes ruined in the same way. Scores of trees, whose bodies are otherwise protected by the sun, are filled at the collar by this lifting ice. It is a good plan, I think, to bank up about trees in the fall, and especially plough orchards as above described.—*Prairie Farmer.*

PICKLE FOR BEEF.—To eight gallons of water add two pounds of brown sugar, 1 quart of molasses, four ounces of salt-peter, and fine salt till it will float an egg Beef put up in this way will keep good without absorbing so much salt as to make it hard and though when cooked.

From the Northwestern Farmer.

Practical Hints about Poultry.

BY C. N. BEMENT.

Our object in this communication is to give our method of improving and keeping fowls, as we have paid considerable attention and have had some expe-rience in the business.

Every one must be aware of the fact that, generally speaking, the fowls ordinarily kept by our farmers are small in size and usually but indifferent layers. Neither their inferiority in size, nor their poor egg-laying qualities, however, is to be attributed to the kind of food they receive, (for farmer's fowls generally fare well,) nor to want of attention; but to the fact that in many cases, the stock is never changed, or if changed at all, so seldom as to be productive of no good results. Thousands of miserable, weak-minded people, idiots and lunatics, attest the evil results of marrying between blood relations. If such be the consequences resulting from breeding in-and-in, from the human family, will not the principle apply equally to fowls? Will not a stock of fowls degenerate from year to year, both in size and in other good qualities, if no addition from other varieties or other yards are not made? Look to the condition of the fowl known as "Dunghill," a variety more generally had than any other in this country and which, although now small and comparatively worthless, were, doubtless; at one time in every respect equal to those for which such enormous prices have latterly been obtained. Why this degeneracy? It is very easily understood. The idea of improving the breed of fowls rarely visits a farmer's mind; and in the multiplicity of duties resting upon him, he does not think it a matter of sufficient importance to change cocks with his neighbor, or to kill off his old ones and purchase new. This is a great error, as we shall endeavor to prove, by facts from our own experience.

Some thirty years ago, being convinced that by changing our plan of breeding fowls, we could very materially improve them in some very essential particulars, we purchased some forty or fifty head of the finest "Dunghill" fowls we could find, paying attention to size and form only, color being disregarded. The oldest in the flock was not more than seven months. We purchased them in the fall of the year, provided them with warm comfortable quarters, fed them well and received in return a good supply of eggs.

From this flock we raised during the next summer about three hundred chickens. The young cocks were either sent to market, or served up for our own table. We did not retain a single one of them. The old ones were also disposed of, and an entire new supply of young cocks of the best size and form we could find purchased. From the pullets we selected one hundred of the best for breeders. The same system was pursued the ensuing spring, and we thought the progeny of the second year somewhat superior in size to their progenitors. Their laying properties were certainly improved. The year following, the cocks of the previous year were disposed of, and their places filled with new ones. The two-year

old hens were also disposed of or retained for hatching. The third year we had the satisfaction of beholding great improvements—the results we had anticipated.

The chickens were not only greatly improved in size and appearance, but we received nearly double the quantity of eggs from the same number of fowls. We still pursued this plan, and cannot but commend it to the attention of others. Our fowls were at least one-third larger than the original ones, and cost us no more food or trouble than the smaller ones, and when sent to market they brought a much better price.

In winter, fowls like a warm southern aspect, where they can huddle together in the sun during the morning and middle of the day, and screened from the northern and western blasts. Provide them with such a place and plenty of food, such as corn, barley, oats, buckwheat, corn and cob-meal mixed with scalding water, and boiled potatoes, *not*, without an occasional feed of animal food and constant access to *pure* water, gravel, old mortar, oyster and clam shells and bones, all broken finely, and they will yield eggs in abundance through the winter.

Poughkeepsie, N. Y.

Treatment of Young Mares.

Are young mares injured for fast work by having colts at an early age?

I have no doubt that the powers of a mare are seriously impaired for fast work after she has had a foal. It may not stop her growth, because a filly which has been well kept up to three years old, does not usually grow much after that period. It may not greatly detract from her appearance, although it must tend, in a certain degree, to increase that very usual defect in mares, the disproportionate weight of their carcass compared with the power of their legs. But the very fact is itself a strong presumption against the expediency of the practice. I imagine that those breeders who resort to it, do so either from mistaken views of economy, or only apply it to such mares as they propose to retain for moderate work about home. Without entering at length into the physiology of the subject, it appears to me that one consideration suffices to condemn the practice. The whole art of training a horse for a race, or preparing him for the hunting field or other fast work, consists in bracing his muscular system and discarding from the frame all superfluous matter. In the breeding animal the very reverse of this is required; our preparation must then be made for the total relaxation of the system, which is requisite for the birth of the young animal. When it is considered, moreover, that this state of relaxation is continued for six months longer, or until the foal is weaned, it must be evident that the system can scarcely be expected ever fully to recover its tone after prostration so severe and relaxation so protracted. The case of heifers and ewes feeding well under similar circumstances, to which my correspondent alludes in another part of his letter, is not a parallel one. In these latitudes we do not require our horses to lay on flesh, but to work. That exceptions may occur to the rule that breeding unfits a mare for fast work, I do not doubt; but it is never safe to take exceptions for a guide.

As far as my experience goes, its result is quite in accordance with theory. I once had a mare which had bred a foal at four years old. In spite of her being well bred, powerful, with a handsome figure and fine action, she was worthless as a hunter. What made this the more remarkable was that she belonged to a family celebrated for their excellence in this respect. She had no unsoundness, she was a fine goer for a short distance, but was useless in a run, although no faults could be detected in her wind. She appeared utterly to flag after an amount of work which to an ordinary hunter would only have been exercise. She was a hearty feeder, and was capable of standing a good deal of slow work, as, for instance, in harness.

I consider, in short, that to breed from a growing filly is to run the hazard of unfitting her for fast work.—*Cor. Lon. Field.*

Col. Pratt's Dairy Farm.

The following statistics of Mr. Pratt's dairy is from the volume of the Transactions of the N. Y. State Agricultural Society for 1859 :

Col. B. P. Johnson—*Sir :* In the last year's report of the State Agricultural Society, you were pleased to publish the account which I submitted of my dairy farm for the years 1857 and 1858, and your courtesy at that time induces me to offer for your consideration a like account for 1858–59. Referring to my former communication, I have to give the following figures, observing now that I have employed the same help upon the farm as I did then.

BUTTER.

	1857.	1858.	1859.
Fifty cows realized, - - lbs.,	6,500	8,050	8,300
Average number pounds to each cow,	130	161	166
My butter netted me this year, - - - -			$2,070
Hogs, weight 6,455 lbs., - - - -			418
Total, - - - - - -			$2,488
From this deduct on farm investment, interest		$700	
Labor on farm and repairs, - - -		850	
			1,550
Making the net gain for the year, - - -			$938

My farm, stock, &c., is valued at $10,000. Within the past year I have set out 1,400 sugar maple trees, and a few elm and beach trees.

Raised 500 bushels of corn, 700 bushels of carrots, 300 bushels of potatoes, 200 bushels of turnips, 70 tons of hay, 50 tons of cornfodder and stalks.

The subject of manures is, we all know, attracting considerable attention throughout the country, and it may not be out of place for me to state what I am doing in this matter

I have a large wagon (bark rack) of the capacity, of say, two cords; this I send, with a man and all the idle boys I find in the village, to the woods, where

they rake up from two to three loads per day; these leaves are carried to the hog-pens and the barns where they serve as bedding to the stock; and when well mixed with the other manure (throwing in occasionally a barrel of wood ashes and a load of old spent tan bark as a decomposer of the leaves,) they go to the manure heaps or on the land. I am satisfied with my experience thus far in making this kind of manure. This, with the care given to the farm, has nearly doubled its value. From three acres of land on the side hill I have cut twelve tons of clover and timothy hay the past season at one mowing.

My practice is to put on manure both spring and fall, raking it fine and level ready for the scythe. My cows are, with one exception, natives; I stable them in winter and feed them about two quarts of meal per day through the spring, with all the hay and stalks they want. I have for them in the yard a never-failing, never-freezing trough of spring water, and to which, summer and winter, they can go at pleasure, and I can't help thinking that they are all the better for this privilege.

In this connection let me add that I have raised a native heifer calf, which, for good points, can hardly be improved, not yet a year old, which weighs 750 pounds, gaining about two pounds per day, the mother of the calf weighs 860 pounds. Both the cow and calf furnished with meal occasionally, and this confirms me in the opinion I have held for a long time, that the keep will do very much to improve the breed. A recent examination of stock farms in England, and viewing the cattle in London market from nearly every country in Europe has not lessened my faith in this matter. I am yours truly,

Z. Pratt.

A Concert by the Cows.

When, as it oftentimes happens, we hear the tinkling of a sheep-bell or a cow-bell on the hills or in the woods, we are reminded of the many pleasing allusions of the British poets to this cheerful rural sound. The bells, it is true, are not generally as musical as they might be, yet they strike a pleasant chord in the heart of every one who loves the country. It has often occurred to us, that if the manufacturers of these bells would make some of a superior quality of tone, not a few farmers would be glad to buy them for their herds. It would be a pleasant sound for the traveller to hear from a distance, as the animals wended their homeward way at night, and it would gladden the ear of the proprietor and his family. We have heard a few such bells.

Within a short time we have seen it stated that a certain English nobleman has suspended a musical bell on the neck of all his cows, each bell tuned in a different note of the scale, and the whole running through several octaves. A visitor to this farm is charmed by the music, as well as by the sleek sides of the cattle. Sometimes he hears several notes in unison, then a slight discord, then a sweet harmony, and all varied by distance, and by the rising and falling of the breeze.

For the Southern Planter.

The Cultivation and Management of Tobacco.

[*A Premium Essay.*]

Influenced by an hereditary fondness for the culture of tobacco, and desiring to contribute, though but a mite, to the success of our Union enterprize, I proceed to make some suggestions upon the culture and management of tobacco. In these observations I shall attempt as great conciseness as may be compatible with perspicuity.

I shall not pause upon the threshold of the subject to argue the question, whether we should raise tobacco at all, or not; for whether we view the subject in a moral or an economical point of view, and to whatever conclusion we may be led, there seems to be an urgent necessity, on the part of most persons, impelling them to plant tobacco; for in our climate, and on our soil, it seems to be the most uniformly safe and reliable production, on which to rely as a *money crop;* and the most elaborate argument upon that point would produce no practical results. But a malady which cannot be cured, must be governed and directed. *We will plant tobacco;* and it becomes us to consider in what way we can plant to the greatest advantage,—with least injury to our lands, and greatest profit to ourselves.

PREPARATION OF THE PLANT BED.

The first thing essential to success, in making a crop of tobacco, is an early and abundant supply of plants. With an abundance of early plants, success is always possible, without them a failure is almost certain. And in the first place, let it be remembered, that the labor of burning and preparing plant land, in the winter season, is not at all to be compared to the inconvenience and loss resulting from a failure in plants the following spring. Therefore, I say, sow as much plant land as will in a season, really favourable and propitious, furnish plants for three times as many hills as you design planting. I know of no other mode of guarding against seasons late and unpropitious. In this case, if the seasons should be favourable, you will have an abundance of large fine plants to set your crop the first season after your land is prepared, and thus gain a great advantage in securing an early and regular stand of plants, and the entire growing season for the tobacco to mature in; and also, by having an abundance of early plants ready, you secure much greater independence of the seasons for planting, since by the use of good plants and chaff, you can frequently plant with the season in the hill on first being made. And, on the other hand, if the seasons are very late and unfavourable, by reason of a larger surface to pick, you will still be enabled to plant so much the earlier, as in those seasons they generally grow with greater irregularity, and by means of the greater abundance for replanting, you still have manifest advantages in securing a stand. In either case you will enjoy the satisfaction of giving to your less fortunate neighbours, which is by no means a small matter, for I would rather give away an entire planting than to beg one plant. To make sure, I suggest that the proportion be no less than one hundred square yards, to every ten thousand hills to be planted.

The selection of plant land is a matter of great moment. It is best that several kinds be selected with reference to moisture, in order to suit any kind of a season; or if they can be located hard by a stream, this necessity may be obviated by the use of a hand-pump, or a temporary change of the branch for watering the bed, by which means, in a drought of great severity, moisture may be furnished sufficient to prevent the depredations of the fly, and keep the plants in a healthy and growing condition. An incidental advantage in such a location is, that guano may be applied, as a top-dressing to the small plants, with greater safety and benefit, as it may always be made to precede a copious watering, which greatly enhances its action.

As to the preparation of the land, the plan I have found most successful is briefly this: After the selection of a suitable spot, to burn before Christmas, or as soon thereafter as the earth may be found in a proper condition, by which I mean that it shall not be very wet, nor is it best that it be extremely dry. Let the burning be rather moderate; just so hard as may be necessary to destroy the roots and seeds of grass, without burning the mould of the soil. If the burning be early, I do not think it necessary to remove the ashes, as by being mixed with the soil, and leached for several months before the germination of the seed, they become rather advantageous than otherwise. Have the bed thoroughly prepared by chopping with both grubbing and hilling hoes, being careful not to invert the surface soil. Then sow the best Peruvian guano with regularity, at the rate of 500 lbs. ℔ acre, and chop and rake until you feel satisfied that it is perfectly incorporated with the soil to the depth of two or three inches. It is best to apply it at about that depth. It is best, also, to apply it at two sowings, and chop thoroughly and rake each time. It must be remembered, that the tobacco plant, at its earliest germination, is an extremely minute and tender growth, and it is of the utmost importance that the first springing rootlets should have a bed of soft earth, and that the plant food should be presented in the best possible mode for immediate appropriation. When the land is nicely prepared, sow seed regularly and liberally;—twice as many as you ever heard mentioned in any of the old rules,—at two sowings, having the first half of the seed raked in very lightly, with an iron tooth rake; and after they are all sowed, have the bed well tramped until the land is sufficiently close and compact. Then spread fine, well-rotted stable manure, free from seed of all kinds, to a depth of one inch, and finally cover with straight brush, or if brush is difficult to obtain, use wheat straw, as I have several times done with success. Many persons may object to my recommending thick sowing, but I have never known a man to fail, in a tobacco crop, from having too many plants, while I have known many failures from having them too thin. The young plants, of late years, have so many difficulties to contend with, that I prefer to have them very thick at first, and after the dangers of fly, frost, &c., are principally past, if they are still too thick, they may be thinned easily with an iron rake. The dressing of stable manure, which many would think unnecessary, I think of essential service. It seems to me to exert a three-

fold beneficial effect; first its positive and direct effect as a powerful manure; secondly, the peculiarly warming influence exerted by such manure hastens the germination of the seed; thirdly, by settling closely around the plant, and above many of them, it affords great protection from frost, while the plant is in a tender state. If the straw-covering has been used, suffer it to remain until the frosts of spring have ceased in a great measure, when it had better be removed by degrees, with a steel fork. This is necessary that the plants may assume a more hardy growth, previous to transplanting. And after all these efforts, if the plants are still later than would be desired, a top-dressing of manure, applied every few days, will hasten them forward with astonishing rapidity; but if these suggestions have been attended to, it is almost certain that you will have plants both early and abundant, and the young planter may judge how important I consider it to have plants, by the time I have devoted to the subject, and the minute, and I fear, tedious manner in which I have treated it. But we come now to the second division of the subject:

THE PREPARATION OF THE LAND AND CULTIVATION OF THE CROP.

If you design planting on lot land, it should be thoroughly and deeply broken, during the fall or early winter, and harrowed occasionally to keep down the grass. In the mean time the litter of the plantation should be thrown upon the land with a lavish hand, and if it be abundant, I think broad-cast the best mode of application. If the quantity is limited, and you wish to make the most of the given amount, I think it best that it should be trenched. This may be done either with a trenching plow, or with the ordinary two or three-horse plow, running twice in the same furrow, and throwing the earth each way. In the trench thus formed, let the manure be deposited and somewhat compressed, and a ridge formed on the top of it by the same plows, thus precisely reversing the series of trenches and ridges. I am clearly satisfied that this is the very best manner in which unrotted wheat-straw, or any very coarse, long manure can be applied, as well for convenience of tillage as for the benefit of the growing crop. Let it be borne in mind, that whatever can be successfully done by horse-power, is cheaper thus done. I have found tobacco to grow equally as well on ridges made by plows, as the best hills made by hand. If it is designed to cultivate a large crop to the force employed, it is best to have these ridges checked, which, if well done with a suitable implement, will very much facilitate the operation, if not, indeed, supercede the necessity of hilling. By having it checked you are enabled to bring horse-power to bear upon it in both directions, which will greatly relieve the tedious and laborious operation of hand-hoeing. In the intermediate spaces between the checks, made by the plow, let the earth be compressed by a sound pat with the hilling hoe, to designate the exact spot for the plant, and you have as good a hill as can be made. If the ridges have been thrown up with good season in the earth, and it is somewhat early in the planting season, the plants may be set in these without rain, and with every prospect of their living. This

prospect is greatly enhanced by setting them late in the evening, and covering them with a small lock of green clover, or a handful of wheat-chaff. If it has been necessary to ridge in dry weather, it is best to wait until it rains, rather than incur the risk of losing the plants, and the labor of an extra planting. On the other hand, tobacco should never be planted when the earth is so wet as to pack next to the planting peg, since the hard earth next to the young plant would be very prejudicial to an early and vigorous start. The plant should be set a little deeper than it grew in the bed, the roots all tending down, and the earth carefully but firmly compressed to the root.

Now we come to the cultivation of the crop. There seems to be no crop requiring less particularity of culture than the tobacco crop. Any conceivable mode of destroying the grass, and stirring the earth, will answer to induce vigorous growth, if the land and seasons suit. But I think it desirable that the earth should have a good, deep and thorough breaking, thus early in its cultivation, which will promote a broad, healthy and vigorous growth in the plant, and prevent the difficulty known among planters as buttoning. The soft and freshly broken earth, invites the young roots to a deeper and wider range, and the leaf will not fail to take a corresponding manner of growth. Many persons recommend the use of the coulter, but I have been in the habit of using the little turning plow, passing it both ways and bearing the earth from the plant, and running as near to it as possible, without loosening it, and if there should be moisture in the land, even that would do it no injury. This operation covers whatever of grass may have started in the middle of the row, and as will readily be seen, leaves but little for the hoes to do. It is best, however, that they pass over after the plows, scrape off the crust and grass immediately next to the plant, and draw up fresh earth. This operation if well done, leaves the young plant in fine condition for growth;—free from grass, with an abundance of soft, fresh earth next to it, and underlying it, in every direction. After two or three weeks it will be proper that this operation be renewed. Let the same plows pass through it in both directions, bearing the earth towards the plant. Here again will be found the great advantage of having the land checked, as the labor of hilling by the hoes will be reduced more than half, and it will be more thoroughly and effectually done by the plows.

By this time it will be large enough to begin to top. I think the cases very rare when it is advisable to leave more than ten leaves upon a plant. My custom is to prime to six inches, and top at ten leaves. By this means you make but little lugs and short leaf; the tobacco will be greatly more uniform in length and quality, the leaves will ripen more nearly at the same time,—will grow longer and ripen better, and it is the approved opinion of most planters, will yield more and better tobacco, than if a greater number of leaves had been left. As the season advances, the number of leaves must be diminished.

After your tobacco has received the last working, has taken entire possession of the land, and been all topped as you desire, you have but two difficulties to

contend against until it is ready to bring to the house. These are the horn-worms and the suckers. My tobacco crops have been graduated, not by the quantity we could cultivate, but by the amount we could keep the worms from destroying. They certainly constitute the most serious difficulty the planter has to encounter. And to begin at the beginning, it is certain that every possible mode of destroying the horn-blower should be adopted, and assiduously followed, as you may feel a perfect assurance that in a corresponding ratio will the worms be reduced. Many may be killed with paddles by the boys around the Jamestown blooms, white lillies and tobacco blooms. I have read of great destruction to the fly by the blowing of certain poisons into the blooms. I have never tried it myself. I have been told that if you raise a torch-light each night about where they most frequent, that great numbers of the fly would be attracted by the light, and get their wings scorched in the blaze. I have never tried this, but have no doubt upon the general principles which prevail among the insect tribe, the effect will be as described. One of the most efficient and interesting, and certainly the most profitable modes of getting the worms off the tobacco, is by means of a large flock of turkeys. If forced to remain in the tobacco for a while they will form a fondness for the amusement of catching them. By these assistants it is probable that the women and boys of the plantation will be able to keep them under, and also the suckers, while the men of the farm may be engaged about other things; and this brings us to another division of the subject, namely:

THE BUILDING OF TOBACCO BARNS.

Let it be distinctly understood, that if they are to be built, the interval of time between the cultivation and cutting of the tobacco is the best and most suitable. It should not by any means be deferred, for, however busy you may be, you may rest assured that you will not be less so when your fall duties begin to press upon you. If you cleared a *new-ground* (to use the old plantation phrase) the winter before, every tree which would answer for a barn-log, or a tier-pole, should have been reserved, and taken directly from the land to the location of your proposed building. By this you accomplish the double purpose of clearing your land of them, and at one handling, get them in place, at the most leisure time of the year, when teams very often have nothing else to do. And when logs are cut and in place, the barn is more than half built. Another advantage of this arrangement is, that the material will be lighter to handle; and, I think, a pine log cut in the winter, and the bark suffered to peel off, as it will do the next August, makes a harder and more enduring piece of timber than when cut in mid-summer.

But few planters have barn room enough. It is often the case that the loss on one crop of tobacco, together with the extra labor of hoisting, rehanging, &c., would more than suffice to build a barn. No planter ought to stop building barns until he has a plenty to hold his entire crop at one hanging. Twenty-five feet square is a good and convenient size to build barns, but I am satisfied that to make the yellow wrapper a smaller size—say twenty feet square—is better suited.

When I commenced farming, under press of circumstances, I was induced to build a barn, which I conceive combines the greatest possible capacity, with the least given amount of material. It consists of two twenty-five foot barns with a twenty foot passage between them, and the whole building thrown under a continuous roof—thus making two sides of two barns do double duty, or getting the entire passage room, twenty by twenty-five feet, by building two sides of it, the rear and front, which are of logs inwrought, or joined in the corners of the other two barns. This building affords enormous capacity for holding tobacco, which constitutes the only objection to it. You have too large a mass of tobacco subject to the accident of one fire. Its conveniences on the other hand are very great. The passage room being provided with a stove and a prizing screw, furnishes an excellent and comfortable place for stripping and prizing tobacco. By having large quantities down in safe order, we find stripping suitable work for extremely cold and wintry weather. I understand that the planters in Carolina and the upper counties prefer their barns built with shortened logs, or after the cabin-roof style, and I have no doubt it is more favorable to securing the extremely high heat to which the yellow wrapper has to be subjected. .

But we come now to the most efficient and particular part of the management of a tobacco crop, namely:

THE CUTTING, HOUSING AND CURING OF THE CROP.

We may suppose that the leaf has ripened uniformly and well. The broad, crisp and deeply mottled leaves seem, with genuine *abandon*, to woo the flattering embraces of September's sun. The dreary haziness of the atmosphere, the deep blue clouds which anon hide the sun from view, the first faint mingling of autumn's own yellow with the green of far-spent summer, admonish the planter that he must soon enter upon the closing scenes of his year's labor. The barns are all ready. Abundance of good seasoned wood is at the door, or the charcoal securely stored away under cover, where the faithful laborers of the plantation, eager for the fray, with exulting step and glistening blades, open the ball. The pointed end of an old scythe-blade, with a handle attached, makes the best knife. And when the sturdy and trusty foreman of the crew lays resolute hold upon such an implement, the inspiration of the moment will spread among his comrades, while the deep rich cry of the opening stalk is music to the planter's ear. And here let me say, that I believe there is more tobacco lost by deferring the cutting too late, than by cutting too soon. It must be borne in mind that each day after it will answer to make good tobacco, it is unnecessarily subject to the casualties of the weather—hail, wind and frost, or that most destructive of all ailments, the spot.

This very often originates in violent wind and rain, as it did last year, by which I lost at least one-fourth the money value of my crop. The leaves are bruised by the wind,—the bruised spots, of course, when healthy development ceases, will rot, and the habit thus established, continues to affect the whole plant.

When it first makes its appearance, the best thing to be done is to cut it immediately, for you may rest assured that all improvement is at an end. The tobacco when cut may be carefully placed in wind-rows, and when it is wilted sufficiently to handle without breaking, it may be put into heaps of eight or ten plants, according to the size of the plants. A good and popular mode of hanging, is to hang on the hill. Let the stick be securely driven into the hill, hang the plants carefully with the buts of the stalks due South. A day partially cloudy is best for cutting; and sun-burning must be particularly guarded against, as there is nothing more injurious to tobacco. If it is carefully hung in this manner, and the leaves of each plant well straightened out, so that each plant will be supported by another, it will hang with safety for several days—turn off water very well in case of rain, be partially secure from frost, and owing to the obliquity of the sun's rays falling upon the plant, be quite safe from sun-burning. I have sometimes followed this plan, but generally, another, which I think a little more expeditious. We use an ox-cart, with a very deep, long plank body, fixed to dump or slide out the load—have several sets of plank to lay in the bottom of the body as slides, or in the absence of plank, tobacco sticks may be made to answer a very good purpose. Pack the tobacco in large hands, after it has partially wilted, in the body on the sliding plank, with the stalks all turned carefully out, until the body is entirely full, and as much higher as the team can draw. Carry to the barn door, dump the body—the plank will easily slip on the floor of the body—and without a tedious second handling in unloading, you have the tobacco at the right place, and ready to hang. I am clearly satisfied, after trying every mode of hauling tobacco, that by this mode it may be hauled more expeditiously, and with less injury from bruising and breaking than by any other mode. If the object is to make plain tobacco, and the plants are not very large, you may hang as many as ten plants on a stick 4½ feet long. The old mode was to scaffold—by so doing you saved in wood and time of firing, and may with safety hang it considerably closer on the tier-pole. My custom has been to put it directly in the house, and hoist and regulate as soon as possible. When this is done, if it be large, strong lot tobacco, suited for shipping purposes, there is but little difficulty. Let it hang until it shows a disposition to turn yellow, which will usually take place in about three days, when fires may be raised under it, keeping them quite small at first. When the tails of the tobacco begin to rattle, raise the fires gradually as high as may be done with safety, and keep them so, until the leaf and stem is perfectly cured. You will find the tobacco of a dark nutmeg, brown color, and smelling strong of smoke, which is a recommendation in shipping tobacco. But if it be grown on new land, well ripened, and suitable for manufacturing purposes, it should be cured without fire, or, at all events, without smoke. If it is determined to make a lot of sun-cured, it may be hung thin on the scaffold, as long as the weather will permit, and then removed and hung thinly in an open barn, where the remaining moisture of the plant may be taken out by the air passing through it. It is believed that in this way you may preserve all the es-

sential oils of the tobacco, the native aromatic flavor of the weed, more perfectly than in any other way. But of late years they have found out that exposure to the sun and dews will extract all the unpleasant odour of smoked tobacco; hence we hear but little said of sweet hogsheads of tobacco, as was formerly the case. But there is another class of tobacco which has attracted much attention of late, and brought enormously high prices. I allude of course to the yellow wrapper. To make this successfully requires management totally different from that just described. This tobacco grows best on a soil somewhat light and sandy, but at the same time of the requisite strength—such land as is indicated generally by chinquepin and hickory. It is extremely difficult to make it on a stiff clay soil. The tobacco should be encouraged by all possible means to yellow on the hill. A habit or tendency thus established, on the hill, will be found of essential service in the succeeding operations. It is the custom of many persons to yellow it on scaffolds, by crowding it very think for a few days. The success of this is dependent in a great measure upon the weather. If it is warm and fair it sometimes answers very well, but I think is never so certain, as to yellow by slow fires. Let it be understood that to make this kind of tobacco, it is absolutely essential to have barns perfectly tight, from bottom to top; for with open barns it is impossible to govern the heat, with that particularity and nicety, necessary to success. You must be supplied with an abundance of good coal, or have well constructed flues—the object being to furnish a dry clean heat, without smoke. The tobacco must be hung very thinly in the barn, say seven plants on a stick, and the sticks ten or twelve inches on the tier poles. I conceive the great desideratum to be, that the yellowing and the drying process should be going on at the same time, and in corresponding degree. It is difficult to lay down any particular and definite rule, but I will mention a formula of management which in my judgment will suit as many cases, as any other single rule. When the tobacco is nicely regulated, hang a thermometer about midway the barn, and raise small fires of coal over the floor; to a twenty foot barn have nine small fires, and be governed entirely by the degree of heat as indicated on thermometer, as follows, to wit: first 24 hours at 90 degrees, 12 hours between 95 and 100, 12 between 100 and 105, 12 hours between 105 and 110, next 12 hours between 110 and 115, next 12 between 115 and 120; then rise very gradually ten degrees every four hours, until you attain 160 degrees, and keep at that until the tobacco is thoroughly cured, stalk and stem, and be sure it is thoroughly cured. It is highly important that the fires should never be suspended for a moment, for when the drying process ceases, the running begins, and you will inevitably have a red spot. And even after the tobacco is thoroughly dry, to all intents and purposes, every time it comes in order a prejudicial effect is produced upon its color, and if it is suffered to be often thus influenced by the dampness of the atmosphere, during winter, you will find in the spring, instead of the bright golden yellow which you expect, either a dingy yellow, or a positive red. This may be prevented in a great degree, by crowding it very thick into a close barn, dry it thoroughly with coal,

and afterwards, it will probably remain exempt from atmospheric influences, but in times of extreme dampness it may still be necessary to dry it off with coal. The scheme of time and heat above given, is intended for rather thin new ground tobacco; the time assigned to each degree of heat must be lengthened when applied to heavy lot tobacco. In fact, my formula, or any other one I have ever heard of, will only do as a general guide, to be varied and modified according to the particular circumstances of the case, and the skill and judgment of the operator. In assorting this kind of tobacco, unless it is all perfectly bright, which will rarely be the case, it is best that there be five divisions, long bright, short bright, long dark, short dark and lugs. It should be stripped and nicely tied up, and got into safe but pliant order, and packed straightly in boxes containing between one and five hundred, and sent to market generally about the first of June, and if everything hits exactly right, and you happen to be a lucky individual, you may expect fine prices. I may mention before I dismiss the fancy wrapper, that it is fashionable with many of the best planters, just on finishing the curing of a house, to run the mercury up very high for a short time; say to 180 or even to 200, so as to scorch the tobacco a little. It is said to develop a peculiarly rich and aromatic flavor, which is highly prized by the manufacturers.

But I must briefly recur to the common kind of tobacco. Let this be assorted into three kinds—long leaf, short leaf, and lugs; after it is stripped, have it hung in the barn so thin as to come to a regular and uniform condition through the entire house—take down in high order, and pass through the straightener, or put down in the straightening bulk, and weight heavily—suffer it to remain in this bulk only a short while—take it up and have a parcel of short dressed sticks with one end sharpened, which run through the bundle just below the tie. And hang up again by putting strong sticks across the tier poles, and these shorter sticks, to rest on them. If you use the straightener, which I have heard recommended—but have never used—this last mentioned bulk will be entirely unnecessary. Hang it thin enough to dry out perfectly, and as these operations are based upon the presumption that the tobacco is in supple order, if there should be an unusual continuance of damp weather, it would be proper to dry it out by fires. After it is once perfectly dry, you may watch out for your condition season. This will frequently occur when you little expect it—sometimes under the influence of a warm Eastern or Southern wind, it will be found to soften. Whenever it has come sufficiently in order to press in the hand without breaking the leaf, but the stem is still dry, two-thirds of the way down, your tobacco is in strictly safe prizing order, and you must make haste to secure it by bulking it in a broad bulk, the larger the better, when if weighted and wrapped with straw, it will await your convenience for prizing, whether it be one month, or twelve months. It is best that your condition bulk should be slightly elevated, and the stalks removed, so that the air can pass freely, or you may find the bottom courses affected somewhat by the dampness arising from the earth, and if it will

remain long in bulk, straw should be basted around the heads of the bundles, which will prevent any appearance of mound. I am aware that this is a point at which many planters fail, and consequently are disappointed in their expectations, and make heavy complaints against merchants, markets, &c., while the fault is with themselves. Tobacco is not an exception to the general laws of trade in this respect. A man who thrusts a horse upon the market in bad condition, or "out of order," does not expect more than half price and is not usually disappointed. And owing to the peculiar nature of tobacco, there is no commodity in the trade in which particularity of order is more essential. The buyer in bidding for a hhd. of tobacco, is governed, frequently, not by what it is worth at present, but by what it will probably be worth when he is ready to use it up, one-two, or three months hence; when, if the order was bad, it will have materially depreciated in value. The tobacco, when it comes to the hogshead, should be dry, straight, and well assorted, as to length and color; for nine times in ten, the hogshead will be sold by the most inferior break; and I have seen one bundle of inferior tobacco, injure the sale of a hogshead, one or two dollars per cwt. A safe rule in prizing, is for the planter to expect the most indifferent tobacco in the hogshead to turn out the sale sample, and he will find it a safe basis of expectation.

The hogsheads should be made of seasoned staves, to the maximum size of legal gauge, strongly and tightly coopered, and for prizing really fine tobacco, it is better that the staves be planed on the inside, and there should be a nail put in every stave at the bottom, for the convenience of stripping at the Warehouse. Fine tobacco should rather be very carefully packed and pressed, than strictly prized. Hogsheads of fine tobacco should not exceed 1000 lbs. Common tobacco and lugs should be prized heavy, say to 1600 lbs. A properly made prizing screw, seems to be the best arrangement for prizing tobacco, with which I am acquainted. There should be four very stout pieces of oak timber, say fifteen or eighteen inches squares, put together in the strongest possible manner, by mortic and tenons, and the bottom sill should be let into the ground about two feet, and a suitable hole left in the center, that the bottom of the hogshead may sit directly upon the sill. This is that the lever may not be too high for the hands to operate conveniently. The upright posts should be fourteen or sixteen feet apart, that a seven or eight foot iron lever may pass entirely around the hogshead, and should extend three feet above the cross piece, in which the screw works, in order that there may be very strong braces extending from this cross piece, near the screw, to the top of the posts. Without these efficient braces the cross piece will surely spring and give you trouble, if you attempt heavy prizing. I understand there is a newly patented screw particularly suited to prizing purposes, but have not seen one, and of course cannot speak of it. As to the braces just mentioned, it is best that there be two corresponding braces on the under side of the beam, in order to counteract the otherwise powerful tendency to press the frame apart.

As to the quantity per hand, where mixed husbandry is pursued, as is the case in most parts of Virginia, eight or ten thousand to the hand will furnish full employment; where tobacco is made the *specialty*, and small crops of grain attempted, and there is no extra preparations, or outside matters to claim attention, such as building barns, burning coal, &c., by means of the assistants, and labor saving operations mentioned in the first part of this article, I consider an able, expert hand, equal to the management of twenty thousand plants. But it is proper that I should admonish any one less experienced than myself, who attempts the last figures, that he must be certain about his running gear: he must grease well, track well, greet Aurora with impatient welcome, and hold himself in readiness to take a quick-step to the music of the Whippoor-will, particularly should there be a glut of horn worms, and no turkeys, nor yellows jackets.

But it seems to me I have said quite enough upon the cultivation of an article of as questionable utility as tobacco. Surely this will do for a man who has no earthly use for it, but to make it and to sell it, and who, if he had the only single pipe-bowl of seed in the world, would *perhaps*, indulge a newly born fancy for tobacco smoke. I am aware that I have said many things which would cause a veteran planter to smile on account of their great simplicity, but such an one may remember, that all planters are not old planters, and I have observed that there is no subject with regard to which a novice is more at a loss how to proceed; and tobacco culture has spread within the last few years over a portion of Eastern Virginia in which it was formerly unknown. I intended that my suggestions should be strictly of a practical character. I have forborne to dabble in the chemistry of tobacco culture, because I am rusty in my chemical readings, and very much doubt whether the chemical science as applied to agriculture, has attained that degree of certainty and accuracy, which well justify the expectations which many have indulged with regard to it. At any rate a man possessed of the requisite skill in analytical chemistry, to analyze the soil, and medicate it precisely according to its requirements, for a particular crop, will be apt to find more profitable employment than making tobacco. I adhere to the doctrine of our fathers, that the land, the plow, the rain-cloud, the sunshine, still have something considerable to do with a tobacco crop, and that the victory does not belong alone to the knight of the retort with his infinite array of *ides* and *ates*. Do not understand me as ridiculing true science, for no man has a higher regard for her truths, but I believe as used by the present generation of patent manure venders, her technicalities are made to answer the purposes which Talleyrand thought the object of language—to conceal truth rather than to convey it. At this day in which we live, this patent age of new inventions, when to breathe air is fogyism, and the world is mortgaged to humbug, it is really refreshing to find something tangible and certain, "something that will do to swear by," should it be as homely, as common-place, and as old fashioned a thing as a manure bank. And this should be the principal reliance of the planter All artificial manures should be regarded only as auxiliaries.

But I have touched upon all the points mentioned by the committee for particular discussion, and enlarged upon each one, according to my estimate of its importance, and now only pleading my motive, in partial extenuation of its many imperfections, to the worthy committee-men of the Virginia State and Central Agricultural Societies, the document is respectfully submitted.

Henry M. Fowlkes.

Windsor Park, Chesterfield Co., Va., Oct. 20, 1860.

For the Southern Planter.

Southern Patronage to Southern Industry.

In a late number of the Planter is an article from "De Bow's Review," on "Southern Patronage to Southern Imports and Domestic Industry." This article is well written, and most of the sentiments advanced are worthy of being pondered over and considered at the present time. The true policy of the South, as well as every other country, is to turn the attention of its citizens to diversity of employments. No country that only produces the raw material can be as prosperous as one that combines agriculture, manufactures, and commerce. Our own country gives strong evidence of this truth. The South, with a soil and climate greatly superior, and with tide-water facilities of great advantage, has not increased in population and wealth in the same ratio as the North has. Her statesmen have hitherto discouraged the introduction of manufactures on a large scale, and now, when they see the need of them, they are unprepared to supply themselves. Some thirty years ago, or thereabouts, one of the firm of Lawrence & Co., of Boston, having heard much of the water-power of the James River, at Richmond, visited that city, proposing, if encouraged, to erect cotton factories there. He was highly pleased with the prospect and the advantages of the place, and many of the citizens gave him encouragement, but the editor of the Richmond Enquirer came out in an article against the proposition, as being contrary to the policy Virginia had marked out for herself. The editor, probably, saw in the introduction of a population that would naturally follow, if manufactures were largely introduced, that they could not be so easily brought under the training of politicians. However that might have been, when Lawrence saw that his proposition was to meet opposition, he quietly withdrew and turned his attention elsewhere. Let us consider for a moment what would have been the condition of Richmond if that proposition had been cordially endorsed, as it ought to have been. The erection of cotton factories would have caused machine shops to be erected, these would necessarily have employed many hands, and these, in turn, would have encouraged other factories, such as woollen, calico-printing, and the like. Few situations excel Richmond for the various manufactures of iron. Her water-power is enormous, and if this is not enough, her vicinity to her coal fields is such, that steam-power can be used to any extent. Had the enterprise of Mr. Lawrence been inaugurated at the time above referred to, the population of a

Lowell, or a Pittsburg, might have been added to her present numbers, and a stimulus have been given to the agriculture of the vicinity, which would have advanced it far beyond what it is at present.

This policy has been unfortunate, for now, when the necessity is forced upon us, we are unprepared to meet it. To propose to stop trade with the Northern States, is simply ridiculous, we are not prepared to supply ourselves, and we must get this supply as cheaply as we can. There is, however, a prejudice in the minds of many, that is an obstacle to the introduction of home-made machinery among us, and this prejudice must be removed before much success can be obtained.

Many persons seem to be of the opinion that our timber is not as good as that from the North, and that our mechanics do not understand how to put machinery together as well. The latter may, in part, be true, but that will soon correct itself in practice; and to illustrate the latter, let me give a few facts: A son of mine, in connection with a young man from western New York, is putting up machinery to make carriage-shafts, rakes, to turn fork and broom-handles, &c., and looking round to find a market for their articles, called on a dealer in shafts in Washington City, and when he found that they were to be made in Virginia, he said, "You have not got good timber there;" the reply was, that they believed their timber was very good; when he retorted, "I know Virginia, and I know the timber there is not good." Another case, a merchant in Alexandria, who keeps an agricultural machine warehouse, and a shop for their manufacture and repairs, was told by another merchant, who had a farm in the country, that he wanted a thrashing machine; "Well," said the first, "I would like to put you up one." "O," said the other, "you have not got as good timber here as they have at the North" "We think we have good timber, but if you want a Northern machine let me order one for you." "O no, I can do that myself." And so he ordered one and paid a retail price for it, when the other merchant could have bought the same machine at a wholesale price, paid himself a fair compensation, and delivered the machine to him at the same price he paid for it.

This idea, that we have not good timber in Virginia, shows a lamentable degree of ignorance of our own resources- The wagons made in the Valley of Virginia, around Winchester, have a high character for superior timber, so much so that citizens of the Ohio valley will give more for one of them than for a wagon made anywhere in that valley. There are contractors of the British Government at work in the Cheat River valley, in Western Virginia, cutting up white oak timber and shipping it, by railroad, to tide-water, and thence by sea to England, to make gun-carriages; believing it to be the best timber they can procure in any part of the world; and yet, there are men who assert, that we in Virginia have not got good timber. The ship-builders of Maine say, that the ship-timber from the shores of the Chesapeake Bay, is the best they can procure anywhere; and the hickory timber of Virginia has been taken North and returned in axe-handles, to be used in this State. This does not look as if our timber was not good.

There is, however, another and a more formidable obstacle to manufactures, and that is in the habits of our people. Home education has more to do in forming the future habits of a community than many are aware of. Many seem to suppose that by giving a young man a college education, he is thereby rendered fit for any situation in the community. This may do for him if he is to be a lawyer or a doctor, or an office holder, but if he is to be a really practical business man in other departments, it is quite a different thing. It has been the boast of writers, in this State and elsewhere, that the leisure that many young men possess, is favorable to the development of talent, and that it gives them opportunities for improvement that those who have not leisure do not possess. This is a great and often fatal mistake. Necessity will accomplish what leisure never can. Leisure will employ herself in nice distinctions, and theoretical deductions, but for investigations that require real labor and patience, they are rarely undertaken. If children are not brought up to industry, and to study economy, they are poorly qualified to perform properly the duties of life. Scrutinize the early history of those who have been the betrayers of public trust, and the defaulters in office, and in almost every case, if not in every one, we shall find that idleness and leisure, and a want of correct moral training, were the accompaniments of their early life. While, on the other hand, those who have been as way marks, and eminent in their walks through life, have been, in almost every case, subjected by stern necessity to the early discipline of industry and economy, and thus formed their characters and laid the foundation of their future usefulness. Who are our really business men, our engineers and superintendents, and officers of our railroads, superintendents in manufactories, our merchants and active business men in every department of business?—not those who were reared in the lap of leisure; the narcotic effects of which lull the energies until they are incapable of a vigourous effort in a right direction. Hence we have so many theories in politics, so many nice disquisitions on political economy, such abstract reasoning by men who have never made the practical application of political economy their study.

I like the suggestion in the article from De Bow, where the writer says, "Let our politicians and fire-eaters turn their swords (if not into plow-shares) into yard-sticks and distaffs, and enter the field of domestic industry, prepared to fight against our worst enemy—*Northern Industry and Commercial Enterprize.*" They must not only turn their swords into distaffs and yard-sticks, but they must turn them into hammers and hand-saws, and, indeed, into every kind of tool, for it was by this process that Northern industry and enterprize have become what they are. No other course will do—there is no patent road to independence; labor and energy can reach it, but leisure never.

The sentiment "that non-intercourse with the Northern States is impracticable and will not be our true policy," is evidently correct. We of the South should diversify our business, and introduce manufactures amongst us, for the encouragement of agriculture, manufactures, and commerce. This is necessary to the full

development of our country, and its full development should be the aim of every citizen. There is in reality no antagonism in these interests, and free trade between the States is better than any restriction can possibly be.

Agriculture is essentially a peaceful business, and if all would but follow the Golden Rule, each one for himself, how soon would our present distracted country be smiling in all the loveliness of peace and prosperity, and the base intrigues and criminations of politicians be buried in oblivion.

YARDLEY TAYLOR.

From the New England Farmer.

The Improvement of Old Pastures.

The improvement, within a reasonable cost, of the old run-out pastures of New England, is, to my mind, an interesting subject, and one of the most important branches of cultivation our farmers can undertake. Having had my attention directed to this subject for several years, I have been induced to try various methods for the renovation of such lands—the results of some of which have been given in former communications to the *Farmer*. Several interesting improvements of these lands are now in progress in my immediate neighborhood; and having to-day visited some of the fields either already made productive as pasture, or undergoing tillage, to bring them into that condition, it is now my purpose to give the details, in part, of what was observed. In a communication to the *Farmer*, in August or September of the year 1856, I described a tract of sixty or more acres of worn-out pasture land, then recently purchased by our Vermont Asylum, the improvement of which had become a desirable object, and one in which, from some official connection with the Institution, I took an active interest. This tract lies more or less rolling, but nowhere so steep, or uneven, as to be inconvenient, or objectionable for plowing. The improvements commenced upon it five years ago have been steadily progressing since, in pieces of ten to fifteen acres each, until some of them now have sufficient age to give them a certain character, from which conclusions can safely be drawn. I shall first speak of three fields comprised within this tract.

The first piece looked at to-day, a field of about fifteen acres, is now covered with a promising crop of potatoes. The land was the oldest kind of bound-out pasture, covered with moss, and a feeble growth of inferior grasses, interspersed with sweet fern, shrub pine, and other bushes. The largest were pulled out, root and branch, by taking a chain-hitch to them, with the oxen; and others were cut down to the ground, and the little stumps turned under by the plow. In November last, the large breaking up plow, drawn by four oxen, was started, and the land turned over about eight inches deep, in the nicest and most thorough style. In April last, it was harrowed, furrowed out in rows one way, three feet and a half apart, and a shovel full of compost, made of muck and ashes, was dropped once in every three feet in the rows. The potatoes were dropped upon the compost, and the planting finished about the 20th of April. The muck used

had lain in a large pile on dry land, for a year or more; and last fall it was composted with unleached ashes, using about three bushels of ashes to an ox-cart load, or one-third of a cord of muck. After lying in a heap a few weeks, the compost was shoveled over, and then carted upon the plowed land, and deposited in heaps of ten to twenty loads each, at convenient places for re-loading and dropping in the hills at planting time.

The potatoes were hoed twice, using the horse and cultivator between the rows at each hoeing. The tops have made a large and healthy growth; they stand about three feet high, and spread out laterally, so as to touch each other from row to row. The hills were examined to-day in various parts of the field, and the potatoes found to be large and sound, and promising a good yield. It is well known that of late years, our best potatoes usually come from these old pasture lands. The varieties planted are the New Jersey Peach Blow, the Davis Seedling, and the Prince Albert, or St. Helena. The New Jersey Peach Blow, a strong growing, healthy and excellent variety, bears no resemblance to the kind commonly known as Peach Blow throughout New England.

The piece of land is to be plowed again, late this fall, and harrowed smooth and fine. On a light snow in April following, it is to be liberally seeded with red and white clover, herds-grass and red top seeds, for pasture. No grain is to be sowed, as a crop of that kind would draw too much from the land, and injure it materially for pasturage. Besides, the grasses will catch better, and sooner afford a full bite of pasturage, if sown alone, than they would if shaded and encumbered with a grain crop. The old sward turned under, and rotted and subdued by cultivation, will afford nourishment to the new grasses, and thus secure a productive pasture for several years.

In November coming, some fifteen acres of adjoining land, similar to what this piece was, will be plowed up, and next season manured and planted with potatoes, and afterwards seeded down to pasture. If, however, experience should indicate that an additional stimulus to the land would, on the whole, be advisable, then future fields will be dressed with about 500 lbs. of bone dust per acre, at the time they are re-seeded to pasture.

The next field visited was a piece containing twelve acres, plowed up five years ago, this present month, and eight acres dressed with 400 pounds of bone dust per acre, two acres with 300 pounds of Peruvian guano to the acre, and two acres each with twenty bushels of unleached ashes, and the land immediately stocked down with grass for pasture, no grain crop being taken off. Having spoken fully of this field in a communication to the *Farmer* four years ago, and again two years ago this present month, I need not now go into particulars about it. Suffice it to say, that the land afforded excellent pasturage, ever since it was thus dressed and re-seeded, and the cows appear to be very fond of the herbage, for they keep it always cropped as short and smooth as a newly shaven lawn—indeed, any one acre has been more valuable for what it has produced, than have any five acres of the adjoining land not yet in like manner taken in hand for improve-

ment. The contrast between this piece and another of about equal size lying beside it, but not yet assisted by cultivation, is so strikingly favorably to the former, that I wish every reader of these remarks might have been with me to-day to observe it. It may be remarked in passing, that while each of the three fertilizers used on this field gave good results, the bone dust appears to be of the most lasting benefit to the land.

Another field of about ten acres was looked at, which two years ago bore a remarkable crop of potatoes. It was manured in the hills with muck and ashes, and planted and cultivated in a manner similar to the fifteen acres first mentioned in this article. After harvesting the potatoes, the land was plowed again, and smoothly harrowed, and the following spring, or a year ago last April, it was stocked to grass for pasture, no grain being sown. The grass came up well, and the land is now covered with a very thick sward, composed of herds-grass, red-top, and red and white clover, yielding the best of pasturage. The color of this field is of so deep a green, as to make it at once distinguishable at as great a distance as the eye can discriminate shades of color at all.

The next land visited was a field belonging to my friend, Richard Bradley, Esq. It was plowed up a year ago last November, and, in the following April, planted with potatoes, manuring them with a shovelful of compost in each hill. The compost was made of muck and ashes. Last April, the land was plowed again, 500 pounds of bone dust sown to the acre and harrowed in, then twelve quarts of herds-grass, one bushel of red-top, twelve pounds of red and four pounds of white clover seeds sown to the acre, and the field rolled. The grass has made a great growth, and a full swath might now be mowed.

Then came a smaller lot of Mr. Bradley's, completely run down by previous owners, with shallow plowing, and frequent crops of rye. The course of cropping had been to plow the land four or five inches deep, as often as it would bear five to eight or ten bushels of grain to the acre, sow it with winter rye, but omitting grass seeds, and after harvesting the rye, leaving the land to cover itself with such vegetation as it could, whenever it could. Last year at this time the land was covered mostly with moss, with here and there a few bushes and feeble grasses. Last November it was plowed a foot deep with the sod and subsoil plow, and an entirely new soil brought up to the surface, fine grained and salvey. In April last it was dressed with 500 pounds of bone dust per acre, together with 200 pounds of Peruvian guano, to give immediate action to the newly turned up soil, then harrowed fine, and sowed with one and a half bushels of orchard grass, a peck of herds-grass, a half bushel of rep-top, eight pounds of red and four pounds of white clover seeds to the acre, and the surface made smooth with the roller. Here, too, is a superior catch of grass, giving the land a very different appearance from what it had a year ago, and showing that much can at once be done for the improvement of such land.

The last field examined was a tract of some six acres, which Mr. Bradley is now plowing. This land has also been much reduced by shallow plowing, and

frequent crops of rye. The sod and subsoil plow, drawn by four oxen, is turning the land ten inches deep, bringing up a different soil from the old surface one that has never before been exposed to the day. The plowing is done in capital style, no baulks or imperfections of furrow being anywhere allowed. About the first of September, a ton of bone dust to each acre is to be sown on the furrows, and also about one and a half bushel of winter wheat per acre, and the two harrowed in together. The sod and subsoil plow prepares a very level, mellow surface, and so cracked and opened withal, as to make a very superior seed-bed, in which the bone dust and seed wheat can be well covered by the harrow. Then one and a half bushel of orchard grass, a peck of herds-grass and a bushel of red-top seed are to be sown to the acre, and the land rolled. In the spring, the land is also to receive red and white clover seeds—the design being to secure a thick sward and moderately rolling surface, it is thought that winter wheat may succeed well on it. The other two fields of old pasture, on which Mr. Bradley has applied 500 pounds of bone dust to the acre, have done so well, that he is inclined to try the experiment of a very heavy dressing of bone, and see if the land will return him a good crop of wheat, as well as an increased amount of pasturage over what could be realized from an ordinary dressing, and lasting for a longer period. The idea prompting to this generous usage is, that land will pay very much in proportion to what you invest in the improvement of its soil, or that where much is given to it in the shape of fertilizers and thorough cultivation, much may be expected from it in the crops returned. The locality of this lot is withal so convenient to the barns, that it is quite desirable, on that account, to make it over into a productive pasture. Application has been made to Mr. John Johnston, of Geneva, New York, for the seed wheat. He is a very successful wheat grower, and has several valuable varieties of seed, which he has been at considerable pains to procure and perfect. This is to me an interesting experiment, the results of which I expect to have something to say about hereafter in the *Farmer*.

It may be observed that the various fields spoken of in this communication, being free from uncommon roughness, or steep declivity of surface, are tolerably well situated for plowing, and are in the immediate vicinity of a village, where pasturage commands a high price. Under such circumstances, one can well afford to improve such lands in the ways above mentioned. Other circumstances may, of course, require variations from these modes of improving pasture lands, or may, for the present, forbid attempts at improvement. Of that, each one must judge for himself; but as a general proposition, in the older settled districts of New England, investments for farming purposes made directly in the improvement of the soil itself, pay quite as well as the purchasing of more land, and adding it to the farm.

F. HOLBROOK.

Brattleboro', August 25, 1860.

If you wish to have fine stock, feed them well.

Rural China.

The following extracts from a recent letter from the correspondent of the *London Times*, who accompanied the Allied Forces in their advance upon Pekin, will be read with interest:

For upward of six miles we passed through gardens, the produce of which supplied the garrison of the forts and the town of Taku. They were admirably cultivated. Little water-wheels furnished an easy means of irrigation, and the vegetables might have put a Battersea market garden to shame. Large Swede [*qu.*] turnips, excellent French beans, crisp radishes, lettuces, yams, and many other vegetables grew in profusion. The fruit was magnificent. Trellised vines, whence the ripe luscious fruit hung in mellow clusters, reminded us of Italy. Peaches, water melons, apples—very like Newtown Pippins—and pears of every description, were abundant. For six miles "dropped the heavy-blossomed bower, hung the heavy-fruited tree."

For a mile and a half did the road wind through the streets of Ko-bu, no street exceeding eight feet in width. The open sewers were choked to repletion with offal of every description; what they were unable to contain lay scattered about the streets. The houses of mud and straw bore a strong family likeness to those of Sinho and Tangkow, and the peculiar, faint, sickly smell, so well known to all travelers in China, greeted our nostrils from every group we passed.

Four miles march brought as to another town, Kiang-kia chwang, near which we determined to halt for the night. A large Acacia at the entrance of the village shaded a strip of green by the side of some water, and there we pitched our tent.

Leaving the town, we came on an extensive plain covered as far as the eye could reach, with millet, 12 to 14 feet high. For six or seven miles we rode through this gigantic corn, now nearly ripe for the harvest. The millet answers a vast variety of purposes. Its head is ground into flour, and very good flour it makes, or distilled into shamshoo, the vilest and most deleterious of drinks. The leaves when green are eaten by the cattle; when dry they make excellent fodder. The stalks serve for fuel, for thatching, for partition walls, for fences, for mixing with mud for the walls of houses and for the embankments of the canals. It was the only grain we saw on the road. We were told that directly the millet was cut at the end of this month, wheat is sown, which is reaped at the latter end of June. The wheat when cut is replaced by the millet.

We have not had one drop of rain in three weeks. The thermometer has risen to 98° in the shade at noon, and yesterday we were treated to an Indian "hot wind," but the nights are cool, and even cold. [This was in September.]

Forcing our way through unsavory Celestials, we find ourselves in a small square occupied by the "eel-pie" and "baked potato" men of the place. Your working man dines in the street, and this square is a favorite *al fresco restaurant*. Li, on our right, deals in meat pies. He has a small charcoal fire below his oven, and in a trice his *pate* is compounded and cooked before the public. Ho, by his

side supplies vegetable diet, turnips, onions, pumpkins, yams, cut into small slices and served in the water wherein they are boiled. Here is a man with sweetstuff, pastry and "tuck." There another with fruit—grapes, peaches, lotus fruit, water melons, apples and pears.

Mr. Parkes heard that a committee of merchants had been appointed by Sang-ko-lin-sin to furnish supplies for the whole Chinese army in the north. He sought them out, and explained that, as their office had now become a sinecure, they must transfer their allegiance to the Allies. The committee made no demur, and a tariff of prices was soon arranged. They rated the Mexican dollar at 1,000 cash, which at the present rate of exchange, gives 200 cash for 1s. The pound avoirdupoise is equal to the Tein-sin catty, by which everything is sold. Bullocks are divided into three classes. The first weigh about 500 lbs,, and cost 25 dollars per head; the second, weighing about 400 lbs., are fixed at 25 dollars; the third, about 300 lbs., are 15 dollars each. Beef and mutton are sold by retail, the first at 3d., the second at 4d. per lb. Tea is 1s. 2d., sugar 4d., and flour 2½d. per lb.; onions, turnips, and pumpkins, five cash per lb.; fowls 9d., and ducks 1s. 9d. each. The finest grapes may be had in abundance at 3d. per lb.; the largest peaches at 1d. each. Water melons—most refreshing of fruits, and large enough for a dozen—cost 5d. each.

Ice in large blocks of 15 lbs., pure and clear as the finest Wenham Lake, is sold for 6d. a block. There is any quantity of forage of every description—hay, millet stalk, green gass, paddy, peas, beans and Indian corn. Coal costs ½d. and charcoal 1d. per lb. Coolies receive 1s per day per man. Supplies of every description are abundant and excellent. The mutton is fat and well flavored, and no finer grapes and peaches are grown than those which come to Tein-tein market. A favorite fruit with the Chinaman is the classic lotus, in shape like a small melon [what can this be ?]; it is full of stoneless kernels, sweet and pleasant to the palate. Often and often have I eaten them without experiencing the dreamy sensation they are said to produce.

The banks of the canal are fringed with very large willows, weeping and upright. Ascending ten miles, the aspect of the country changes. First come topes of large trees, then what may be really dignified by the name of a wood. We jump on shore and enjoy our tiffin *sub tegmine*. The timber is large and fine—walnut, willow, locust trees, and immense pear trees.

Yesterday the thermometer stood at 102° in the bell tents and under the awnings of the Granada.

Useful Hints to Planter's Wives.

Blood Stock.—As we devote a large space to the subject of raising fine stock—blood stock—we do not see, says the *Spirit of the Times* why a few words, as to the best manner to get human beings along will be objectionable. While we devote so much time to the stable and farm-yard, the nursery must not be altogether ne-

glected. The *Scalpel*, whose editor has a way of using plain langauge when he has anything to say, speaks as follows:

All the absolute evils of this world may be said to arise from ignorance and selfishness; perhaps all might be included in the word selfishness, if we give to that term its full and broad signification. Even our purest affections in their manifestation seem often only a desire to please ourselves, without reference to any result beyond the present. There is, throughout the world, a lack of perception of separate individuality, and of the consequences to that other being, of any course we may pursue. Among men, the results of the acts of individuals toward each other and upon the community, have given rise to legislation and to laws.

In each separate family pater-familias (sometimes, indeed, it is *mater*-familias) constitutes himself and his various moods the law by which his household is governed; and in many cases his daily emotions of anger or pleasure, disappointment or success, render his rule benign and considerate, or harsh and tyrannical. Many again there are, who, by a steady moral, unwavering mind, guide the household affairs and the development of those youthful minds which God has intrusted to their care. To these, and to all, we address ourselves. It is impossible to instruct and develope correctly any two children by the same course of treatment; it is vain to make any system a Procrustean bed; it is inconsistent with the advancement of humanity and with true individuality. While in morals there my be an absolute right and wrong, an unwavering adherence to the good and the true, the peculiar method of attainment to this rule is as varied as the minds upon earth.

The natural facilities of each child are as plain to careful observation as the sun at noon-day; and it is only necessary to know the mental bias of a child to which his or her powers are best adapted.

Let every father, every mother, and all who hope to call themselves parents, forever bear this in mind. Watch the child at its play. Suffer it to play as it will, and note what sports attract it, and wherein lies the chief pleasure.

Away with those horrors, infant phenomena. Let nature alone, and do you, ignorant man, keep your great, coarse finger out of the delicate machinery, which, working by and through nature, will, at the proper moment, indicate the course to be pursued, the development which is sought. Permit childhood to guide you in the treatment thereof. Nature is a wise teacher.

At infancy, the healthy body, incapable of progressive motion, demands rest; give then perfect quiet. Man's early life is a mere vegetative existence; the brain, gently pulsating beneath the unformed bone, is not yet the seat of reason, but of instinct; while nature then demands entire repose, or at the most, passive action, why should a barbarous nurse and ignorant mother array the little form in thick embroidery; display it to the admiring multitude; handle it with thumping vibration, or spin it like a boomerang in the air? Why seek the most noisy promenade to confuse it with the uproar? Why pound it up and down over

hundreds of miles, in the midst of smoke, effluvia, and all the rattle, noise and screams incident to railroad travel? Avoid those abominations called cradles; flee from the rocking of the crib, and all those swinging motions which cannot fail to produce, in a minor degree, those very agreeable sensations, that pleasant lethargy, which seizes upon one when he is taking his first lesson in drunkenness. What a renown would that agriculturist win for himself who should first invent a patent, portable, double action, self-rocking cradle for sucking calves; what an advantage to the bovine race.

When by pure air and its natural nourishment, [the pure milk of a cow, or a goat, is far better than that of a feeble, passionate or drunken nurse, when the mother cannot nurse her offspring,] the child has become old enough to creep about, down on the floor with it and let it go; give it a ball or something to creep after, and rest fully content that when tired, the child will cease its play.

Don't hurry the little one to walk; do not encourage it to stand alone, lest bow legs and weak ankles be the penalty of your too assiduous care, of your selfish desire to see your child walk before nature has decreed it. When the proper time arrives the little hands will seek the tops of chair seats, the little body will sway to and fro, erect for the first time; soon the first step is taken, and then all is plain.

Keep your books, your illuminated alphabet, your intellectual blocks, and your abortions of toys—caricatures upon nature—toys which it is no harm to fall down and worship, since the like thereof exists neither in heaven above, nor in the earth beneath, nor in the water which is under the earth. Let the child play one, two, three; what, says some one—four years! and not know a letter! Yea, my good madam, until it reacheth the age of seven years, would we have the little mind free and unpuzzled; at liberty to observe, to desire, to construct, to play, to make out its own individuality. This is the great attribute of men—play; this divides him from the brute creation; man alone can laugh. Remember that the longer the period of youth, the period of formation, the better, the more healthful, enduring, and longer-lived the man. Of all created beings man is the most helpless at infancy.

The Blood Horse.

A few words upon the much discussed question: Which is the best breed of horses for all purposes in this country?

The points desired in every horse are freedom of action, rapidity of motion, powers of endurance and docility. Among the breeds of horses at present known, the blood horse possesses these qualities in a higher degree than any, or all others

There are not wanting those, however, who deny the adaptability of the blood horse, for general use upon the grounds, first, of a want of docility; second, a want of the proper gaits. In support of the first of these objections, it is said that the blood horse has too much "mettle," is too high strung ever to become

quiet, gentle and safe. Reading, observation and practical experience, have convinced us that this is not the case. It is true that mettle is one of the distinguishing traits belonging to the blood horse, but we deny that he is naturally either irritable or ill-tempered. On the contrary, being more intelligent he is more readily taught; being more affectionate, is more easily managed; being braver, he is more reliable. This error has arisen from a partial experience. The system of training used to put the blood horse in that condition, best suited to the race course, which while it develops his speed renders him nervous and excitable, and from the example of race horses it has been erroneously concluded that this nervousness was a characteristic of the blood, when it was in truth, only a result of the training to which the horse had been subjected. In proof of this, we might instance the horse, be his blood what it may, that has been accustomed to be ridden in the chase; the sound of a horn arouses him, and a pack of hounds in full cry excites him beyond measure. But examples are also numerous of the present thorough-breds being broken to as quiet service either under the saddle or in harness, as the coldest blood Conestoga that snailed it in a dray. They establish the insufficiency of this objection.

In support of the second objection, it is urged that the blood horse is not adapted to harness, because he does not trot fast. Here again is an error. Action is the great headspring of all speed. Action is dependent upon the shape and strength of the animal. By long years of judicious breeding and careful attention, the blood horse has been brought to that form most conducive to freedom of action. The result has been the highest degree of speed. But all efforts with the blood horse have been directed to increasing the speed of one gait—the gallop or run. The trot is just as natural a gait as the gallop, and it is but reasonable to suppose that with the freedom of action resulting from the peculiar formation of the blood horse, if properly bred and trained the blood horse would in a short time develope a proportionate degree of speed in a trot. The facts on record all go to confirm this conclusion. Flora Temple, the fastest trotting animal now living, has more of the style, appearance, and so far as anything is known, the blood of the thorough-bred, than of any other breed.

For the saddle, the only remaining use to which horses are extensively put in this country, the blood horse is peculiarly adapted. His long oblique shoulder, quick, nervous, free, action, all combine to make his motions pleasant and agreeable to the rider, while his indomitable courage and sure-footedness render him eminently safe.

For heavy draught the blood horse cannot begin to compare with his elephantine brother, the Conestoga. But for all such work, we have in mules a most excellent substitute.

Having thus stated the ground and reason of the superiority of the blood horse, it seems but a short step to demonstrate it to be the true policy of the breeders of the country to secure the services of the best Blood Stallion in reach. But there are two material obstacles to this course—first, the scarcity of good

blood horses in our midst; second, the necessarily high price of these and the corresponding low price of the other Stallions. These are advantages, however, in the end, as they secure to the blood horses the very best mares of the country, and their produce will tend greatly to raise the estimation in which this class is held. On the other hand the probabilities are that the colts produced from cold-blood horses will be gelded, while those from the thorough-bred are kept for breeders. If this course shall be adopted, as the increased interest manifested of late in horses, leads us to hope, the time is not far distant when Maury county can boast the best breed of horses in the State.—*Democratic (Columbia) Herald.*

From the Farmer and Gardener.

Discrimination in the Food of Stock.

MR. EDITOR,—There are so many points in the occupation of husbandry demanding the farmer's close attention and investigation, it is not surprising that he sometimes sits down almost afraid to grapple with "the thousand and one" difficulties which present themselves. He need not, necessarily, undertake to overcome *all* these obstacles, though the subjugation of some of them at least, is indispensable.

There are certain principles which underlie every process of farming, which, in order to success, must be understood and applied. Thus, in feeding cattle, simple as the operations may appear, there are certain principles involved which cannot be overlooked or departed from without decided detriment to the animal.

Looking over a most valuable agricultural work, a few days since, my attention was forcibly drawn to an article in which the uses to which the different constituents of food are applied in the animal economy, were very fully explained. The following summary exhibits the gist of the whole article.

1. The albumen, gluten, casein, and other nitrogenous principles of food, supply the animal with the material required for the formation of *muscles* and *cartilages;* they are called, therefore, flesh-forming principles.

2. Fats or oily matters of the food are used to lay on fat, or for the purpose of sustaining respiration.

3. Starch, sugar, gum, and a few other non-nitrogenized substances, consisting of carbon, hydrogen and oxygen, supply the carbon given off in respiration, (hence their generic name—Elements of Respiration) or they are used for the production of fat.

4. Phosphates of lime and magnesia in food, principally present the animal with the materials of which the bony skeleton of its body consists.

5. Saline substances—chlorides of Sodium, and potassium, and phosphate of potash and soda, and some other mineral matters occurring in food—supply the blood, juice of the flesh, and the various animal juices with the necessary mineral constituents.

There is, in the foregoing summary, subjects for deep thought and close

investigation, on the part of the man who is engaged in feeding cattle with an eye to profit. It is a well-known fact, that "an animal in its natural state, when it has once attained its full growth—if in perfect health—never increases or diminishes in weight, when it is allowed to live uncontrolled by human power." Were such the fact, when the animal is under human control, there would be less necessity for discrimination in feed; but it is not. By a proper dispensation of the various kinds of food, great advantages in the form of fat, muscles, &c., are readily attainable. Thus we find it necessary to vary the character of the food, if we would have healthy animals. If we feed an animal on starch or sugar, we cannot hope to add much to its fat or muscle. Again: if flesh and fat-forming food is given, which does not contain the requisite amount of phosphates, the strength of the animal will decrease, because the food it receives is devoid of all bone-producing principles. For these reasons, the man who desires to produce animals, which will pay him a profit, must give his closest attention to the selection of the food with which he supplies them. He must satisfy himself that it contains all the elements which go to make up the animal economy; and moreover, that these elements are presented in due proportion—that nitrogenized, non-nitrogenized and mineral matters are so intermixed, that there will be a healthy and proportionate development of every part of the animal's frame. Thus, in young and growing animals, we require the presence of flesh-forming and bone-producing food, to meet the daily demand for the increase of muscle and bones. I can best show the necessity of a proper observance of these principles by another extract from the same author.

"We can readily conceive the necessity for the presence of starch or sugar in young and fully grown animals, as they are required largely by both for sustaining the daily waste of carbon, which is drawn off into the air, in the form of carbonic acid, during respiration; but why should any flesh-forming or bone-producing matters be required by which both muscles and bones have reached their full size? A well-known fact will furnish us with the answer to this question. It is well ascertained by physiologists, that all parts of the body constantly undergo a series of invisible changes of substance, from which results the gradual renewal of the whole body. Every movement of the animal, every action of any of its organs is accompanied by the chemical decomposition of a minute portion of its component parts. By this decomposition, which imperceptibly, but regularly affects all parts of the body, successive portions of it are altered in a manner which renders them unfit to be retained by the system. They are consequently rejected. In this manner, the muscles, skin, intestines, bones, &c., are by little and little removed, and rejected in the excretions, in a more or less perfect state of decomposition. All the different organs of the animal body would thus become emaciated, and life would soon cease, if the daily waste to which all parts of the body are subject were not replaced by the food. The body, therefore, requires constant supplies at every period of its life, of all those things of which its several parts are made up."

Proper discrimination, therefore, is required on the part of the feeder. Such articles of food are to be selected as from their nature are calculated to produce the results desired to be secured. Thus, if it is sought to add flesh and fat to the animal, a preponderance must be given to flesh and fat-forming materials. Of course there is nothing new in what I have written, but the subject is one of such importance that its repetition here can do no harm. R. Stevenson.

Lockwood Vale, Pa.

The Object of Agricultural Journals.

Time and again we have called the attention of the readers of the *Rural* to this matter, and for several weeks have been contemplating another article upon the subject, but the following, from a correspondent of the Germantown *Telegraph*, embraces all the facts so fully that we submit it, instead of one of our own, to the attentive perusal of every planter and farmer:

"I have greatly misconceived the design of the agricultural periodicals and papers of the day, if one of their leading objects is not to afford the practical farmers of the land an opportunity of communicating and comparing their several modes of tillage—thus embodying the opinions and experience of the reading community for the benefit of all. It is a great mistake (and one of which many of our practical farmers are guilty,) to suppose that, when an individual becomes the editor of an agricultural paper, he necessarily constitutes himself a dictator of opinion and practice to his readers. His opinions, though they may be highly enlightened and judicious, are at least but the opinions of a single individual, and are entitled to no more extra consideration than his advantageous position for the acquisition of valuable knowledge may justify. The common objection, therefore, to subscribing to an agricultural paper, that he (the objector) knows more about farming than the editor, is the clearest proof of a deplorable ignorance—ignorance of the very objects of the publication which he rejects.

"As the world waxes older and wiser, the useful arts keep pace in their improvements with the progress of society. But these improvements, which are advancing daily, are not, perhaps, in themselves, more important than the facilities afforded by the press for making them known, with almost magic celerity, to the ends of the earth. Thus, an important discovery in farming, which, without this aid, would probably be years in travelling beyond the space of twenty square miles, is taken up by our agricultural journals and is circulated throughout the country in a few weeks;—while a distant periodical repays the obligation by recording an equally valuable idea of the same character, and destined to a like extensive and rapid circulation. But if all practical farmers were, in surly silence, to keep their ideas and discoveries to themselves, how disastrously would the value of our agricultural papers be curtailed!

"And this brings to the point I had in view in adopting the caption I have placed at the head of this paper; that it is an appeal to my brother farmers for communications on various topics connected with the interests of agriculture in

our land. Let our farmers then make it, if not a matter of patriotism, at least of personal interest, to enter upon natural and unreserved comparisons of practice and opinions, which cannot fail to produce the happiest results to all.

"It was a favorite saying with Judge Buel, 'That but a small portion of our knowledge can be derived from our own experience. Among the most practical, the cheapest, and by far the largest portion of our knowledge, must be derived from information afforded by the experience of others.'

"What better conveyance for this interchange of experience can be found, than our agricultural papers?

"In these communications the drapery of highly polished composition is by no means necessary; let no one, therefore, be deterred from communicating valuable information which may be in his possession, because he may not happen to think his style of writing sufficiently classical. Send the facts to the editor, and my word for it, he can dress it up so that you will not be ashamed of it, and that too without changing the facts in the least. Try once, and you will not repent of it."—*So. Rural Gentleman.*

Power of Horses at Different Rates of Speed.

Do you know of any experiment showing the loss of effective power arising from the increase of speed of horses when drawing—that is to say, how much less time can a horse or team continue to draw or expend a given force, when driven at any rate above 2½ miles per hour, than uniformly at that rate or thereabouts?

Horses, at a moderate walk, will accomplish more labor than when working at greater speed. This is owing to three causes: First, the animal must carry his own weight, whether walking four miles an hour or running twelve. Suppose, therefore, that when walking four, one half his strength is expended in moving his own body of 1,000lb. and the half in drawing the load of 1,000lb. Now double his speed to eight miles an hour and he does just double the work in the same space of time; or, by carrying his own body only, he moves as much matter and does as much work per hour, as before with the half ton load attached. Whatever load he may draw at the latter speed, is done by extra or excessive exertion. A second reason why he must take less load when travelling faster, is, that the load being moved more rapidly, requires a greater expenditure for the time; for example, the horse who draws 500lb. at six miles an hour, does as much work in effect, as the one drawing 1,000lb. three miles an hour. The third reason is, in addition to the foregoing that when a horse's speed is increased, it requires a quick and unaccustomed motion of the muscles. which proves very fatiguing.

In estimating the "horse power" of any engine, it is common to make each horse power equivalent to a force of 150lb. 20 miles a day; or to 33,000lb. raised one foot per minute, or 550lb. one foot in a second. This is however much more than ordinary horses accomplish. American horses do not average more

than half this amount. Experiments have been made in connection with calculation, to ascertain the effective force of horses at different velocities, on a canal, railroad, and turnpike, with the following result:

Velocity per hour.	*Duration of day's work.*	*Work accomplished per hour for one day, in tons, drawn one mile.*		
Miles.	Hours.	On Canal.	On R. R.	On turnpike.
2½	11½	520	115	14
3	8	243	92	12
3½	5 9-10ths.	153	82	10
4	4½	102	72	9
5	2 9-10ths.	52	57	7.2
6	2	30	48	6
7	1½	19	41	5.1
8	1⅕	12.8	36	4.5
9	9-10ths.	9	32	4
10	¾	6.6	28.8	3.6

It will be seen from the preceding table, that a horse, when walking 2½ miles an hour, will draw more than four times as much on a canal, as on a railroad; but the resistance of the water increases as the square of the velocity, because on doubling the speed not only twice as much water must be displaced in a given time, but it must be done with twice the velocity, and thus both together require a four-fold force. When therefore the speed reaches five miles an hour, the advantages of the canal give place to those of the railroad, and at seven miles an hour, twice as great a force is required on the canal. The railroad and turnpike, being similar in character, there is about the same rate of decrease in power on each.—*Country Gentleman.*

French Method of Transplanting Trees.

In Paris, during the last revolution, the trees on the streets were cut down for barricades. The crowning glory of the boulevards, is the trees. It being desirable to have those of advanced growth when transplanted, the following successful method, so different from ours in America, is now pursued.

The deciduous tree to be removed may be ten to fifteen years old. It is dug out at any season, with as large a ball as practicable, usually six feet in surface diameter, and about three feet deep—the tap roots being cut away. It is hoisted boldly by a lifter, which forms part of the wagon. The earth-ball is bound around firmly, and the tree is placed firmly in the hole prepared for its reception in the sidewalk. So far the process is what is usual elsewhere.

When the tree is thus set, several earthen pipes are arranged and covered under ground, through which water is conveyed to the roots once or twice a week. Around the body of the tree from the ground to the first branches, say ten or twelve feet, straw is placed perpendicularly and about an inch or so in thickness. Around the whole is wound coarse wrapping cloth or bagging, ending at the upper part with a tin funnel. Not a branch is cut from the tree top; there is no

heading in at all. Till the tree is established, water is thrown into and over its top, say once or twice a week or oftener; and into the funnel which keeps the bark of the trunk in vigor. Though a tree is lost now and then, two-thirds certainly live by this method, and in the second year appear as if nothing had happened.

[The above, from a correspondent of the Philadelphia *Ledger*, has been sent to us with the request that we give it insertion. The sheathing with straw is often practised here. The results mentioned are not in the least extraordinary. The French are too skilled in Vegetable Physiology, and know too well the effects of excessive leaf evaporation, in the absence of proportionate root action, that we incline to believe that more or less pruning or shortening of the wood is practiced. Nothing is mentioned about the kind of tree, which is important. We have seen larger trees, at least older ones, removed here with perfect safety. But all experienced planters are well convinced that young healthy trees, properly planted, in properly prepared soil, will outstrip, in a few years, large transplanted ones. This does not, however, imply that small trees are invariably most suitable. Single trees of a large size, where immediate effect is desired, may occasionally be used with the happiest results, but it is an expensive operation, and cannot be recommended as a practice worthy of extensive imitation.]—*Farmer and Gardener.*

From the New England Farmer.

Hay and Root Crops—Their Comparative Value.

Hay is the chief article of food for stock during the winter season; and, generally speaking, if a sufficiency of good hay is properly fed to stock, they will thrive upon it, and increase in weight and value. But it is not always, nor even usually the case, that farmers have a sufficiency of the best quality of hay to feed to their stock, with no exceptions in the way of coarse fodder, damaged hay, straw, etc.; and in case the latter is fed, or when the usual yield of hay has been reduced by reason of drought, or other causes, root crops afford a valuable *auxiliary*, whether used in connection with the former, or as a substitute for the latter. Hence it often becomes necessary to know the comparative value of potatoes, carrots and ruta bagas, that farmers may be able to substitute, in part, these roots for hay.

It is becoming more and more the practice of our best farmers to feed out, not only their carrots, turnips, etc., but their potatoes, instead of selling them from the farm to be worked into starch, in the belief that the good of their farms demands it, and that their *purses* in the end will not be the losers thereby; and the more it is practiced, the more convinced are they of the economy and profit of such a course of feeding. Not only is the profit derived from the roots, as such, but the relative value of the hay, as well as that of the roots, is increased when fed together. And it becomes an object, the present season especially, for such farmers as have been deprived of their usual amount of fodder by the

drought, to make the best of all such means to keep and improve their stock until the return of grass.

The following table, gathered from reliable sources, shows the value of potatoes, carrots and ruta bagas, the roots usually grown for stock, compared with that of *good hay*.

200 lbs. of potatoes are equal to 100 lbs. of hay.
275 " " carrots " " "
300 " " ruta bagas " " "

Again: by allowing 60 pounds to the bushel, of the above roots, we have the following:

67 bushels of potatoes are equal to a ton of hay.
92 " carrots " " "
100 " ruta bagas " " "

By this estimate, with the usual yield per acre, it will be seen that root culture *pays;* a fact of which many a farmer and stock-grower has been convinced by practical demonstration. I. W. SANBORN.

Lyndon, Vt., Dec., 1860.

French Mustard.

One of the most refreshing condiments which has ever been invented is that now known as French mustard It is equally good with fish, flesh, or fowl, and wonderfully helps bachelors' bread and cheese (Betty says they don't deserve anything better) to go down savorily. The following recipe is an excellent way to make it, and plain table-salt may be used in place of the anchovies, where there is any difficulty in procuring them. Take one pound flower of mustard, a quarter of an ounce each of the following plants in a green state, and quite fresh; parsley, tarragon, chervil, and celery, together with one or two eschalots, or garlic, and half-a-dozen pickled anchovies. Mince all these latter very fine, then rub them with the mustard. Next mix one ounce of salt, and a wine-glassful of vinegar, in a half pint of water, more or less, as you wish the consistence of the mixed mustard to be, then put the mixture into small pots, with a teaspoonful of vinegar on the top, cork well down, and as its flavor improves by age, it may be kept a month or six weeks before it is brought to the table. No less than five tons of mustard so prepared are imported every year from France into England, and a large amount is annually imported and consumed in this city. Why not make it at home?—*Scientific American.*

COTTAGE PUDDING.—One pint flour, one and a-half teacups sugar, one do. milk, one egg, two and a-half spoonfuls butter, one do. soda, one do. cream tartar. Bake in a round pan in moderate oven, when just done, ice it and let it stand in the oven with the doors open to harden, serve hot, with wine or lemon sauce.

Editor's Department.

Top-Dressings upon Wheat—Suggestions for Experiments.

The following report upon some experiments made with different top-dressings upon wheat, we condense from the Journal of the Royal Agricultural Society of England; the experiments were made on the farm of the Royal Agricultural College, by Dr. Voelcker, Professor of Chemistry:

"The field on which the experiments were tried is perfectly level, and throughout of uniform depth. Its extent is about 20 acres; the last season the whole was in wheat after seeds; 2 acres covered with a very equal growth were measured out for the experiments, and carefully divided into eight parts of equal length and breadth. Each experimental plat thus occupied the space of ¼ acre. The 2 acres under experiment were surrounded by a considerable breadth of the general wheat crop, except on one side. Although the headland, and a portion of the rest of the land, separated on that side of the experimented plats from the adjoining hedge, it was considered prudent to reject the ¼ acre next to the hedge. Seven plats of ¼ acre each in extent were then left. These plats were manured as follows:

"To Plat I. was applied 70 lbs. of Peruvian guano; or at the rate of 2½ cwt. per acre.

"To Plat II. was applied 49 lbs. of nitrate of soda; or at the rate of 1¾ cwt. per acre.

"To Plat III. was applied 45 lbs. nitrate of soda and 42 lbs. common salt; or at the rate of 1½ cwt. of salt, and 180 lbs. of nitrate of soda per acre.

"To Plat IV. was applied 1 cwt. of Proctor's wheat manure; or at the rate of 4 cwt. per acre.

"To Plat V. was applied 1½ cwt. of the same manure; or at the rate 6 cwt. per acre.

"Plat VI. was left unmanured.

"To Plat VII. was applied about 1 ton of chalk-marl; or at the rate of about 4 tons per acre.

"The quantities of the different fertilizers were obtained in each case at an expense of 1£. 12s. 6d. per acre, except the larger dose of wheat-manure on Plat V., the cost of which was 2£. 8s. per acre.

"The manures were all finely sifted, (except the marl,) mixed with about 10 times their weight of fine soil, and sown broadcast on the afternoon of the 22nd of March. The land was clean, in good condition, and moist. The day on which the top-dressings were applied was calm and cloudy; a moderate rain that fell on the next day washed the various manures into the soil, and secured at once their uniform distribution. The season, on the whole, was favorable to wheat, the weather at harvest time was unusually splendid, and on none of the experimental plats was the crop laid in the slightest degree.

"Towards the end of July the crop was nearly ripe; at that time I could not notice any marked difference in the state of ripeness of the crops on the seven experimental plats.

"The wheat was reaped in the first week of August, and threshed out on the 24th; the whole of the produce of wheat and straw carefully weighed.

"The following table exhibits the yield of wheat of each experimental plat, and the produce calculated per acre:"

PLAT.		Produce in Wheat per Plat.		Produce in Wheat per Acre.	
		Lbs.	Bus.	Lbs.	Bushels.
I.	2½ cwt. guano per acre, - - -	601½	10	2406	40 1-10
II.	1¾ cwt. of nitrate of soda per acre, - -	570	9½	2280	38
III.	180 lbs. of nit. of soda and 1½ cwt. salt per acre,	609	10	2436	40 6-10
IV.	4 cwt. of Proctor's wheat manure per acre,	595	10	2370	39 1-2
V.	6 cwt. " " " "	663	11	2662	44 1-5
VI.	Unmanured, - - - - -	405	6¾	1620	27
VII.	Marl, 4 tons per acre, - - -	404½	6¾	1618	27

The table showing the yield of straw, and that showing the increased produce of wheat per acre, we omit.

"In some parts of England chalk-marl is applied with considerable benefit to the wheat crop, but as the soil of the experimental field contained 18 per cent. of carbonate of lime, it could not be expected that a marl, which owes its fertilizing properties almost entirely to the carbonate of lime and to a little phosphate of lime which it contains, should produce any marked effect upon the wheat crop. Indeed, I did not expect any increase from the application of this marl. We may learn from this result that the efficiency of a manure is greatly affected by the chemical composition of the soil to which it is applied."

The chief points of interest which attach to these experiments are:

1. That nitrate of soda applied by itself materially increased the yield of both straw and wheat.

2. That the admixture of salt to nitrate of soda was found to be beneficial.

3. That guano produced as good a result as nitrate of soda.

4. That the increase in wheat and straw corresponded with the quantity of wheat-manure which was used.

5. That ammonia and nitrogenized organic matters had a most marked and decidedly beneficial effect.

"It may not be amiss to contemplate these experiments in an economical point of view, and to ascertain to what extent the different top-dressings have repaid the outlay of money. Leaving unnoticed the extra produce of straw, which in some cases was considerable, I shall only take into account the produce in wheat.

PLAT.		Money increase of Wheat.			Cost of Manure.			Clear Profit.		
		£.	s.	d.	£.	s.	d.	£.	s.	d.
I.	Guano, - - - - -	3	8	9	1	12	6	1	16	3
II.	Nitrate of soda, - - -	2	17	9	1	12	6	1	5	3
III.	Nitrate of soda and salt, - -	3	11	5	1	12	6	1	18	11
IV.	4 cwt. of wheat-manure, - -	3	5	7	1	12	6	1	13	1
V.	6 cwt. " " - -	4	10	4	2	8	0	2	2	4
VI.	Unmanured, - - - -	"	"	"	"	"	"	"	"	"
									lose.	
VII.	Chalk-marl, - - - -		none.		1	12	6	1	12	6

"It will be seen that, with the exception of the chalk-marl, all the top-dressings paid very well, and that the more liberal outlay for manure produced by far the best return in money."

We present the above abstract of the experiment of Dr. Voelcker, not so much for any particular light that they may throw upon the cultivation of wheat in our country, as for the purpose of showing how experiments of this, and a kindred nature, should be conducted, if we expect to derive such results from them as may be relied on with confidence. It also affords us an occasion for making some suggestions, which we throw out, in the hope that many of our friends may be induced to undertake similar experiments on this, or some other subject of equal importance to the agricultural world.

The information conveyed to the English farmers—and to us—in these experiments is distinct, positive, and highly practical. We are informed as to the character of the soil upon which they were made; the portion of the field experimented upon was of uniform quality, and the stand of wheat was nearly or quite uniform on all the plats; one of the plats was left without manure, so that its yield, being the normal yield of the field without manure, might serve as the standard of comparison for that of all the others; the different manures were all applied at the same time, and in the same way; the exact amount applied in each case, and its cost is given; the exact yield of each of the plats is given, and consequently, the increase in the yield of each manured portion over the unmanured becomes known; and finally, the price of wheat being given, we have the clear profits per acre of each manured portion over the unmanured. Now, let us suppose that the Professor, as he proposes to do, continues these experiments for a series of years—observes the effect of these manures on the other crops in the rotation—studies the effects of season, &c., &c., upon succeeding crops of wheat when top-dressed in the same way, &c., can any one doubt the great practical value of his results?

Our system of farming is somewhat different from that of the English, and the manures at our disposal are not in all respects the same as theirs; yet it is just as important for us to know both the actual and relative value of our manures, not only for wheat, but for all of our crops, as it is for the English. That we have much to learn there can be no doubt. We remember a discussion which took place at the first meeting of the State Agricultural Society upon the use of Peruvian Guano; all who took part in the discussion were thoroughly convinced of its great value as a manure, and yet many of those who had used it extensively, were uncertain as to whether they had derived any pecuniary benefit from it—they were not sure that it paid. In other words, they were groping in the dark, on an all important subject.

But while there is much yet to be learned about Peruvian Guano, there are concentrated and expensive manures, into some of which Peruvian Guano enters as a constituent; it is important that we should know more of their practical value, as compared with Peruvian Guano, and with each other. For example, we

have the Manipulated Guanos, composed of Peruvian Guano, bone ash, and phosphatic guano, or of the first and some form of the latter; the super-phosphates; ammoniated super-phosphate; soluble phospho-Peruvian Guano; bone dust, &c. A large amount of capital is invested in these manures, and of course they are being largely purchased by farmers; it becomes a question of importance, not only to know whether any or all of these pay on particular crops, but to ascertain as nearly as possible, which of them in the long run, will yield the largest return for the money expended. Let us have Peruvian Guanos and some of these manures tried side by side on wheat, or tobacco, corn, meadow, &c.; let us learn which, if any of them, is to be relied on for securing a stand of clover after wheat; let these, and other important practical problems receive solutions by experiments similar to those of Dr. Voelcher, and then may we look for results which will be as interesting as useful.

To Our Exchanges.

We are already indebted greatly to our brethren of the Agricultural press for the kindness and courtesy which we have ever received at their hands. We shall be under renewed obligations if they will do us another favor by exchanging *two copies of their journals with us for the "Planter."*

If they can accede to this request, we shall be glad if they will direct one copy to *"Southern Planter," Lexington, Va.*, and send the other as at present.

We can assure our brethren, that we will with pleasure reciprocate this favor by any means in our power.

The Farmer and Gardener.

Published by A. M. Spangler at Philadelphia, is one of the best of our exchanges, and we cordially recommend it to anybody wanting an Agricultural paper.

See the Prospectus in our advertising sheet.

Fine Asparagus and Fruits.

Our friend H. J. Smith, who raises the finest Asparagus, that we ever saw, has some roots for sale. He will confer a favor on us if he will give us the history of his fine beds of large Asparagus, for the benefit of our readers. We should be pleased also to have his experience in raising *Dwarf Pears*, the *Lawton Blackberry* and *Strawberries*, all of which we happen to know have turned out well in his hands, which are very skilful in all that pertains to Horticulture, &c.

The Cincinnatus seems to be our old friend the Scientific Artizan, in a new dress, which is of the best materials and the most fashionable "cut." The paper has greatly improved in appearance and is very handsomely illustrated with

wood cuts of the latest inventions patented. The name of Dr. Warder—as one of its regular contributors—is a host of itself.

Tobacco Houses.—Our correspondent who wishes information on this subject, will find full and complete directions for the entire management of the Tobacco crop, in the essay of H. M. Fowlkes, Esq., published in our present number.

The Old Spirit of the Times.

The old "*Spirit of the Times*" entered upon its Thirty-first Volume on the 9th instant, inaugurating this evidence of its long life by an entire new dress of type and four additional pages to its heretofore large and attractive form. No paper in the Country has, throughout its management, maintained a more thoroughly consistent course than this journal. Notwithstanding the vicissitudes of politics and panics, it has pursued the even tenor of its way, turning neither to the right nor the left, and the consequence is, that it maintains its popularity in every section of the Union, and this new evidence of its success we have already noticed is its just reward.

"Origination" of Manipulated Guanos.

We have from time to time noticed a controversy upon the subject which heads this paragraph, between manufacturers claiming the *origination* of something pertaining to the mixing of ammoniacal and phosphatic guanos, but giving very little attention to it, we supposed it had reference more to the *manner* of mixing, than to the *materials* mixed—and we have generally looked upon it as rather a good joke, and somewhat suspected that it was one of the "tricks of trade," to obtain great merit for what we considered a very simple matter, the better to draw public attention to the commodities offered to the farmers and planters of the country, and to give the more importance to the claims for patronage of the contending parties—but never dreamed, until we saw the announcement in the "Southern Planter," that *we* had ever laid claims to the same *honor!* Hence, we were surprised to find in a communication, upon the subject, in the January number of that paper, the following paragraph. After alluding to the claims of Mr. Kettlewell in the premises, the writer, who signs himself "James Higgins, Analytical and Consulting Chemist," remarks:

"Since Mr. Kettlewell's publication, some other individuals have claimed for themselves, or others, the credit of the origination of the mixed guanos, and amongst them are Mr. Samuel Sands, the publisher of the Rural Register in this city, and Mr. B. M. Rhodes, who is the agent for a Philadelphia manufactured Super-phophate of Lime. Of the former, I will only state that his own paper, the American Farmer, refutes all that he says about the matter, and that now, Mr. Sands is selling a *refuted* Manipulated Guano by the aid of an analysis of Dr. Charles Bickel, who never made an analysis for him."

As before intimated, we never entertained the slightest idea that we were the *originator* of Manipulated Guano, and have no recollection of ever having uttered a sentence that could be so construed: and therefore the writer has not, we believe, the shadow of a foundation for such a remark. The concluding sentence is equally worthy of credence; a mere quibble calculated to deceive, is intended by the writer, for we never claimed that Dr. Bickell had made an analysis *for us;* but it was made by him as published for parties with whom we are connected in the manipulation; and the remark that it is a "*refuted* manipulated guano," *is entire news to us*—in fact, we have no idea what the writer means by the remark, and indeed care not.

We hesitated whether we should notice this matter at all, and loth as we are at any time to be placed in a false position, we might have permitted it to pass by in silence, did we not suppose that a duty to others possibly required us to allude to it—and yet we really begrudge the space to do so, as we suppose the main object of the parties is to "get in the papers," and keep themselves and their commodities before the public, and we feel rather disinclined to aid in so *laudable* an effort.

We have more than once expressed the opinion, that the reason why the Peruvian Agents in this country had received orders to abstain from selling Peruvian guano to manipulators, was in consequence of the beneficial effects experienced by the admixture of Peruvian and Phosphatic guanos in England, the fears entertained that it would decrease the demand for the Peruvian—and the claim so boastfully made of *originality* in the manipulation, we have ever supposed, was not particularly due to any one on this side of the water, but was derived from the agricultural journals of England. But the writer himself shows in the communication alluded to, that his attention was directed particularly to the subject, by the excellent action of some Patagonian guano, used by a farmer, which containing only half as much ammonia as did the Peruvian, yet acted very well—and many of our readers remember also, that the Ichaboe guano introduced here many years ago by Messrs. Birckhead & Pearce, was also very rich in ammonia, and much more so in phosphates than the Peruvian, and the trial of which induced farmers to commence the mixing of the Peruvian with Colombian and other guanos containing more phosphates than Peruvian but less of ammonia. Among these, if we remember aright, were James T. Earle, Esq., and others, of the Eastern Shore, and A. B. Davis, Esq., and other farmers who had been using Guano very largely in Montgomery county, and probably the writer in the Planter obtained the information from the experiments of these or other gentlemen who had been experimenting, or from English periodicals, (*from which many good things have been taken,*) upon which he claims "originality."

At the Guano Convention held in Washington City some years ago, a number of the most intelligent and respectable farmers from all sections of Maryland and other States were present, when this very subject was introduced, and experiments reported of the application of Peruvian and Phosphatic Guanos, and al-

though we remember that the writer in the *Planter* was present, during its sittings, neither he nor any one for him presumed to lay claim to originality in the premises, because if such a claim had then been entertained or uttered on the floor of the Convention, no doubt there were many present who would have been able to prove its fallacy. Indeed, the following resolution, offered by Col. James Piper, of Carroll Co., M., as intelligent a gentleman as this State held within her borders, was adopted, we believe without the slightest dissent, by which it will be seen, that Drs. *Booth*, of Philadelphia, and *Stewart*, of Baltimore, are particularly alluded to, as having recommended the mixture of the guanos, and no allusion is made to any of the parties now claiming the credit. Col. Piper's resolution was as follows:

"Resolved, That this Convention respectfully recommend to the farmers in the habit of using Peruvian Guano alone, to substitute a mixture of Colombian, Mexican, and other phosphatic guanos in proper proportions, as recommended by Professors Booth, of Philadelphia, and Stewart, of Baltimore, and other distinguished chemists, as the most efficient means to reduce the present high price of Peruvian Guano."

We would prefer to have been excused from meddling with this business, and we have been dragged into it very unnecessarily—we will therefore only add for the present a quotation from the communication in the Planter, to show what little reliance could have been placed upon the suggestions of this writer. He says, that in 1854 he published that "*the use of Peruvian Guano*, without any mixture with other common phosphates, as it is so frequently applied, is costly and USELESS"—therefore he recommended a mixture of the Mexican and Peruvian; and yet thousands of the most successful farmers have continued to use the Peruvian alone, with eminent success, and could never be induced to substitute the mixture.

One word more, and we are done. We have advised farmers and planters to buy the Peruvian and Phosphatic guanos, and mix for themselves—they can do it cheaper than by purchasing already manipulated,—but if they are not disposed to undergo the trouble, then we, as well as several responsible manipulators, whose advertisements will be found in our paper, and a number of others in Richmond, Petersburg and elsewhere will be happy to supply their orders.

☞ Will our respected friends of the "Southern Planter" do us the favor to put us right before their readers, so far as the above is in reply to the remarks relative to us in their last issue?

—

With great pleasure we comply with the request of the Editor of the "Rural Register" to put him right before our readers as to the charges made against him by Dr. Higgins of Baltimore, in a communication of his on the subject of "Manipulated Guano" lately published in this paper. *We should be very sorry for any one of our readers to suppose for one moment, that we endorsed the charge against our well known friend of the Rural, preferred by Dr. H.*, and

to prevent any mistake, we hereby assure them, *that we had no intention of doing any such thing.*

We prefer to let Mr. Sands speak for himself, and therefore publish his remarks in response to Dr. H. in full.—EDS.

Home Embellishment,

As Affecting the Value of Property and the Habits of the People.

"Wherever I have had the honor of addressing my brother farmers," [says the Hon. L. Chandler Ball, President of the Renssalier County Agricultural Society, N. Y., in an address delivered at Greenbush, N. Y., September, 1859,] "I have embraced the opportunity to inculcate a taste and love for the beautiful, both in nature and in art; believing that where this taste and love exist, they will be exhibited in a better system of cultivation; in more comfortable and happier modes of living; in increased means of enjoyment, and a more rational use of the blessings which God has spread on the earth,—a more pleasing personal demeanor, higher graces of speech and manner, and a more correct performance of all social and Christian duties. I beg leave to introduce the subject to *your* notice, as one of great practical importance, affecting the value of property and the habits of the people.

"Let the farmer increase the natural beauties of his farm by suitable ornamentation—let him adorn and embellish his house and grounds—let him have genial intercourse with his fellow-men, and practice in their presence the highest forms of politeness and good breeding. Let him build neat school-houses, that shall give visible expression to pure and lofty thought—let him erect beautiful churches, and incorporate into their walls and towers, and rising spires, the the spirit of piety and devotion. If this was a proper occasion, and time would permit, I could demonstrate that a small, dirty school-house, and homely, ill-constructed church edifice, instead of being what such buildings ought to be, objects of taste and beauty, and helpers in the great work of human improvement, are positive injuries to society; because they lower and degrade, and bring down to the level of animal desires and brutish instincts, the exalted idea of human intelligence, and the holy sentiment of religious hope and trust.

"It is not without a purpose that learning has been represented to us under forms of transcendent beauty, with her seats fixed in pleasant places, by the side of sparkling fountains, and amid groves garlanded with roses and amaranth. It is not without a purpose that religion has been invested with pure and shining robes, crowned with glory, and with golden harp, filling the courts of Heaven with praise. It is not without a purpose that the earth has been beautifully formed and gorgeously appareled—diversified with hill and plane, mountain and valley, forest and prairie, lake and river, and singing brook—arrayed in robes of more than royal magnificence, forever changing, yet forever new, perfumed with the spices of Araby, and jeweled with dew-drops brighter than the gems of

Golconda, and performing its majestic revolutions in company with ten thousand glorious orbs:

'Forever singing as they shine,
The hand that made us is divine.'

"Physical beauty is a power in the world before which the highest human intelligence bows in homage. Goodness has superior charms, virtue stronger attractions, and wisdom greater power, when moulded into forms of beauty and draped in the flowing robes of elegance and grace.

"For this reason, because it is one of the essential elements of power, let the farmer cultivate and acquire a taste and love for all the bright and beautiful things of earth. Let him build handsome dwellings, neat school-houses and beautiful churches; let him adorn and embellish the field and the road-side; let him multiply objects of grace and beauty, until the whole land glows and brightens in the light of pure and exalted taste.

"Then will the fields put on a richer vesture, and yield a more abundant harvest. Then will finer flocks and better herds feed in his pastures, and lie in the shade of his woods and in his groves. Then will blither songs and words of loftier cheer mingle with the sounds of labor. Cords of sympathy will unite in one electric circle, whose continuity will never cease, the industry, the genius, and the skill of all nations. Then the unity of the world's great Army of Occupation will be declared, the claims of universal brotherhood recognized, and humanity achieve its last and greatest triumph."

[*Transactions N. Y. State Agricultural Society, of* 1859.]

From the Farmer and Gardener.

Why Peter Jobson's Farm Wouldn't Pay.

Peter Jobson was an honest, well-meaning, hard-working farmer: one of that class who had been taught to believe that physical strength was the prime qualifications of the man who tilled the earth for a livelihood No man in the neighborhood labored more industriously than Peter Jobson. He was at it early and late, and yet he did not appear to prosper. His crops were growing

"Small by degrees and beautifully less"

every year, until poor Peter began to despair of ever gaining an inch of headway.

It was a bright morning in September when Peter commenced plowing a field for wheat, from which, a few weeks previously, he had cut a meagre crop of oats. The prospect was not a flattering one to the honest fellow. His last crop of wheat on that field had scarcely paid expenses. The corn which followed was little more than remunerative, and the oats which he had harvested this year scarcely paid for the cutting. He had drawn the contents of his farm-yard to the field, and had spread it carefully; but the coating was too thin to give promise of a very large return. Peter felt this, and yet he knew no remedy. He had been doing "as daddy did," all his lifetime, still he had been going behind

hand. His good wife worked hard—his children's services were brought into play as soon as they could be of the least assistance—their education was neglected, in order that they might, at an early period of life, as their father had done, "earn their salt." Peter Jobson could not understand this. He began to have doubts about the correctness of his system. His neighbors' crops were good, yet *they* worked no harder than he, and their soil was no better than his. While musing upon these things, his neighbor Jones, a well-to-do and very intelligent farmer approached the spot. Peter had a great respect for Mr. Jones, and therefore determined to make a clean breast of it. He accordingly addressed him:—

"Neighbor Jones, I do not know how it happens, but the fact is, my farm appears to be growing poorer and poorer every year; can you explain the cause to me? I plow as deep as you do; I sow the same kind of seed; I put on all the manure I raise on my farm, and yet your crops are always better than mine."

"That matter is very easily explained, friend Jobson. Let us take a seat on the fence and talk the matter over, and see whether we cannot arrive at something like a correct conclusion. You are aware of one fact, Mr. Jobson, and that is, *that all our food, and the food of the animals on our farms, is derived either directly or indirectly from the vegetable kingdom*, or in other words, that it all comes from the earth."

"Yes, that's so, Mr. Jones," replied Jobson.

"Well, then," proceeded Farmer Jones, "it follows of course, that if we return all the excrements and urine of the human beings and animals on our farms *to* our farms, (that is, supposing, however, that all we raise is consumed on the farm,) we would be restoring to the soil all the fertilizing ingredients which the crops have removed."

"Just so."

"But do we do this?"

"Well, not altogether, Mr. Jones," replied Jobson, musingly, "not altogether."

"Hold a moment, friend Jobson," continued farmer Jones, "and let us see how much of what is grown on our farms is returned to them in the shape of manure. Year after year you grow crops of wheat and rye, oats and corn, timothy and clover."

"Yes, that's so, Mr. Jones."

"Some of these animals you fatten and send to market."

"That's so, Mr. Jones."

"Has it ever occurred to you, how much valuable fertilizing material every one of these big steers you sent away last spring carried away with him? Liebig says—you know Liebig is a great writer on agricultural chemistry—"

"Yes, that's so, Mr. Jones."

"Liebig says, that every pound weight of bones contains as much phosphoric acid, as a whole hundred weight of wheat. Now, if you can calculate how many pounds of bones there were in each one of those steers, you can tell pre-

cisely how many hundred pounds of wheat will want that very essential element to its growth, phosphoric acid."

"Yes, that's so, Mr. Jones."

"Then you know, friend Jobson, there are the meat and the blood, the skin and the hoofs, the hide and the hair, the horns and the entrils, all first-rate fertilizers."

"Yes, that's so, Mr. Jones."

"Well, all this valuable matter goes to the butcher, and is never brought back to your farm again."

"Yes, that's so, Mr. Jones."

"You harvest your crops, and thresh them, and all that your family and stock do not require you send to the city. I remember seeing you haul considerable quantities of hay, straw, and grain to the city, last winter."

"Yes, that's so, Mr. Jones."

"I don't remember seeing you bring any manure back with you, and, of course, all that the hay, straw, and grain you sold took from the soil, was so much lost, because you did not replace it."

"Yes, that's so, Mr. Jones."

"Well, all these crops draw largely upon the mineral ingredients of the soil; don't they?"

"I should think they did, Mr. Jones."

"We feed our stock, and we feed ourselves and families from the product of our farms; don't we?"

"Why that's very certain; that's what we raise them for."

"Now, neighbor Jobson, you know as well as I do, that if you wish to keep your soil in good healthy condition, you must give back to it just as much as you take from it."

"Yes, that's so, Mr. Jones."

"All that we withhold, renders that soil just so much poorer than it was; don't it?"

"Yes, that's so, Mr. Jones."

"The atmosphere, of course, helps to fertilize the soil, but still we must depend mainly upon manures."

"Yes, that's so, Mr. Jones."

"You told me a moment since, that your family was supplied with a portion of the grain, vegetables, and meats grown on your farm."

"Yes, that's so, Mr. Jones."

"Now, you know that human excrement is richer in phosphates than that of any animal. This arises from the fact that these phosphates are contained largely in the food of which we partake." This was all Greek to Peter, still he replied,

"Yes, that's so, Mr. Jones."

"Well, what do you do with this excrement? Do you return it to the soil, or

is it permitted to go to waste? If I am not mistaken you have never used it as a manure."

"Yes, that's so, Mr. Jones," responded Jobson, submissively.

"You give your stock a portion of the hay, grain, straw, turnips, &c., grown on the farm. Then, again, neighbor Jobson, as I passed your barn-yard the other day, I saw 'a little black stream' running from it, and if my memory don't deceive me, I have observed that same little stream for ten years past."

"Yes, that's so, Mr. Jones."

"Well, now, neighbor Jobson, let's sum up all these little matters, or as the newspapers say, recapitulate."

"Yes, that's so, Mr. Jones."

"*First.* You lose all benefit from your human excrement."

"That's so, Mr. Jones."

"*Second.* You give back to your fields, all the manure you save, but you must suffer great loss from 'that little black stream,' from the exposure of your dung-heap to wind and rain, and sunshine," &c.

"Yes, that's so, Mr. Jones."

"*Third.* You lose all the fertilizing matter contained in the hair, hoofs, flesh, bones, &c., of the steers, calves, and pigs you send to market."

"Yes, that's so, Mr. Jones."

"When that fine big horse of yours died last spring, you dragged him out to the old stone-quarry, and left him there to rot, and poison the atmosphere. The worthless dogs of the neighborhood and the carrion crows were the only ones benefitted by it; were they not?"

"Yes, that's so, Mr. Jones."

"Lastly, you sell all your surplus grain and hay and straw, and do not replace it, or any other of the lost and waste material with either farm-yard or artificial manure."

"Yes, that's so, Mr. Jones."

"Now, neighbor Jobson, if you will think seriously over what I have been saying. you will have no difficulty in ascertaining why your farm is growing poorer instead of richer."

"Yes, that's so, Mr. Jones," responded poor Jobson, as he turned, with a woful countenance towards his lank-looking team, and with a "Gee up! Ball!" was about to commence plowing again, when it occurred to him that it would be well to find out, if possible, where his Neighbor Jones had learned to know so much. Drawing the lines lightly to check the forward movement his horses were about to make, and resting his arms upon the handles of his plow, he again addressed Mr. Jones.

"Neighbor! there's a good deal of truth, I think, in what you have been saying. Where did you find out all these things?"

"Why, Peter, I take the agricultural papers, and I read them carefully.

Everything I have said to you may be found in almost any one of them in the course of a year."

"You don't say!" ejaculated Peter, wonderingly.

"Don't you take the agricultural papers, Peter?"

"No! father got along very well without them, and I thought I would be able to get along too."

"But, Peter, you tell me you are going behind hand, and I have shown you that some of the causes of your failures are to be attributed to your want of knowledge of the great leading principles of agriculture."

"That's so, Mr. Jones."

"Don't you think you would be benefitted by a little agricultural reading?"

"Perhaps, I would, Mr. Jones, but I have no paper, and I don't know where to send for one—will you tell me where I can subscribe, and which one you think the best?"

"Yes, I can, Peter. Enclose a gold dollar to Mr. Spangler, of Philadelphia. He will send you in return a most excellent agricultural journal, and also a very nice book on 'Farming and Gardening' besides."

"You don't say so, Mr. Jones!" exclaimed Peter, "and all for one dollar?"

"That's the whole charge, Peter."

"I'll send that dollar just as soon as I get to the house at noon;" and Peter, with a more hopeful countenance, turned to his team again, singing out "Gee up! Ball."

Economy in the Household.

No young woman ought to feel herself qualified to become a wife until she is sure she understands how to do the most that can be done with her husband's money. The management of a household is not a thing to be properly and safely entrusted to hireling hands. A servant is a broken reed for the head of a family to lean upon. There are a thousand little ways in which money must be expended, in which real shrewdness and enterprise are requisite in order to use it to the best advantage, and there are a thousand other ways of saving money, open only to those who have studied aright the art of economy. The Turkish proverb has it, that "a prudent woman is a mine of jewels," and like many other Oriental sayings, this is beautiful for the truth it embodies. A wasteful housekeeper not only robs those for whom she undertakes to manage, of the comforts it is her duty to provide for them, but actually keeps a husband head over ears in debt, and makes the domestic life of a poor man a continual series of experiments in shinning it from one day to the next; in keeping the stomach full though the purse be empty.

Remedy for Chapped Hands.—Half an ounce of quince seeds boiled in a pint of water; when cool add half teacupful of brandy, rub on at night, and wear kid gloves.

CONTENTS.

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July 59—1y

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July 59—1y

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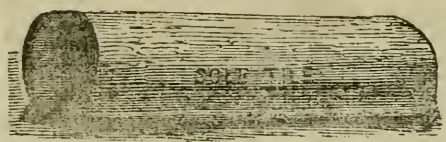
6½ " "	55,00	" " "
7½ " "	75,00	" " "



2 inches Rise,.....	$ 10,00	per 1000 feet.
3 " "	16,00	" " "
4 " "	30,00	" " "
5 " "	50,00	" " "
6 " "	80,00	" " "
9 " "	200,00	" " "

Orders solicited. Terms Cash.

Address C. & W. McCAMMON,

April 00—1y Albany, N. Y.

SOUTH DOWN LAMBS FOR SALE.

I have for sale several South Down Buck Lambs. My flock is now the finest in Tide Water Virginia. The Lambs are one-half, three fourths, seven eighths, fifteen sixteenths, and thorough bred, and I sell them at ten, fifteen, and twenty dollars, according to purity of blood. I shall have not more than eight or ten for sale. FRANK. G. RUFFIN.

April 60—tf

J. R. KEININGHAM,

DEALER IN

BOOKS AND STATIONERY,

211 Broad Street, between 4th and 5th,

RICHMOND, VIRGINIA.

arch, 1859.

THE FOLLOWING ENDORSEMENTS OF

SPALDING'S CEPHALIC PILLS

WILL CONVINCE ALL WHO SUFFER FROM

HEADACHE,

THAT A

SPEEDY AND SURE CURE

IS WITHIN THEIR REACH.

As these Testimonials were unsolicited by Mr. SPALDING, *they afford unquestionable proof of the efficacy of this truly scientific discovery.*

Masonville, Conn., Feb. 5th, 1861.

Mr. Spalding:

Sir—I have tried your Cephalic Pills, and *I like them so well* that I want you to send me two dollars' worth more.

Part of these are for the neighbors, to whom I gave a few out of the first box I got from you.

Send the Pills by mail, and oblige.

Your ob't Servant,

JAMES KENNEDY.

Haverford, Pa., Feb. 6th, 1861.

Mr. Spalding:

Sir—I wish you to send me one more box of your Cephalic Pills, *I have received a great deal of benefit from them.* Yours, respectfully,

MARY ANN STOIKHOUSE.

Spruce Creek, Huntington Co., Pa., January 18th, 1861.

H. C. Spalding:

Sir—You will please send me two boxes of your Cephalic Pills. Send them immediately.

Respectfully yours,

JNO. B. SIMONS.

P. S.—*I have used one box of your Pills, and find them excellent.*

Belle Vernon, Ohio, Jan. 15th, 1861.

Henry C. Spalding, Esq.

Please find enclosed twenty-five cents, for which send me another box of your Cephalic Pills. *They are truly the best Pills I have ever tried.* Direct A. STOVER, P. M.,

Belle Vernon, Wyandot Co., O.

RUFFIN'S

PHOSPHOR-PERUVIAN GUANO,

TOBACCO MANURE,

AGRICULTURAL SALT AND GROUND BONE ASH.

F. G. RUFFIN,

CORNER ELEVENTH AND CARY STREETS, ON THE BASIN,

RICHMOND, VA.,

Offers to the farmers the following MANURES, all of his own manufacture, viz:

RUFFIN'S PHOSPHOR-PERUVIAN GUANO,

Containing 8 per cent Ammonia, and 40 to 50 per cent Bone Phosphate Lime, per ton of 2,000 pounds, $50.

RUFFIN'S BONE ASH GUANO,

Containing 5 per cent Ammonia, and about 70 per cent Bone Phosphate Lime, per ton of 2,000 pounds, $50.

RUFFIN'S TOBACCO MANURE.

Containing 5 per cent Ammonia, 34 per cent Bone Phosphate Lime, 22 Chloride of Sodium, and 17 per cent Sulphate Lime, per ton o 2,000 pounds, $45.

RUFFIN'S GROUND BONE ASH,

Containing about 80 per cent Bone Phosphate Lime, dry and pure, per ton of 2,000 pounds, $35.

AGRICULTURAL SALT,

Loose in bags, per ton of 2,000 pounds, $11.

AGRICULTURAL SALT,

In bags, per to of 2,000 pounds, $13.

THE ABOVE MANURES are put up in strong bags, containing 167 pounds each, twelve bags of which make a fraction over a ton, and can be had of F. G. RUFFIN, at his mill, of any Commission Merchant in Richmond; of THOMAS BRANCH & SONS, Petersburg; M. HOLLINS & CO., Lynchburg; LEIGH & BROTHER, Norfolk; MASON, MARTIN & CO., Scottsville; JOHNSON, CLARKE & CO., Danville.

April 60—tf

SOMBRERO GUANO,

SOMBRERO GUANO AGENCY, 73 SMITH'S WHARF,
BALTIMORE, 8th October, 1860.

To Messrs. August & Williams:

I have just returned from Sombrero Island, and beg leave to say a few words in reference to the series of strictures upon Sombrero Guano, which have been published in your journal and in the "*Farmer*" during my five months absence. So long as honorable means are used to promote any opposing enterprise, I have not a word of complaint to utter; but when the proprietor of Navassa or other Guano, puts himself in opposition to our business upon premises which he has invented, and well knows to be utterly groundless, it becomes me to speak out and expose the fraud which is thus designed upon me and the public.

Sombrero Guano is not known for the first time to-day; for it was inaugurated in 1856, as an institution upon a solid basis. Then it was analyzed, and repeatedly since it has been analyzed by all the competent chemists in the United States, and by many abroad. In each instance, the result attested its pre-eminent richness in available phosphate. Years of practical experince in its use by planters, have further strengthened and established its claims to be "the" standard bone phosphate; and now at this day, it is well known, that those soluble or manipulated fertilizers, such as made by Fowle, Reese, and the Petersburg Company, into which it enters as material, enjoy a reputation, and exert an efficiency, which no competing compound has been able to accomplish without it. Thus it is that the real excellence, and high repute of our Guano, have provoked the jealousy of the proprietor of the Navassa, who seeks to divert attention from the intrinsic worthlessness of his own article, by decrying the Sombrero, with the hope of making a ruin of us upon which to build a success for himself. Thus it is too, that he has deemed it necessary to tip an inspiration to a collegiate chair to plead for Navassa, and against Sombrero Guano, so that by the prestige of such accidental position the words of the "*Professor*" may strike the unthinking and unsuspecting with a force of authority which is not justified by either their substance or their truth.

Now, with a profound reverence for science and its true followers, but contemptuous in my regard of those unscrupulous ones, who affect its accomplishments when they are ignorant of even its simplest rudiments, I protest indignantly against the unfairness of the publications in point.

But that the author may have the opportunity of vindicating himself before his profession and the public, if he can do so, I propose that his statements shall be submitted to a scientific tribunal of three persons, TWO of whom may be chosen by Mr. Cooper, the proprietor of the Navassa, leaving only one of the Chemists to be selected by our house. Premising that the whole expense of this commission shall be jointly incurred by Mr. Cooper and ourselves, I propose to prove before it in the most unqualified manner, upon a penalty of two hundred dollars, payable on default, to the Orphan Asylum of the City of Richmond.

AS TO NAVASSA GUANO,

1*st. That Navassa Guano is nearly "dirt poor" as a fertilizer.*

2*d. That apart from its poverty in Bone Phosphate it is inferior in other respects.*

3*d. That Navassa Guano is inferior to* "COPROLITES" *for any and all of the purposes of a Phosphatic material.*

4*th. That the solubility of Navassa Guano under atmospheric influences is barely appreciable compared with that of Sombrero Guano.*

5*th. That Navassa Guano will not make either a Commercial or Agricultural Super-phosphate of Lime.*

6*th. That on account of the large proportion of Iron and Alumina which it contains, the Navassa might almost be considered a raw material for the manufacture of Copperas and Alum.*

AS TO SOMBRERO GUANO,

1st. That Sembrero Guano is the most efficient and economical of the Phosphate Guanos.

2d. That it contains nearly twice the amount of actual Bone Phosphate that Navassa Guano does.

3d. That Sombrero Guano is not "*Coprolite*" nor of that species.

4th. That Sombrero Guano is a most serviceable material for Super-phosphate and Manipulating purposes.

5th. That Dr. Stewart's published statements in depreciation of Sombrero, compared with Navassa Guano, are incorrect in nearly every particular.

Believing that this is the fairest method of coming to the right of the contest imposed upon us, and in the hope that Mr. Cooper may respond manfully to this call, I ask that you will insert this paper as a communication, and oblige

Dec. '60—6mo Your obedient servant, **ANDREW C. ELLIOTT.**

RARE AND BEAUTIFUL FLOWERS.

A. BORNEMAN,

Seedsman and Florist,

VERSAILLES, WOODFORD COUNTY, KENTUCKY,

Would inform his friends and patrons that his New Descriptive Catalogue of *Flower and Vegetable Seeds* for 1861, will be ready for delivery early in February, and will be mailed to all applicants inclosing a three cent stamp. Much pains has been taken in preparing it, and it will contain, in addition to the information that is usually found in such lists, many descriptive and cultural notes for the benefit of the amateur and unprofessional florist.

It will embrace all that is *new* and *most desirable* among annuals, Biennial, Perennial and Green House Seeds—alike suitable for the Flower Garden, Pleasure Grounds, Lawns, Shrubberies and the Conservatory, as well as many matchless novelties of the highest merit, which have been selected by his European correspondents from the most reliable sources. Collections of

FLOWER SEEDS BY MAIL, POSTAGE PAID.

The following collections now so favorably known in every part of the country, have been sent out from his establishment for six years past. He will continue to give especial attention to this branch to render them complete and satisfactory in every respect They will be found to embrace many novelties, and only such as are well worthy of cultivation. They are equally adapted for the requirements of those who have large, as well as others who have only small gardens. The uninitiated may therefore order them without fear of disappointment, and the experienced cultivator will find them equally acceptable. Full directions for culture will accompany each package, which will be sent, postpaid, to any address in the Union, under 3000 miles, at the following prices:

ASSORTMENT No. 1—Contains twenty choice varieties of Annuals,..... $1 00

ASSORTMENT No. 2—Contains twenty choice varieties of Biennials and Perennials,..... 1 00

ASSORTMENT No. 3—Contains ten extra fine varieties of Annuals and Perennials, embracing many of the new and choicest in cultivation,..... 1 00

ASSORTMENT No. 4—Contains five very choice varieties selected from *Prize Flowers* of English Pansies, German Carnation, and Picotee Pinks, Verbenas, Truffaut's French Asters, Double Hollyhocks,..... 1 00

Any one remitting $3 will receive the four assortments, postage free.

The following additional assortments will also be sent at the prices annexed, *free of postage.*

ASSORTMENT No. 5—Contains fifteen very select varieties of Greenhouse Seeds,... ... $3 00

ASSORTMENT No. 6—Contains one hundred varieties of Annuals, Biennials, and Perennials, including many new and choice varieties,..... 5 00

ASSORTMENT No. 7—Contains fifty varieties of Annuals, Biennials, and Perennials,..... 2 50

ASSORTMENT No. 8—Contains twenty varieties of Annuals, Biennials and Perennials, for sowing in the Autumn,..... 1 00

The seeds contained in the above assortments are of his own selection. Purchasers who prefer to make their selection from the Catalogue, will be entitled to a discount proportionate to the quantity ordered. See schedule of prices annexed.

Great Inducements for the Formation of Clubs.

Being desirous of introducing his Flower Seeds as extensively as possible throughout the country, he offers the following inducements to those who wish to purchase in large quantities, or for the formation of Clubs, by which a great saving may be effected. The seeds will be forwarded *by mail, post paid*, to any address in the United States *under* 3000 *miles*, on receipt of the amount of the order. Those who reside beyond 3000 miles, are requested to remit two ten cent stamps, or their equivalent, in addition to the amount named, for every dollar's worth of seed ordered.

Purchasers remitting

$ 1 00	may select seeds at	Catalogue	prices	amounting to	.....	$ 1 10
2 00	"	"	"	"	.....	2 25
3 00	"	"	"	"	.....	3 50
4 00	"	"	"	"	.....	4 75
5 00	"	"	"	"	.....	6 00
10 00	"	"	"	"	.....	12 50
20 00	"	"	"	"	.....	26 00
30 00	"	"	"	"	.....	40 00

All orders must be accompanied with the cash.

Prices to dealers in larger quantities, will be given upon application.

COLLECTIONS OF BULBOUS ROOTS.

For the convenience of those who desire a fine collection, but are unacquainted with the varieties, we have put them up in collections as follows, with full directions for culture:

COLLECTION No. 1—PRICE $10—CONTAINS

20 *Double and Single Hyacinths*, (all named flowers,) and those varieties only which are best adapted for culture in glasses or pots.
20 *Double and Single Hyacinths*. for the open border.
20 *Early Double and Single Tulips*, for pot culture or the open border.
20 *Late Tulips*, for the border.
6 *Polyanthus Narcissus*, for pot culture or border.
6 *Double Roman Narcissus*, (very fragrant.)
2 *Crown Imperials*.
12 *Double Jonquins*.
100 *Crocus*. finest mixed.
2 Strong plants of the new and splendid Chinese Plant *Dielytra Spectabilis*.
4 *Peonies*, distinct and fine.

COLLECTION 2—PRICE $5—CONTAINS

One-half of each of the above varieties, with the exception of the Dielytra.

Jan 61—4t **A. BORNEMAN**, Versailles, Woodford Co., Ky.

MANIPULATED GUANO! MANIPULATED GUANO!

We offer to the Planters of Virginia a Guano prepared by us as follows:

1000 lbs. of the best Peruvian Guano that can be procured;
800 lbs. of the best Sombrero Guano, containing *full* 80 ℔ cent of the Phosphate of Lime.
200 lbs. of the best Ground Plaster, for which we pay $2 ℔ ton extra.

Planters and others are invited to examine the article. From the best information we can obtain, we believe the mixture is one of the best that can be prepared for the Virginia lands.

Price to Planters, $48 ℔ ton, or $2 ℔ ton less, where they furnish bags.

For sale by EDMOND DAVENPORT & CO.

Also for sale by Commission and Grocery Merchants in this City.

We refer to Planters who have used the Sombrero and the Manipulated Guano—among them James Galt, Esq., A. Warwick, Esq., Joseph Allen, Esq., R. H. Styll. Esq., and others.

Below we give D. K. Tuttle's (Chemist at University of Virginia) report of the same, samples from 72 bags, *and it shall be kept to that standard.*

"I am now able to give you the results of analysis. They show the Mixture to be what you stated in a former letter, and I judge that you are very fortunate in the selection of materials, especially of Peruvian Guano. The per centage of Ammonia shows the pure Peruvian to contain 12·4 per cent., which is more than the average The Analysis is as follows:

Moisture (given off at boiling point of water,)	10.05
Phosphate of Lime,	48.26
Sulphuric Acid, 5.45 / Lime, 3.64,	9.09
Ammonia,	6.20
Insoluble Matter,	1.55
A small quantity of Alkali—undetermined, / Water in combination and *Organic Matter*,	24.85.
	100.00

Hoping that your Fertilizer may meet with the success which it deserves,

I remain, very respect yours,

Jan—tf D. K. TUTTLE."

CO-PARTNERSHIP NOTICE.

I have this day admitted as a partner, Mr. JOHN N. JENNINGS. The business will in future be conducted at my old stand, No. 118 Main Street, under the firm and style of SAMUEL S. COTTRELL & CO., where we have on hand a fine assortment of Saddles, Bridles, Whips, Carriage, Cart and Wagon Harness, of every description and quality, and will continue to manufacture to order and for sale, every class of goods in our line.

There was awarded me at the United States Fair last Fall, three silver Medals for SUPERIOR SPECIMENS OF WORKMANSHIP; since which time our facilities have greatly increased, and we now flatter ourselves that we can furnish every article in our line, not to be surpassed in quality, and at as low prices as any other establishment in this country.

I beg leave to return my sincere thanks to my old friends and the public generally for the liberal patronage heretofore bestowed upon me, and respectfully solicit a continuance of the same to the new concern, pledging ourselves to use our utmost endeavors to please our friends and patrons.

Feb 1859- ly SAMUEL S. COTTRELL.

DRAINING TILE.

"MARYLAND TILE AND FIRE-BRICK WORKS,"

SOUTH SIDE OF BASIN,

Office Corner of Pine and Lexington Sts., Baltimore, Md.

The subscribers have constantly on hand any quantity of DRAINING TILE, of the most improved patterns, which they will dispose of at low rates.

HORSE SHOE TILE.		SOLE TILE.	
1½ inch bore,	2½ inch bore,	1½ inch bore,	2½ inch bore,
3 " "	4 " "	3 " "	4 " "

July 60—tf

LINTON, RITTENHOUSE & CRAWFORD.

RHODES' SUPER-PHOSPHATE.

The Standard Manure.

FOR TOBACCO, COTTON, CORN AND WHEAT CULTURE, ROOT CROPS, &c.

Manufactured under the supervision of Eminent Manufacturing Chemists, and warranted "*pure and free from all adulteration.*"

B. M. RHODES & CO.,

Office 82 *South Street, Bowly's Wharf, Baltimore, Md.*

AGENTS IN VIRGINIA.

Richmond—SCHAER, KOHLER & CO,
Petersburg—VENABLE & MORTON.
" THOS. BRANCH & SONS.
Lynchburg—M. HOLLINS & CO.
Norfolk—B. T. BOCKOVER.
Alexandria—WM. H. MAY.
Fredericksburg—HUGH SCOTT.
Farmville—HOWELL E. WARREN.
Blacks & Whites—JEFFERSON & WILLIAMSON.
Clarksville—JAMES E. HASKINS.
Jan. 60—tf

WAGONS AND CARTS.

I have now on hand and am constantly making Wagons and Carts; Threshers, plain and with Separators and Cleaners; Horse-powers, from 2 to 12 horse power; Reapers; Hay Presses; Cider Mills; Seed Drills; Land Rollers; Clod Breakers; Wheat Fans; Wheat Gleaners; Hay Rakes; Plows; Harrows; Cultivators; Straw Cutters; Corn Shellers, for power, and several sizes for hand. A very superior fixture for raising water from wells, being a combined curb windlass, self-emptying bucket brake, and is all in about the compass of a barrel, and warranted superior to any thing in use. Price, small size, $9, larger $12. Garden seeds, and general assortment of Garden and Farm Tools.

I am prepared to do repairs to all kinds of Reapers, Threshers, Fans, &c. Orders by mail for new work promptly filled and shipped with care, without charge for drayage.

Feb 61—3t

H. M. SMITH.

FOR SALE.

I have for sale two YOUNG JACKS, one 5 and one 4 years old, trained to serve mares, and proved as foal-getters. For terms, visit or address

SHARPE CARTER,
Jeffress' Store, Nottoway County, Va.

Feb 61—4t

IMPORTANT TO FARMERS!

VANDEMARK'S SELF-FASTENING, OR HOOK AND EYE

PORTABLE FENCE.

(SEE CUT IN READING COLUMNS.)

The observing farmer will readily perceive the numerous advantages of a PORTABLE FENCE which can be easily put up, taken down and removed from place to place, as convenience may require, at so little cost of time and labor.

The cost of this fence is only about *one-half* that of ordinary board fence with posts, and is more durable, there being *no posts* to rot off.

Not more than one-half the fence being required when portable, as the fence between growing crops can be removed to where it is wanted; thereby saving one-half by this mode of fencing, and prevent the growth of briers and bushes along your fence.

From the fact that the panels constructed upon the plan of this patent will make either a Worm, Straight, Square or Circular Fence, it possesses a double advantage over every other invention of the kind. To make 4 feet worm in 10 feet panels, the end batten should be 5½ inches apart on inch lumber. The Fence is not only the cheapest that can be made, where boards are used, but it has other great and good advantages.

1st. It can be made in bad weather or in the winter, when farm hands are commonly idle.

2nd. The fence being all above ground, will last without repair twice as long as a post and board fence.

3rd. The fence being portable, can be changed and moved without injury, and in a short time.

4th. It is all made of inch boards, and so simple in its construction that any farmer can make it, and all the tools necessary is a hand saw and hammer, avoiding the necessity of a carpenter, as in most cases necessary.

5th. The panels all being so that the same panel will make either a straight or zigzag fence, a square or circular enclosure, gives it material advantages over all other fences. When straight, it is supported by a triangular brace put in between the end battens or uprights, as shown in the cut, and made of the same material as the fence. The panels of this patent are so constructed that they will conform to the surface of uneven ground.

It is estimated that a log 12 feet long and 24 inches diameter, will make only 24 good sized rails, which will make only about two rods of fence, seven rails high without stakes; the same log sawed into 1 by 4 fence boards will make 300 feet—the same put in this kind of fence will make over eight rods of fence—so that if a farmer should give one-half his lumber for sawing, the balance would make more than double the fence the rough crooked rails would, and make use of timber that cannot be split into rails; and a man can certainly put up, take down, or remove 8 or 10 rods of the board fence, while he can one rod of the clumsy rail.

When the materials are furnished, this Fence can be built cheaper than an ordinary post and board fence. In building 20 rods of this Fence where lumber is worth $12 per M., and posts cost 13 cents each, we can save the builder $8, $40 on the 100, $400 on the 1000 rods of fence.

County or Farm Rights will be sold on the most liberal terms, in Augusta, Rockbridge, New Kent, Chesterfield, Powhatan, Hanover, King William, Buckingham, Amelia, Prince Edward, Prince George, Nottoway, Charlotte, Caroline, and Goochland counties, in the State of Virginia.

TERMS:

For a farm of 50 acres or under, $2,50; 100 acres, $5; and $2 for every additional 50 acres up to 300, and over 300 acres, the price to be arranged by the parties.

Correspondents are particularly requested to give the name of their Post Office and County in full. Address

JAMES A. AUGUST, Agent, Richmond, Va.

Dec.

SMALL FARMS NEAR THIS CITY FOR SALE.

One, containing eighty acres. IMPROVEMENTS GOOD AND NEW. Dwelling House has five rooms and eight closets. Two Wells of excellent water in the yard. Distance from the centre of the city three miles. Stables and out-houses as usual.

Two Tracts of unimproved land, each containing 100 acres, in less than five miles of this city.

The most accommodating terms given to purchasers. Enquire at the office of THE SOUTHERN PLANTER, or of Messrs. GODDIN & APPERSON.

PAINTS. PAINTS. PAINTS.

PURCELL, LADD & CO.,

DRUGGISTS,

No. 122 Main Street, corner 13th, **RICHMOND, VIRGINIA,**

Offer at low prices, a large and well assorted stock of articles in their line—embracing

PAINTS, COLORS, VARNISHES, OILS, &C.

LEWIS' WHITE LEAD,
NEW J. WHITE ZINC, Horsehead brand,
CHROME GREEN,
VERDIGRIS.
TERRA DI SIENNA,
LINSEED OIL,
MACHINE OIL.
PARIS GREEN,
CHROME YELLOW,
TURKEY UMBRE,
LAMP OILS,
SPTS. TURPENTINE.

All Colors for Painters, Coach Makers, and others, Dry and in Oil, Paint Brushes, Sand Paper, and a very large stock of best

WINDOW GLASS,

Comprising nearly every size made. We are also prepared to take orders for Imported

Polished Plate, Sky Light and Ornamental Glass.

☞ Particular attention to packing and forwarding all goods—and the quality warranted.

PURCELL, LADD & CO, *Druggists*,
122 Main Street, Richmond.

[June 1858.

WM. L. HILL, N. M. NORFLEET.

HILL & NORFLEET,

GENERAL COMMISSION AND FORWARDING

MERCHANTS,

OFFICE---SHOCKOE SLIP,
RICHMOND, VIRGINIA.

AGENTS FOR

FOWLE & CO.'S

SOLUBLE PHOSPHATED PERUVIAN GUANO.

Oct 60—1y

1853. GEORGE STARRETT 1860.

Has in store his Fall Stock, comprising 284 varieties and sizes of STOVES, RANGES and FURNACES, many of them new and desirable articles, of his own make. He is also prepared to supply Northern Stoves at Wholesale or Retail, having contracted early in the season for two entire cargoes of the very best made in this country, at lower prices than the same goods can now be obtained. Also, Pumps and Pipe of all kinds, Plumbing, Gas Fitting and Tin work done in the best manner and cheap. Extra castings always on hand.

GEORGE STARRETT, Belvin's Row,
Governor Street, Richmond, Va.

Oct 60—6mo

RICHMOND FERTILIZER MANUFACTURING MILLS!

ROCKETTS, RICHMOND, VA.

S. HARTMAN, GENERAL AGENT,

OFFERS FOR SALE

EXTRA FINE BONE DUST,

HARTMAN'S AMMONIATED SUPER PHOSPHATE OF LIME,

HARTMAN'S IMPROVED MANIPULATED GUANO,

Adapted to WHEAT, CORN, OATS, TOBACCO, COTTON, and all Vegetables and Grasses.

☞ **THESE MANURES ARE WARRANTED GENUINE.** ☜

The BONE DUST is made of Bones in their Natural State, with all their organic matter.

SUPER PHOSPHATE OF LIME is manufactured from Crushed Bones, which also have all their organic matter.

IMPROVED MANIPULATED GUANO is composed of one half Best Phosphatic Guano, decomposed by Sulphuric Acid, the balance of the Best Peruvian.

To be had at the MILLS, or of Messrs. WOMBLE & CLAIBORNE, BLAIR & CHAMBERLAYNE, ALEX. GARRETT, Richmond; D. GRIGG, Esq., Petersburg, and Messrs. GUY & WADDELL, Staunton. April 60—tf

GUANO!

We would call the attention of Guano Dealers, Planters, and Farmers, to the article which we have on hand and for sale at

40 PER CENT LESS THAN PERUVIAN GUANO,

which we claim to be superior to any Guano or Fertilizer ever imported or manufactured in this country.

THIS GUANO IS IMPORTED BY

WM. H. WEBB, OF NEW YORK,

FROM

BAKER'S AND JARVIS' ISLANDS, IN THE SOUTH PACIFIC OCEAN.

Sold genuine and pure as imported by the Cargo, or at retail, by

JOHN B. SARDY, General Agent,
No. 58 South Street, Corner of Wall Street, New York.

It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent and popular Agricultural Chemists, and found to contain (as will be seen by our circular) a large per centage of

BONE PHOSPHATE OF LIME AND PHOSPHORIC ACID,

and other animal organic matter, yielding ammonia sufficient to produce immediate abundant crops, besides substantially enriching the soil. It can be freely used without danger of burning the seed or plant, by coming in contact with it, as is the case with some other Fertilizers; retaining a great degree of moisture, it causes the plant to grow in a healthy condition, and as experience has proved, **FREE OF INSECTS.**

For orders in any quantity, (which will be promptly attended to,) or pamphlets containing full particulars of analyses and tests of Farmers, apply as above.

Oct 60—1y

FOWLE & CO.'S

SOLUBLE PHOSPHATED

PERUVIAN GUANO.

MADE OF GUANOS OF

DIRECT IMPORTATION,

Under the personal supervision and direction of Dr. R. H. STABLER, Chemist, of this City.

THIS FERTILIZER we confidently recommend, as the most permanent and cheapest yet offered to the public. Being composed of

NO. 1 PERUVIAN AND SOMBRERO GUANOS

OF OUR OWN

DIRECT IMPORTATION,

FROM THE

CHINCHA AND SOMBRERO ISLANDS,

WE WARRANT IT IN EVERY RESPECT.

THE SOMBRERO GUANO

Before being mixed, is rendered *immediately soluble*, by the addition of Sulphuric Acid. This treatment is universally recommended by the most eminent Agricultural Chemists. Without it, the action of the two Guanos, when mixed, is not simultaneous, and consequently comparatively inefficient.

This is the ONLY mixture of the Ammoniated and Phosphatic GUANOS we know of, yet offered to the Agricultural Community, in a REALLY SOLUBLE form.

Price, $50 per Ton of 2.000 lbs.

Our reports from those who applied the above FERTILIZER to their crops last fall, are *highly satisfactory*—so much so, indeed, as to convince us that our *Soluble Phosphated Peruvian Guano* will ere long be altogether used in this section, as a substitute for the Peruvian Guano, which, *without the addition of Phosphates*, tends rather to exhaust than permanently improve the soil.

FOWLE & CO.,

ALEXANDRIA, VA

May 60—tf.

VALUABLE LOUISA LAND FOR SALE.

Wishing to dispose of my Real Estate, in order to divide the proceeds among my children, I offer for sale, privately, my Farm,

SUNNING HILL.

This most desirable tract of Land lies in the heart of the valuable tobacco Lands of Louisa, on both sides of the south branch of the North Anna river, adjoining the lands of H. P. Poindexter, Gabriel Jones, Joseph M. Baker and others, eight miles from Louisa Court-House and Tolersville, on the Virginia Central Railroad, and equally convenient to both.

This Farm contains 1,040 acres, of which 200 are wood land, more than three-fourths of which are heavily timbered with oak, pine and hickory of original growth. The arable land is fertile and in a high state of improvement—well adapted to the growth of wheat, corn and tobacco. There is a comfortable DWELLING, with eight rooms, a good barn, tobacco houses, and all necessary out buildings. The locality is healthy and the neighborhood pleasant. Presuming that any one wishing to purchase will visit the Farm and see for themselves, I deem it unnecessary to speak farther. The Farm is capable of being divided into three tracts, if desired. Being very desirous of selling, terms will be made to accommodate purchasers.

My manager, Mr. GROOM, will take pleasure in showing the premises to any one who wishes to purchases. JULIA A. HOLLADAY.

For further information, apply to Dr. W. C. N. Randolph, Charlottesville, Va.; or, H. T. Holliday, Rapid Ann Station, Orange and Alexandria Railroad, who is authorized to sell. Feb 60—tf

---

THE GREAT SOUTHERN
Hat and Cap Manufactory and Depot.
JOHN DOOLEY,

No. 81, *Main Street, Richmond Va.*

MANUFACTURER of HATS and CAPS on the largest scale, and in every possible variety, and Importer of North American and European FURS, HATS, CAPS, PLUSHES, TRIMMINGS, and all other articles belonging to the Trade, is always supplied with a splendid stock of Goods, for Wholesale and Retail, which in quality and quantity cannot be excelled by any other house in the South. His manufacturing arrangements are of the completest kind, and his facilities for supplying country merchants a the shortest notice cannot be surpassed.

July 1858—1y

THE
SOUTHERN PLANTER,
OFFICE
NO. 148 MAIN STREET,
A few Doors below the Exchange Bank,
RICHMOND, VA.

ALEXANDER GARRETT,

Cary Street, second door below 13th street, Adjoining the Old Columbian Hotel,

RICHMOND, VA.,

GENERAL COMMISSION MERCHANT,

AND DEALER IN

GROCERIES,

PERUVIAN, ELIDE ISLAND, AND RUFFIN'S PHOSPHO GUANO, PLASTER, &C.

Particular attention paid to the sale of all kinds of country produce:

Wheat, Corn, Flour, Tobacco, Oats, &c.

I have made arrangements with Mr. JNO. M. SHEPPARD, Jr, one of the best judges and salesmen of TOBACCO in this city, to attend to the sale of all tobacco consigned to me. July 59—1y

---

PURE BRED STOCK
FOR SALE.

Pure Bred Durham Cattle, from $50 to $200.
Spanish Merino Sheep, and French Merino Sheep, at $10 to $30
Madagascar Rabbits at $10 per pair.
Improved White Pigs, at $8 each.
Brood Mares, served by "Bush Messenger." Morgan, Messenger and Basham, at $125 to $300.
Stallions from colts to well broke and trained animals, from $75 to $600.

All animals sold will be carefully boxed or haltered, and placed at the Express office.

My residence is 4½ miles east of Brownsville, Fayette County, Pa.

POST OFFICE BOX No. 6.

JOHN S. GOE.

Feb 60—1y

WM. P. LADD,

No. 319, head Broad Street, Shockoe Hill,

RICHMOND, VA.

Wholesale and Retail Detail Dealer in English, French and American

DRUGS, MEDICINES, CHEMICALS,

Paints, Oils, Varnishes and Dye-Stuffs; Window Glass Putty, Glue and Sand Paper; Paint, Camel's Hair and Whitewash Brushes; Cloth Hair, Flesh, Nail and Tooth Brushes.

Fine and Choice Perfumery, Fancy Goods,

PURE LIQUORS AND WINES,

For Medicinal and Sacramental Purposes.

Surgical Instruments, Trusses, Shoulder Braces, Supporters, &c.

Landreth's Celebrated Garden Seeds,

In great variety. Also,

DRS. JAYNES' AND ROSE'S

FAMILY MEDICINES,

MEXICAN MUSTANG LINIMENT.

Together with all the most popular PATENT AND BOTANICAL MEDICINES, direct from the Proprietors.

Orders from Country Merchants and Physicians thankfully received and promptly attended to.

☞ All articles from this Establishment are warranted pure, fresh and genuine. dec 58—1y

SOMBRERO GUANO.

OCTOBER, 1860.

Attempts having been made, recently, to depreciate the enviable character of SOMBRERO GUANO as a fertilizer, by partisan and untruthful publications, the Proprietors beg leave to submit to the Agricultural community, the annexed portion of a letter from the most authentic chemical source in the United States, setting forth the REAL facts of the case upon the only reliable basis, that of an analytical examination of the several Phosphatic Guanos in Commerce. The data obtained by Dr. Morfit are incontrovertible, and not only attest the superiority of SOMBRERO GUANO, as the richest and most efficient Phosphatic Manure, but are suggestive also of the futility of any attempt to bring the Navassa or other similar Guano into successful competition with it. Orders received by ROSS W. WOOD & SON, New York,

Or, ANDREW C. ELLIOTT & CO., Baltimore.

EDMOND, DAVENPORT & CO., AGENTS, Richmond, Va.

CHEMICAL LABORATORY. No. 19 East 12th Street,
NEW YORK, 21st March, 1860.

Messrs. Patten & Miller, and
E. C. Wade & Co., Savannah, Georgia:

Gentlemen—In reply to your joint letter of 9th February, requesting my professional opinion upon certain points of Agricultural interest, and which more immediately concern you as honorable dealers in Fertilizers, I have given the subject its due consideration, and now submit my report.

1. Your first question, as to the rank which belongs, properly, to SOMBRERO GUANO, compared with the Phosphatic Guanos from Navaza, Jarvis and Baker's Islands, will be best answered by the annexed table, which shows their relative composition. Baker's Island Guano is omitted, however, from the comparison, for the just reason, that no cargo has been imported, it being known here, at this time, only by sample.

CONSTITUENTS.	Sombrero.	Navaza.	Jarvis Island.
Water	3.52	2.20	8.17
Sand and Silica,	.68	5 60	.16
Organic matter, insoluble,	....	1.48	.81
Organic matter, soluble,	5 36	10.20	5.77
Fluorid Calcium,	....	Traces.	Traces.
Sulphate Lime,	.86	2 49	44.81
Lime, (with Organic Acids,)	6.97	12 47	....
Carbonate Lime,	5.34	2.00	....
Bone Phosphate Lime,	64.67	37.72	13.33
Common Phosphate Lime,	....	....	25.94
Phosphates Magnesia,	2.39	2.70	.84
Phosphate Alumina,	3.62	10.56	....
Phosphate Iron,	1.95	2.20	....
Chlorid Sodium,	....	Traces.	.19
Chlorid Potassium,	.09	....	....
Silicate Potassa and Lime,	.76	....	....
Oxide Iron,	1.10	3.50	Traces.
Alumina,	3.13	7.04	.63
Total,	100.44	100.06	100.65

COMMERCIAL AND AGRICULTURAL EXPRESSION.

Actual Bone Phosphate,	67.96	40.44	44.73
Or,			
Calculated Bone Phosphate,	73 78	50.76	44.73

All the analyses were conducted with the rigid care of a scientific investigation. The samples employed were also of assured integrity. *The Navaza was obtained directly from the State Inspector of Maryland, as an average of six ca goes imported in 1859; consequently, the eighty and odd per cent of Bone Phosphate claimed for it in circulars and advertisements are a fabulous estimate, or else were deduced from extraordinary samples.* Jarvis Island Guano is represented by an average of the "Henry Brigham's" cargo, which is the best of the kind that has come under my observation. The Sombrero sample was also a fair average of several cargoes, and from a reliable source.

In the Commercial and Agricultural expression for the several Guanos, as above noted, I have distinguished the Phosphoric Acid, which exists in combination with Lime and Magnesia, as ACTUAL Bone Phosphate, while I give the title of CALCULATED Bone Phosphate to the actual phosphate, conjointly with that portion of Phosphoric Acid present in the Guanos as Phosphate of Alumina and Phosphate of Iron, because the equivalent of the latter in Bone Phosphate Lime is determined by calculation. The Alumina and Iron Phosphates, it may be proper to add, though of value in the fertilization of soils, are, in degree, inferior, for that purpose, to actual Bone Phosphate Lime. With this explanation, it will be evident, then, from the Table, that *precedence belongs to Sombrero Guano*, not only because of its *very much greater richness in Phosphoric Acid*, but also for the reason that nearly the whole of that constituent occurs in the Guano as ACTUAL Bone Phosphate of Lime. Moreover, Sombrero Guano is characterized by much uniformity of dryness and composition, as well as *by a very limited amount of matters which would be valueless to crops.*

2. The presence of oxide of Iron is detrimental to a fertilizer, when the proportion may be excessive and in indissoluble combination. But these conditions do not pertain to *Sombrero Guano;* for it holds only a small quantity of iron, and will yield with sufficient readiness to the solvent power of atmospheric agencies in the soil. I base my judgment upon a large, Laboratory experience with this Guano.

And I may remark, further, that the idea of its being deficient in capacity for making Super-phosphate, as pronounced by others, is founded in ignorance of the true nature of the Guano. Indeed, with the proper knowledge, a Super-phosphate of the highest fertilizing efficiency can be made from it at a reasonable economy of cost. * * * * * *

Respectfully yours,

CAMPBELL MORFIT.

Oct 60—3t

SOMBRERO GUANO.

OCTOBER, 1860.

The proprietors of Sombrero Island fully confident that this locality is the richest known source of Phosphatic Guano, have established a Laboratory on the spot, and appointed a resident chemist, with strict instructions to select all cargoes by preliminary assays prior to their shipment from the Island, so that all Guano exported from the Island shall be of the standard of 70 to 80 per cent bone phosphate of lime. Cargoes of late importation have been, and those to arrive hereafter will be of that standard, and in order to give the consumers of Sombrero Guano the best advantages of the deposit a higher grade will be fixed as soon as arrangements can be completed for developing its still richer portions. It is the determination of the proprietors not only to maintain the present superior character of their Guano, but to increase its value by sending it ere long into market with a per centage of Bone Phosphate of Lime, even greater than that by which it now excels every other phosphatic material.

The following analysis by Drs. Piggot and Pitt represent several cargoes of late importation:

1860.

June 22nd,	cargo	Champion,	by Dr. Piggot,	70.00	Bone	Posphate	of Lime.
June 28th,	do	do	by Dr. Pitt,	72.67	do	do	do
June 25th,	do	Golden Rod,	by Dr. Piggot,	73.02	do	do	do
June 28th,	do	do	by Dr. Pitt	70.20	do	do	do
July 25th,	do	St. Mary,	by Dr. Piggot,	74.62	do	do	do
June 28th,	do	do	by Dr. Pitt,	70.96	do	do	do
July 25th,	do	D. H. Baldwin,	by Dr. Piggot,	71.61	do	do	do
Aug. 22nd,	do	Sequine,	by Dr. Pitt,	74.64	do	do	do
Aug. 22nd,	do	do	by Dr. Piggot,	79.06	do	do	do
Aug. 22nd,	do	Ianthe,	by Dr. Pitt,	74.88	do	do	do
Aug. 22nd,	do	do	by Dr. Piggot,	78.72	do	do	do

Orders received by **ROSS W. WOOD & SON, 90 Front Street, New York.**

Or, **ANDREW C. ELLIOTT & CO., 73 Smith's Wharf, Baltimore.**

EDMOND, DAVENPORT & CO., AGENTS, Richmond, Va.

Oct 60—tf

CITY SAVINGS BANK OF RICHMOND.

Chartered in 1839.

Capital, - - - $100,000.

HORACE L. KENT, PRESIDENT.

N. AUGUST, *Cashier.*

W. GODDIN, *Secretary.*

This *old, well-known,* and *prompt-paying* Institution continues to receive deposites, on which interest is paid (semi-annually if desired,) at the rate of 6 per cent. per annum on sums remaining on deposite six months or longer, and at the rate of 5 per cent. for shorter periods.

OFFICE, No. 148, *Main Street.* Jan 61—tf

BLACK HAWK,

THE PROPERTY OF R. H. DULANY,

Will stand at Wilbourne, near Upperville, Loudoun County, Virginia, at thirty dollars the season, fifty dollars to insure and fifty cents to the groom. Pasturage, &c., at usual prices. Every care taken of mares sent from a distance, but no responsibility for accidents. All bills due at the close of the season

BLACK HAWK is a beautiful black, stands fifteen hands three inches high, has fine muscle, strong bone, good action, great endurance, and is perfectly docile.

BLACK HAWK'S Colts are very large for the breed, many of them being sixteen hands high. They have been shown at the "Upperville Club for the improvement of horses," at the Leesburg Fair and the last Fair of the State of Virginia and Central Societies, and *never been beaten.*

Two of BLACK HAWK'S Colts, Walter Morgan and Lady May, took both the purses for colts at the last State Fair, Lady May trotting her mile very easily in 2m. 54½s. Fifteen hundred dollars was offered and refused for each of these colts.

Feb 61—3t

SEPTEMBER 1st, 1860.

I have a large number of Farms for Sale in different parts of Virginia. With some of these Farms the negroes, stock, &c., will be sold. Those wishing to purchase in any portion of Virginia will be furnished descriptive letters, by enclosing me a stamp. When negroes are sold one per cent will be charged the purchaser. I. I. HITE, Land Agent.

I solicit business in any capacity an agent may be wanted. I refer to Messrs. Williams & August, Richmond, Va. Other references given if desired. I. I. H.

LOVINGSTON, NELSON COUNTY, VA. Oct 60—tf

SHOCKOE MILL RICHMOND GROUND PLASTER.

The Subscriber is prepared with a full stock of Windsor (Nova Scotia) Lump Plaster, to supply fresh Ground Plaster to any extent. He begs leave at the present time specially to invite the attention of the Farmers to the article as a CHEAP, PERMANENT and VALUABLE IMPROVER, prepared AT HOME, from selections of fine, rich lump, quality guaranteed, and furnished at less cost than in any other market, for similar quality.

Jan 61—3t JOHN H. CLAIBORNE, Office No. 11, Pearl Street.

ROOTED CRANBERRY PLANTS FOR SALE

By the Subscriber, Hanover County. $5 per thousand. The crop last year yielded at the rate of sixty bushels per acre, paying about $375 per acre—without cultivation.

CHARLES B. CULLEN, M. D.,

March 61—2t (pd) Richmond, Va., P. O. Box 660.

INDEX TO ADVERTISEMENTS.

BUCKEYE MOWER AND REAPER.

BUCKEYE MOWER AND REAPER.

(SEE PRECEDING PAGE.)

We would respectfully call the attention of the farming community to the above named Machine, as one superior, in every respect, to any machine in use.

We are largely engaged in the manufacture of them for the coming harvest, and would recommend all in want of a *Mower* or *Reaper*, or a *Combined Machine*, to give the BUCKEYE a trial.

It has many advantages over any other machine, among which are *Two Driving Wheels*, *Double Hinge Finger Bar*, which also, in the Mower, is a *Folding Bar*, and has a lever attached to it by which the driver can, with one hand, while on his seat, raise both ends of the Bar from the ground to the height of 12 to 18 inches.

The Reaping attachment is made perfect in itself, cutting a swath of six feet, and does not have the platform attached to a Mower Bar as is the case with other combined Machines. It is made side or rear delivery, can be worked with or without the Reel, and the platform can be turned up to pass through gates or bars.

The BUCKEYE, during the few years it has been in existance, has received more premiums than any other Machine. It can be worked, with a single pair of horses, through the harvest.

The BUCKEYE is entirely free from *Side Draft*, and has no weight on the *tongue or the horse's neck*. The Draft is lighter than ordinary plowing.

Please call or send for a Circular containing full particulars. testimonials, price, terms, &c.

We also manufacture the celebrated *Geiser Threshing*, *Cleaning and Bagging Machine*, *Plain Threshing Drums*, *Horse Powers*, *Iron Beam Plows*, and other agricultural implements.

JOHN W. CARDWELL & CO.,

March 61—4t Cary Street, Richmond, Va.

ROUTT'S SOUTHERN CORN PLANTER,

WITH GUANO ATTACHMENT.

ROUTT'S IRON DOUBLE SHOVEL AND COULTER PLOW.—
ROUTT'S PREMIUM PATENT DRAIN PLOW.—
ROUTT'S TOBACCO CULTIVATOR.

I desire to call the attention of Farmers to the above Implements, which I am manufacturing with the utmost care, both as regards material and workmanship, and I can confidently recommend them, backed by the most reliable farmers of the State, as being all they are represented.

My Southern Corn Planter with Guano Attachment is the only reliable implement of the kind offered to the public, and gives entire satisfaction. My Iron Double Shovel Plow has two points, and they may be substituted with Coulters. It runs more beautifully than any other Shovel Plow, and has given more universal satisfaction than any Plow I have ever sold.

My Patent Drain Plow has no rival for making Surface Drains and Water Furrows. It makes at once running a complete furrow, not liable to fill by frost. It is a great labor-saving machine.

For premiums on all the above see Agricultural Society Reports for the last five years.

All kinds of Agricultural Implements made and supplied on short notice.

Thanking the public for past liberal patronage, I solicit a continuance of the same.

☞ Orders promptly attended to.

March 61—3t **A. P. ROUTT,** Somerset, Orange Co., Va., Jan. 10, 1861.

THE SOUTHERN PLANTER,

OFFICE---NO. 148 MAIN STREET,

A FEW DOORS BELOW THE EXCHANGE BANK,

RICHMOND, VIRGINIA.

THE GARDENER'S MONTHLY,

AND HORTICULTURAL ADVERTISER,

A MONTHLY PERIODICAL, devoted to the Dissemination of Practical and reliable Information on the Culture of FRUITS, FLOWERS, CULINARY VEGETABLES, and ORNAMENTAL TREES and SHRUBS: On the Management of HOT and GREENHOUSES, VINERIES, ORCHARD and FORCING HOUSES, and on the Culture of EXOTIC FRUITS and FLOWERS; and LANDSCAPE-GARDENING, RURAL ARCHITECTURE, and RUSTIC ADORNMENTS; And to furnishing the Latest Discoveries, Improvements, and Inventions of a Horticultural character in the kindred Arts and Sciences, such as BOTANY, ENTOMOLOGY, CHEMISTRY, MECHANICS, &c. And, also, to afford an Effective and Economical ADVERTISING MEDIUM to Nurserymen, Florists, &c.

EDITED BY THOMAS MEEHAN,

Formerly Head Gardener to Caleb Cope, Esq., at Springbrook, and at the Bartram Botanic Garden, near Philadelphia; Graduate of the Royal Botanic Garden, Kew, London, England; Member of the Academy of Natural Sciences; Author of "The American Hand-book of Ornamental Trees, &c." Assisted by an able Corps of AMERICAN and FOREIGN CORRESPONDENTS.

It is published on the first of every month, at the office,

NO. 23 NORTH SIXTH STREET, PHILADELPHIA,

where all *Business* communications should be addressed.

TERMS OF SUBSCRIPTION:

One copy for one year, payable in advance,	$1 00
Two copies, " " " "	1 75
Five " " " " "	4 00
Ten " " " " "	7 00
Fifteen " " " " "	10 00
Twenty " " " " "	12 00

☞ The THIRD VOLUME commences on the first of January, 1861.
Sample copies furnished gratis on application. Dec 60—tf

Seeds! Seeds! Seeds!

GARDEN, VEGETABLE, GRASS AND FLOWER SEEDS, OF EVERY DESIRABLE VARIETY.

PRICED CATALOGUES SENT FREE BY POST, ON APPLICATION.

No. 1.—Descriptive List of Flower Seeds, Horticultural Implements, etc.
No. 2.—Vegetable, Grass, Herb and Miscellaneous Seeds.
No. 3.—Wholesale price list of Vegetable Seeds, &c., for Dealer's use.

ALFRED BRIDGEMAN,

March 61—3t No. 876 BROADWAY, NEW YORK CITY.

MACFARLANE & FERGUSSON,

Book, Job,

AND

ORNAMENTAL PRINTERS,

Corner Bank and 12th Streets, Richmond, Va.

Prospectus

OF

THE SOUTHERN PLANTER,

A MONTHLY PERIODICAL,

DEVOTED TO

AGRICULTURE, HORTICULTURE AND THE HOUSEHOLD ARTS.

PUBLISHED AT RICHMOND, VIRGINIA.

EDITED BY

DR. J. E. WILLIAMS AND PROF. WILLIAM GILHAM.

THE SOUTHERN PLANTER, which has been established for twenty years, is the oldest Agricultural Paper in Virginia, and the Editor and Proprietors feel that they have a right to claim the patronage of the Farmers of Virginia and the South, if they have succeeded in making the paper worth the sum asked for it. That they have fully done that, they do not doubt for one moment. Many of the best farmers, and some of them among the ablest men and best writers of this and other States, have enriched the pages of the Planter with invaluable essays, drawn mostly from their own experience; and in the quantity of good original matter, it exceeds any paper of its size in the Union. In order to diffuse the information thus given, it is necessary to extend the circulation of the paper; and in asking the friends of Agriculture throughout this and *other* Southern States to aid in doing it, the Proprietors feel that they are not asking a favor but offering a valuable consideration.

THE PLANTER is published in monthly numbers, on fine paper, containing 64 super-royal octavo pages, exclusive of the Advertising Sheet; bound in a neat cover, making a volume of 768 pages of Agricultural matter, per annum, for two dollars and fifty cents, which may be discharged by the payment of TWO DOLLARS ONLY, *if paid in advance.* 6 copies for $10; 13 copies for $20; 1 copy 3 years $5. INVARIABLY IN ADVANCE.

Subscriptions may begin with any number, but it is preferable that they should begin with the commencement of the volume.

No paper will be discontinued until all arrearages are paid, except at our option.

☞ Exchanges favorable to this Journal will please notice.

AUGUST & WILLIAMS, Proprietors.

HOMES FOR THE INDUSTRIOUS,

IN THE

GARDEN STATE OF THE WEST.

THE ILLINOIS CENTRAL RAILROAD CO., HAVE FOR SALE

1,200,000 ACRES OF RICH FARMING LANDS,

IN TRACTS OF FORTY ACRES AND UPWARD,

ON LONG CREDIT AND AT LOW PRICES.

THE attention of the enterprising and industrious portion of the community is directed to the following statements and liberal inducements offered them by the

ILLINOIS CENTRAL RAILROAD COMPANY.

which, as they will perceive, will enable them, by proper energy, perseverance and industry, to provide comfortable homes for themselves and families, with, comparatively speaking, very little capital.

LANDS OF ILLINOIS.

No State in the Valley of the Mississippi offers so great an inducement to the settler as the State of Illinois. There is no portion of the world where all the conditions of climate and soil so admirably combine to produce those two great staples, CORN and WHEAT, as the Prairies of Illinois.

EASTERN AND SOUTHERN MARKETS.

These lands are [illegible] the main line 700 miles in length, which [illegible] railroads and navigable lakes and rivers, [illegible] unbroken communication with the Eastern and Southern markets.

RAILROAD SYSTEM OF ILLINOIS.

Over $160,000,000 of private capital have been expended on the railroad system of Illinois. Included as part of the income from several of these works, with a valuable public fund in lands, [illegible] the State expenses: the TAXES ARE LIGHT, and [illegible] gradually every day decreasing.

THE STATE DEBT.

The State debt is only $10,16[illegible]6,208 14, *and within the last three years has been reduced* $2,[illegible]7,[illegible]8, *and we may reasonably expect that it will soon be extinguished.*

PRESENT POPULATION.

The State [illegible] population; 868,025 persons having been added [illegible]60, making the present population 1,712,[illegible], a rate of 102 per cent. in ten years.

AGRICULTURAL PRODUCTS.

The Agricultural products [illegible] are greater than those of any other State. The [illegible] during the past year from the soil of Illinois exceeded 1,500,000 tons. The wheat crop of 1860 approximates [illegible] 25,000,000 bushels, while the corn crop yield [illegible] 140,000,000 bushels.

FERTILITY OF THE SOIL.

Nowhere can the [illegible] farm [illegible] such immediate results for the labor [illegible] prairie soil, the fertility of which is surpassed by any in the globe.

TO ACTUAL CULTIVATORS.

Since 1854 *the Company have sold* 1,5[illegible] *acres. They sell only to actual cultivators, and every contract contains an agreement to cultivate. They have been instructed through these lands at an* [illegible] *of forty miles, have sold* [illegible] *since which* 47[illegible] *population* 814,861, [illegible].

EVIDENCES OF PROSPERITY.

As an evidence of the [illegible] that 100,000 tons of [illegible] grain, and 250,000 [illegible] the last year.

PRICES AND TERMS OF PAYMENT.

The [illegible] sold according to [illegible] soil for about $5 to $[illegible] of suitable [illegible] the ratio of [illegible] for the best [illegible].

ONE YEAR'S INTEREST IN ADVANCE,

at six per cent. [illegible] cent., payable [illegible] six years from [illegible] payable in [illegible] the contract stipulates that [illegible] years from [illegible] half shall be [illegible].

TWENTY PER CENT. WILL BE DEDUCTED

[illegible] at six

Pamphlets descriptive of the lands, climate, [illegible], can be obtained on application to

J. W. FOSTER,

Land Commissioner, Illinois Central Railroad,

CHICAGO, ILLINOIS.

For the names of the Towns, Villages and Cities situated upon the Illinois Central Railroad, see pages 188, 189 and 190 Appleton's Railway Guide.

THE

SOUTHERN PLANTER,

DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

VOL. XXI. [APRIL.] NO. 4.

EDITED BY

DR. J. E. WILLIAMS AND PROF. WILLIAM GILHAM.

AUGUST & WILLIAMS, PROPRIETORS.

RICHMOND, VA.
MACFARLANE & FERGUSSON, PRINTERS.
1861.

MR. LEFEBVRE'S SCHOOL.

Grace Street, Between 1st and Foushee, Richmond, Va.

THE next session of our School begins on the first day of October, 1860, and terminates on the last day of June, 1861.

In consideration of the almost unprecedented success that has attended our efforts, we cannot refrain from expressing our thankfulness to our many friends and patrons, and think we may be pardoned for briefly referring to some of the many advantages afforded, on which the permanent prosperity of all such institutions must ultimately depend.

The buildings are large and commodious, planned for the wants and requirements of a large Female Institution—and affording almost unequalled advantages for the comfort and convenience of our pupils. Only two young ladies will occupy the same chamber, except when three may prefer to room together.

The Principal has made female education the study and business of his life, and has now been engaged in successful teaching for upwards of twenty years; his assistants are well qualified and experienced, selected with especial reference to the branches under their charge, and sufficiently tried in this Institution to be referred to with entire confidence.

Our system of education is thorough and complete, and while the best facilities are afforded for perfection in the accomplishments of female education, the greatest care is devoted to insure the acquirements of sound, practical learning; the reason and judgment are exercised in preference to memory, and the latter, while not wholely ignored, is made subsidiary to and dependent on the former.

Our daily system consists essentially in close, searching examinations, careful explanations, and familiar lectures. The plan pursued for many years in instruction in the French department has proved eminently successful. It is the language of the family, and much time and attention is given—indeed every facility afforded—to enable those pupils boarding with us to acquire an accurate knowledge of, and to speak with ease and fluency, the French of common conversation. In this respect, we think our school possesses advantages which can only be equalled by few Institutions of the kind in the country.

Music, Vocal and Instrumental, Drawing and Painting, both from models and from *nature*, are under the charge of Professors eminently qualified in their various branches. Most of these instructors are employed to teach exclusively in our school, that by devoting their time and attention entirely to our pupils, every advantage may be afforded for the acquisition of these accomplishments.

Such rules and regulations are enforced as are calculated to promote the welfare and interest of all the pupils.

TEACHERS.

HUBERT P. LEFEBVRE, A. M., *Principal*,
Natural Philosophy, Literature, Moral and Mental Philosophy, French.
WILLIAM G. WILLIAMS, A. B., *Vice Principal*, Astronomy, Mathematics, Chemistry, History, Latin.
EDWARD C. HOWARD, English Literature, History, Reading.
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Sept 60.—tf All letters to be addressed to HUBERT P. LEFEBVRE, *Richmond, Va.*

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.

J. E. WILLIAMS, M. D., Prof. WILLIAM GILHAM, } EDITORS. { AUGUST & WILLIAMS, PROPRIETORS.

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For the Southern Planter.

A Premium Essay on the Practical, Economical and Profitable Management of a Farm of 300 Acres, devoted to the Cultivation of Corn and Wheat Staple Crops.

BY EDMUND TAYLOR.

[*Concluded from March Number.*]

When the fodder is ripe, it should be pulled and *tied* in such a manner as to leave an end to the withe of sufficient length to hang the bundle *on* the stalk, in the cleft where the ear shoots from the stalk. When these bundles are sufficiently cured, collect and shock; this is essential before stacking, as the fodder undergoes a sweat, and this should take place in the shock and not in the stack.

Tops to be cut at the usual time, and in the usual manner, but I would recommend a slight but *important* change in the usual manner of shocking the tops. The usual plan is to shock and tie them *around* a stalk of corn; this plan is objectionable, because it causes a loss of time in their removal. When this is done, the shock must be *untied* and then laid in parcels on the rope, or vine, for removal, thus consuming a good deal of time at each shock.

Instead of this plan, I recommend that the tops be shocked in the *middle* of the row, between the drills, and *not* round a stalk of corn. Thus, when they are to be removed, the hand lays his rope, or vine, along-side, and turns the shock immediately upon it—an instantaneous operation.

Blade-fodder is more valuable and nutritious than many suppose it to be, and ought, therefore, to be carefully preserved; slovenly stacks are an eye-sore to a good farmer. To insure this, I propose that the bottom of the stack, for a foot or two, be made of tops—as less valuable—and then the blades carefully stacked above, the stack to be furnished, for a foot or two below the apex, with tops also.

This plan effectually secures the blade and does not injure the top fodder. Any tops left after stacking the blades, can be ricked or stacked to themselves. If convenient, a bed of rails should be laid for each stack, and where these cannot be obtained, bushes form a good substitute.

Whenever it is practicable, both kinds of fodder should be stacked near the edge of a field road, whence they may be removed without injury to the wheat crop.

The management of the shucks cannot be described without explaining the mode of gathering and preserving the corn crop, and though the latter is not required by the schedule, yet I deem it important briefly to notice the subject. As soon as the corn is ripe enough to cut, which generally occurs about the time the fodder is properly secured, I advise the following plan as decidedly more expeditious than the ordinary one of chopping down the stalks with a hoe.

To a handle of some two or three feet in length—as the operator may prefer—attach a scythe-blade knife at right angles, to one end of the handle. This gives a kind of knife-hook, which being applied to the bottom of the stalk with the back of the knife touching the ground—to insure cutting the stalk close to the earth—and then jerked upward quickly and smartly, severs the stalk rapidly and effectually. The left hand of the operator grasps the stalk and throws it when cut into a pile like a top-pile, all ready for removal.

This plan saves time and labor, for under the common system of cutting off with the hoe, the stalks fall helter-skelter, and a set of hands is required to pile and straighten them before they can be removed. It saves the work of one entire set of hands, and a cutter will sever at least one third more corn in a day with a knife—such as I have described—than with the inefficient and tiresome hoe.

I prefer removing the corn to an adjacent field, if possible; this can generally be done on a small farm; if, however, it is found impracticable, I advise by all means to remove and shock it on the sides of the field road, and in the spring to seed the land thus occupied in oats. As soon as the wheat is seeded, the husking or shucking of the corn should begin.

On a small farm I would advise that the ear be pulled off *in the shuck*, piled and then shucked; securing the shucks in a rail rick covered with tops or straw, and putting the corn in pens to dry thoroughly before being housed. When the corn is dry, separate the good and bad, *measure* and house. In no case—on a small farm, where every edge should cut—omit carefully measuring the corn crop; you then know how much you have for sale, having previously ascertained the amount necessary for farm use.

While housing, select with care the largest and most perfect ears for seed, and keep them in an upper room or loft. With a small force, it may seem at the first blush almost impossible to shuck the corn in the way proposed, but by pulling off half the day and shucking the other half, the operation is easily accomplished. A man can readily shuck five barrels per day; in fact, I have

myself known men who were tasked at this rate, to finish their task by two or three o'clock. The farm hands and the manager—for he is expected to lend a helping hand at such times—making six in all, by shucking half the day, will husk fifteen barrels, or three hundred barrels in twenty working days.

Having fully, and I trust, distinctly discussed the cultivation and preservation of the corn crop and its provender, I shall now proceed to the wheat crop.

One of the 40 acre fields is to be fallowed for wheat, and this, with the addition of the corn land—also to be seeded in the same crop—will give 80 acres in wheat.*

The fallow should be made with three-horse plows, and immediately after threshing the wheat. It should be completed in July, *if possible;* certainly not later than the 20th of August. Other things being equal, early fallows are decidedly more productive.

In our climate, it is advisable to seed the wheat crop between the 20th of September and the 20th of October. If the time included in these dates is not sufficient, then I would recommend beginning on the 15th of September, so as not to continue the seeding under any circumstances beyond the 25th of October.

I would pursue the following plan in preparing the fallow for seeding:

Early in September the land should be stirred and thoroughly torn to pieces with the bull-tongue cultivator, and I would then follow on with the harrows, making the tilth fine and even and free from any oversized clods.

If necessary, the clod-crusher must be used to break hard clods that resist other implements.

Then use the drill, putting in one bushel and a half of seed per acre; an approved kind of white wheat preferred for fallow land. Some farmers think one and a quarter bushels enough, but I think the most successful wheat growers will sustain my opinion, especially where the *drill* is used.

It is a mistake to suppose that thin land requires *less* seed than rich. The reverse is the case, and for the obvious reason that thin land puts forth few branches, while rich land makes up for a deficiency in seed by its fecundity in this respect.

When the fallow is prepared and the drilling begun, I would turn to the preparation of the corn land.

Here again I would use the bull-tongue cultivator, running *across* the corn-beds. Lay off the rows with a stick or coulter for broadcast seeding, parallel with the direction of the corn rows and harrow in the wheat in the same direction. The harrowing to be done thoroughly by running twice in a row. The drill also may be used on corn land, by harrowing and then drilling. Many farmers prefer this to broadcast seeding.

I prefer an early red wheat for corn land, and would again recommend one bushel and a half per acre.

* If thought best, a portion of the corn land might be reserved for oats. For my own part, however, I am by no means partial to the oat crop.

I deprecate *reversing* corn land for wheat. The fall grasses—such as crab grass and fox tail—if turned under will *ferment* without *decaying*, and injure the wheat by throwing out a superabundance of acid. In addition to this objection, reversing the soil and turning under the fall grasses, is apt to make it too porous, and consequently subject to saturation from water and to spewing up, which exposes and eventually destroys the roots of the wheat.

The wheat should be cut as *soon* as ripe, avoiding shattering from *over* ripeness. The reaper to be used wherever available, and the wheat well bound and carefully shocked and *capped*.

Before proceeding further, and while discussing the cultivation of wheat—which shows the beneficial results of it more perhaps than any other crop—I propose to say a few words on the subject of draining. The subject is one of vital importance in the profitable management of a farm, and one that is entirely too much neglected in Virginia. The intelligent farmer, who is at all conversant with English farming, and the extraordinary benefits derived from a system of thorough draining in England, will need no demonstration to prove its utility.

Every farm should be efficiently and *thoroughly* drained by open and secret or underground ditches. The underground drains to be made of rock or tile, for the slovenly plan of logs rarely succeeds and eventually requires tearing up and repairing at great cost in time and labor. A firm bottom must be sought, and if not provided by Nature, an artificial one of thick plank must be constructed to receive the rock or tile.

Make the ditch *deep*, so deep that the plow can never touch or disturb the material used.

The ditch must be left open for sometime to ascertain if it is effective; and when filled in with rock, the upper surface of the rock should be firm and level as possible, and reversed sod, weeds or straw carefully laid on before the earth is thrown in. The earth then becomes firm and compact, and there is little chance of the interstices of the rock filling up.

Tile of course—as it acts by absorption—requires only careful laying and filling in.

Open ditches must be of sufficient width, depth and fall to carry off rapidly the ordinary, and as a general thing, the extraordinary supply of water.

Especial care should be taken to make open ditches as straight as circumstances will permit.

After a rain of any duration or violence, the open ditches should be examined and all obstructions to the free passage of the water removed, and all injuries to the ditch repaired at once. So much for general and primary draining.

I come now to special and superficial draining in its application to the wheat crop.

A plenty of drains should be run in all damp soils where wheat is seeded, this ought to be one of a farmer's axioms. Let them have ample slope and depth, and open well into one another and into the main ditches. The sides of

drains in wheat land, should be neatly and carefully smoothed down, and all falling dirt and clods thrown out of the drain itself. During the winter and spring, these surface drains ought to be examined occasionally and any obstructions removed and inefficient construction rectified.

I beg leave to call the readers attention to the following remarks on the subject of draining, which I find in a periodical of the day, and which present the whole matter—as it were—in a nut shell:

"One of the great hindrances to good tillage and productiveness, and often where it would not be imagined to be the case, is surplus water in the soil. This renders the land heavy, inclines it to bake and crack, and keeps it too cold for the roots of the crop. Besides, if much water must evaporate off the surface of the soil, this of itself occasions increased cold; but if drained away on, or beneath the surface, this cause of cold is in a large degree removed. A soil saturated with moisture, contains at least one fourth its bulk of needless water. Taking it to a depth of one foot only, this is equivalent to three inches depth of water; and this gives to every square rod eight hogsheads, and to an acre, not less than 1,280 hogsheads!

"Think, then, how much the farmer is losing who allows his soil to be chilled by evaporating so much needless water, the rooting of his crops retarded, and the powdery and porous quality of the land prevented to a corresponding extent. It has been calculated that the heat required to convert the surplus above supposed, on 100 acres to vapor, would be sufficient to boil 640,000 hogsheads of water, if properly applied.

"It will surprise the unthinking farmer, who has sweated and ached over his fields for years, thankful for very moderate crops, that one of the greatest obstacles to his better success has been all the while just such an undreamed-of circumstance as this, of too much water on his land.

"Still more will it surprise him to learn that the greatest need of draining often exists on what is called *upland*, but which may be cold till late in the season, and produce a stinted crop. Of such fields and farms there are tens of thousands in our country. They are deceitful, because the eye, and even the plow, does not always show their true character. They are already brought under excellent cultivation, perhaps, in every respect but this—they have too much water in them.

"Drainage of any kind is good, whether by ditches, mole, or tile—whether open or under draining. Wherever the latter is not forbidden by the condition of soil or some other circumstance, it is best. With hardly an exception, it enlarges the production of the land; it increases the yield of all manner of crops. It warms the soil, forwards the crop, and so protects against insects. Where surface streams are scanty, it collects from a large area, and discharges, at some practicable point, an artificial stream—a great advantage in some sections. It insures a gain in fertility, by inviting the rains, and what they wash out of the air, all downward, depositing their contributions in the soil, and not leaving

them to flow off the surface. It removes excessive dampness and stagnant water from beneath house, barn, and pastures, and so insures better health to the household, and to the domestic animals on the farm."

In reference to threshing the wheat crop, I would advise—where the force is small—that the wheat be first hauled together and stacked in each field. The machine I have already mentioned—combined thresher—then to be used.

With a small force as we have in the present instance, it will be necessary to stop time enough in the evening to haul and house the wheat in the barn, rick or stack the straw, and pen the chaff. It may be necessary to hire some help at this time and in harvest, although I am inclined to believe that with the assistance of the manager and the woman and girl—who must be extra smart and active at such times—the work may be accomplished without aid. But with the assistance of a hand or two, at least one hundred and twenty-five bushels of wheat ought to be threshed and housed per day, and the straw and chaff of the same properly secured. The chaff must be preserved in a rail pen well covered with straw, and both it and the straw should be secured against the depredation of stock by a temporary enclosure.

Let it be a rule never to thresh wheat in damp weather, and to be careful to spread it out as thin as possible in the barn, and to stir it up every day or two until all danger of heating is over. Before delivery, it should be passed through a good fan and completely cleaned of injured grains and all kinds of foreign matter. Once fanning is generally sufficient, when threshed and cleaned by the machine I have recommended.

Every three or four years the seed wheat should be changed, and new seed ought *always* to be procured from a locality *north* of any given farm.

It will be recollected that I have separated four lots of five acres each. The location of these lots should be near the farm buildings, and their cultivation must—in the light work—be chiefly done by the woman and girl in their spare time, aided of course when necessary by the legitimate farm hands.

One of these lots is to be cultivated yearly as a truck patch, for raising vegetables for the hands and stock. Peas, beans, rutabaga, common turnip, pumpkins, cabbage, carrots and sugar beets should be raised on this lot, to be followed in the Spring by oats.

I have said nothing as yet about the grasses and home-made manure; a few words on these subjects will illustrate my views.

All the arable land not in cultivation is to be well set in grass; I prefer a mixture of Clover, Timothy and Orchard grass. If one fails, the others will probably succeed; and thus, under all circumstances, a stand will be obtained.

Nothing is said in the Schedule of bought manures, but the use of plaster is clearly inferred, as grass cannot be successfully raised on other than meadow land, without the aid of this valuable and cheap fertilizer.

Grass seed should *always* be rolled in plaster previous to seeding. The best plan is to wet the seed and then mix with plaster. By this plan every seed be-

comes coated with it, and thus the "young and tender plant" carries with it its own food. I have scarcely ever seen the grasses fail when this plan was adopted.

I advise that one half of the required seed be sown in the fall and the other moiety in the Spring, thus taking a double chance for a good stand.

I would turn under some grass in a green state on the wheat fallow, but prefer the land to be well trampled, and the first growth of grass to be beat down and ground up before plowing.

To attain this object, I would not graze the field set aside for fallowing until the grasses were getting into the brown state, and would remove the stock a sufficient length of time before plowing, to allow the grass to spring up again to the height of five or six inches. To aid this resuscitation, apply a slight sprinkling of plaster.

All the grass land must be sprinkled with plaster in the Spring. If it is equally and properly distributed, a very small quantity will suffice.

The lots are to be seeded in grass when the oats are seeded.

The grass on fields to go in corn should be thoroughly trampled to pieces, and the field clean of grass before plowing.

Turning under *green* vegetable matter—to be buried during winter—is of no advantage to the corn crop. It does not rot, but breeds innumerable worms, which come forth in the Spring and effectually destroy all chance of a good corn crop.

Some farmers turn under cover by making each furrow-slice lean against another at an angle of 45°, and not reversed; but this is not only difficult to do, but is in fact *bad* plowing. I decidedly prefer the land to be completely *reversed*, and the turf to be thoroughly trampled and *breath-scented* by stock.

Under the divisions indicated and the system suggested, two of the forty acre fields, and two of the five acre lots, besides the three acres of meadow, will always be in grass; the fields and one of the lots I set aside entirely for grazing, while the other lot and meadow should be reserved for hay, to be grazed after the hay is cut and the grass somewhat recuperated. After the wheat and oats are severed and removed, two more fields and one lot can be moderately grazed to aid in supporting the stock.

In the application of home-made manure, I would most *earnestly* recommend that it be applied as a top-dressing during the Winter and Spring on the poorest parts of the grass land. It might be well, however, in case the corn land is not rich enough to bring a good crop or any required quantity, to manure the most indifferent portions in the hill, and thus—to use a vernacular phrase—"*make a cash transaction of it.*"

Experience all over the world—so far as I am informed—indicates top-dressing as the most beneficial and *economical* method of applying manure. The question of the application of home-made manure to tobacco, is of course excluded in this essay and entirely foreign to the subjects under discussion.

Though not required to touch on the subject, I deem it essential to a proper

discussion of farming interests, briefly to notice the management and contribution of stock to the profits of farming. It is unnecessary to say anything of their management during the season when they seek and obtain their food at will, but a brief notice of the sheltering and feeding time may not be inappropriate.

The lots should be constantly littered with cornstalks, and the racks—as I have already mentioned—must always be filled with food; in addition to this, I would recommend a regular supply of boiled or steamed food. Shucks now come into use. They should be cut up, mixed with chaff and the vegetable roots and pumpkins—also cut up—and a little meal added, then steamed or boiled in an ample supply of water. This wash given to cows morning and night, will keep them fat and add to their milk as effectually as the grasses do in the summer. I would treat the oxen to the same food, only reducing the mixture to a thicker compound than that given to the cows. Short corn may be used in this wash.

The sheep must be fed occasionally on chop, a little fodder or hay and raw-cut vegetables. The calves to share the commons of the sheep.

In good weather the stock should be driven to pasture every day to crop any grass that may be growing. This arrangement contributes to their health and gives them exercise.

In feeding stock of all kinds—horses and mules included—I would most earnestly advise, *never* to feed on corn in the natural state, but to use it in all cases, and under all circumstances, in the form of meal, and then to be mixed with cut food or chaff into a damp chop. Meal goes farther than corn, and is therefore more economical, it is more easily digested, and hence more nutritious. Oats should always but cut up in a cutting-box.

I would say a few words here to the young farmer. Should he, on taking charge of a farm, find it materially injured by the exhausting system pursued by his predecessors, let him not be dismayed by the difficulties before him. *These are not to be overcome at once.* Let him begin with a *system*, the best he can devise, and adhere to it for a time at least. If a suitable improvement is suggested, unless he can *substitute* it for something already determined on, it will generally be best for him to decline trying it until he has planned a new campaign. Many of these improvements are good in the abstract, and good for farmers differently situated from him; but, unless he can *weave it into his general plan*, he had better let it pass as an empirical crochet. Let him not forget however that Agriculture is no longer entirely empirical, but has become a science upon which many other sciences are dependent. Let him read, observe and enquire, and he will find "remedies for all the ills that land is heir to." Apply these remedies prudently and judiciously, and he will soon change the desert into a blooming garden.

I have now given a statement of all important matters connected with the management of a farm of the assumed size, and possibly done all required by the schedule; but I deem an estimate of the crop, income from all sources, and legitimate farm expenses—fairly made—to be a necessary addendum, in order

to place the whole subject before the intelligent reader in a clear and satisfactory manner, as well as to call the attention of the Virginia farmer to the greater comforts and greater profits—in proportion to size—of a small over a large farm.

Owners of large farms look to the *general aggregate*, while the owner of a small one is compelled, from the nature of things, to look to the *special* and *individual* results.

A man who cultivates *one* acre in corn, will, as a general thing, make more per acre than the man who cultivates five hundred acres of similar land in the same crop. The per centage, therefore, of crops, and of profits, upon a small, are greater than upon a large farm. This seems to be a wise dispensation of Providence, for if this was not the case, the poor man would find it impossible to sustain his family on his few acres.

Although I have carefully endeavored to make fair and just estimates, I wish the reader, nevertheless, to bear in mind the marked difference, in percentage, between small and large farms, to which I have already alluded. It must be manifest to every sensible man, that these estimates cannot be made in reference to any particular part of the State, but must be of a general nature, subject to such modifications or enlargements as may, in the opinion of farmers, suit their particular locality.

Let us now see at what the crops, expenses and profits, may fairly be estimated, assuming that the land is of fair quality.

We have stated that the number of stalks of corn to the acre—fractions in these estimates to be omitted—is 5460; estimating the amount of shelled corn per each stalk, at *less* than *half* a pint, gives us 7 barrels per acre, and 280 barrels for the 40 acre field.

The wheat crop, on the two fields—80 acres in all—estimated at 15 bushels per acre, gives 1200 bushels for this crop. Nine cows, estimated to yield less than half a pound of butter per day, per cow, or say, four pounds a day for the 9 cows, will give us 1460 pounds of butter annually.

With a good breed of hogs, careful attention, and the feeding of the unconsumed buttermilk to the pigs, it is fair to say, that at least 35 hogs should be annually slaughtered, weighing an average of 175 pounds each, and 6125 pounds in the aggregate.

Forty Merino sheep ought to yield a clip of four pounds of wool each, or 160 pounds for the flock.

Making allowance for accidents, and a few for the manager and hands, there should be 30 lambs and 5 veals for sale each year.

Now let us see what amount of these products is required for farm use; what amount to be sold, and the average prices; what the expenses of the farm and the balance in money.

I deduct 150 barrels of corn for farm use. This allows 2 barrels for each hog slaughtered, or 70 barrels for hogs; 32 barrels for meal, an average for each man of 1½ pecks per week, and for the women 1 peck; and also 2½ pecks for

the manager. This leaves 48 barrels for seed and for the stock, in addition to the oats and refuse grain. Taking, then, 150 barrels from 280, leaves us 130 for sale, which, at four dollars a barrel, yields $520.

Deducting 200 bushels of wheat for seed and for flour, for the manager and hands, and we have 1000 for sale, which, at one dollar and twenty-five cents per bushel, gives us $1,250.

Reserving 1500 weight of pork, for the use of the farm hands—over 4 pounds a week for each hand—and 500 weight for the manager, 2000 weight in all, and we have 4125 pounds for sale; this, at 8 cents per pound, gives us $330.

One hundred and sixty pounds of wool, (Merino,) at 40 cents per pound, yields $64. Thirty lambs, at two dollars and a quarter each, gives us $67. Retain 260 pounds of butter for the manager and hands, and we have 1200 for sale, which, at 20 cents per pound, gives $240.

Five veals, at $5 each, will bring $25.

Adding these sums together, we have $2,496 as the aggregate amount of sales.

Now let us note the expenses: Manager's wages $150, wear and tear, clothing, plaster, grass seed, taxes, blacksmith's account and medical bills, &c., &c., estimated at $346. This leaves a nett balance to the owner's column, of profits, of $2,000, which is 10 per cent. upon $20,000, or a fraction over 6 per cent. upon $33,000.

When it is borne in mind that I have excluded the lard, extra vegetables, poultry and fruit, from these estimates—which may be applied to the column of profits, or to farm expenses, as the reader prefers—I think even the most skeptical reader will admit that my estimates are in the bounds of reason and probability. It is scarcely necessary to suggest to the intelligent farmer, that these profits might be greatly augmented by the judicious use of the bought fertilizers.

A very distinguished author has observed, that "it is pleasing, with the elder Pliny, whose judgment is sanctioned by Leibnitz and Gibbon, to believe that scarcely any book was ever written, (not positively immoral,) which did not contain something valuable; some contribution, however small, to the general stock of human knowledge, and still preserved, in other forms, for succeeding ages, though the book itself, like its author, had become food for worms; or something which tended to mould and influence some contemporary mind, destined to act with greater power on distant generations."

May I not, then, hope that some of the suggestions contained in this essay, will prove beneficial in some quarter to the agricultural interests of our dearly loved State? I trust it may be so, for I shall feel far more satisfaction in contributing, however humbly, to the advancement of "the nursing mother of the arts," than in coming off victor in a hundred contests, either in the Literary or Agricultural arena.

NOTE.—We are requested by the author to inform the reader, that the strictures on the use of the "*Rafter Level*," in that portion of the foregoing essay contained in the March

number of this Journal, were not intended for that instrument, but for another, known as the "Horizontal Level," the name of the former having been inadvertently inserted instead of the latter. We commend this admirable essay to the careful consideration of our readers, who will, no doubt, cheerfully unite with us in the expression of the hope, that the pages of the Planter may be frequently enriched by communications from one so competent to enlighten and instruct the brotherhood of farmers on subjects pertaining to practical Agriculture.—[Eds. So. Planter.

Notes of a Microscopical Examination of "Measled" and other Pork.

By William Smith, F.L.S., *Professor of Natural History, Queen's College, Cork.*

The subject of the present paper has of late excited much attention in this locality, the trade of the port of Cork and the industry of the neighboring counties being immediately connected with the produce and export of provisions, a main portion of which consists of cured pork.

The disease in pigs popularly known as "measles" (though without any resemblance to the complaint bearing the name in the human subject) is one of frequent occurrence in the South of Ireland, and as its presence in the flesh of the animal is usually regarded as detrimental to its value as an article of food, the market-price of the commodity is thereby lowered, and the profits of the producer proportionally diminished.

Questions connected with the supply of provision to the Crimean army having called increased attention to this subject, an attempt was lately made by the provision-merchants of Cork to arrive at more certain conclusions respecting the nature and extent of the disease, and its precise influence on the character and condition of the flesh affected by it.

Having been invited to assist in this research, by reporting on the microscopical appearance of the disease, and the meat affected by it, the following notes of a careful examination of fresh and cured pork, supplied to me, were my contributions to the inquiry:

The facts noted are not new to science, the subject having attracted the attention of several German, French, and British physiologists, and the results of their investigations being for the most part similar to my own.

The matter has not, however, been discussed in the *Micr. Journ.*, and the following record of independent observation, and personal inquiry, may interest the readers of this magazine, and possess corroborative value when taken in connection with the more important investigations of other naturalists.

Nineteen specimens were supplied to me, viz.:

6 of healthy fresh pork from various parts of different pigs;
6 of fresh muscle, "slightly measled;"
6 of fresh muscle, "badly measled;"
1 of cured pork, "badly measled."

The "measles" are occasioned by the presence of a parasitic worm, known to physiologists and anatomists as the *Cysticercus cellulosæ*.

This worm, as it occurred in the muscle or flesh of the pork supplied to me, consists of an external bag or cyst of delicate rugose membrane, enclosing the animal of the *Cysticercus*, retracted within its folds; the space not occupied by the worm being filled with a clear watery fluid.

Pl. II. fig. 1, represents the natural size of the "measles" in fresh muscle; fig. 2 the same in stale or salted pork; and fig. 3 the same from fresh muscle, magnified 6 diameters.

The animal of the *Cysticercus*, when withdrawn from the cyst, within which it lies invaginated, and curled up, in all the specimens, consisted of a slightly enlarged head, fig. 4 *a*, and a neck formed of numerous rings, fig. 4 *b*, gradually enlarged into a bladder-like vesicle, fig. 4 *c*, which constitutes the body of the worm.

The neck and body of the *Cysticercus*, are filled with a mass of minute transparent bodies, which a further examination leads me to regard as cellules discharging the function of assimilation, *i. e.*, the material endosmosically absorbed by the cyst and bladder-like vesicle into the substance of the *Cysticercus*. The form of these cellules is usually that of a flattened circular disc, and their average diameter one fifteen-hundredth of an inch, but neither their size nor form is constant, some being linear, other irregular in outline, and many not exceeding one three-thousandth of inch in diameter.*

The head of the *Cysticercus*, is provided, at its extremity, with a circlet of about 24 hooklets (fig. 5 *a*), immediately beneath which are situated 4 circular organs (*b*, *b*), afterwards more fully developed in the mature condition of the *Cysticercus*.

The hooklets upon further examination with higher powers of the microscope, are seen to consist of a stem fixed in the flesh of the head (fig. 6 *a*), a barb (fig. 6 *b*), and a sickle-like point (fig. 6 *c*).

The *Cysticercus*, as above described, constituting the "measles," is embeded *between* the fasciculi of the muscle, and occupies a chamber formed by the inflation of its cyst.

The cyst which in a fresh state fills the entire chamber, on the death of the pig parts with its contained fluid, which permeates the surrounding tissues.

The chambers then collapse, and the muscle in consequence becomes soft, and flabby to the touch.

The "measles" in the specimens supplied to me were all visible to the naked eye, the cysts when inflated being of an elliptical form, and having an average length of about one third of an inch.

The coil of the enclosed worm was nearly globular, with an average diameter of about one tenth of an inch.

* [These elliptical bodies are composed in most part of carbonate of lime, and would appear to be intended more for the purpose of giving greater firmness or solidity to the part of the entozoon in which they occur than for any other function.—*Editor's Microscopical Journal.*]

In the slightly "measled" pork the size of the worm was often less than in the "badly measled," but in every case the *Cysticercus* seemed to have reached the same degree of organic growth, and in none of specimens, "healthy" or otherwise, could I detect the slightest trace of the animal in an earlier stage of development. Had the eggs, or young animals, existed, they could not have escaped my notice. In the specimens marked "healthy" there was no trace whatever of the *Cysticercus*.

The muscular tissues at a little distance from the cysts did not present distinct alteration in their normal and healthy character, but in the immediate neighborhood of the cysts there were evident traces of the altered or diseased condition of muscle known to physiologists under the name of "*fatty degeneration*." Where the "measles" are numerous, *fatty degeneration* would be proportionally great in comparison with the amount of healthy muscle.

In the salted specimen the cysts were empty of fluid, and the "assimilating cellules" in the body of the worm had become somewhat opaque, presenting a central granular nucleus instead of the clear transparent appearance noticed in the fresh specimens I conclude from this that the life of the *Cysticercus* is destroyed by the process of "*curing*." Fig. 7 shows the appearance of the assimilating cellules in the *fresh*, and fig. 8 in the cured specimens.

It is maintained by the most eminent physiologists of the present day, that the *Cysticercus* of the pig is the "scolex," that is, the intermediate or arrested condition of the "*Tænia solium*," or tape-worm of man and other mammalia.

The organization of the *Cysticercus*, as above described, goes far to establish this opinion, and direct experiments instituted upon dogs and other quadrupeds fed upon fresh "measled" pork seems to place it beyond a doubt.

In the present case there was neither time nor opportunity to verify by direct experiment.

The history of the early condition and future development of the *Cysticercus*, the pathological and hygienic deductions to be drawn from the above observations, and their bearing upon the wholesomeness or otherwise of fresh, cured, or cooked "measled" pork are questions which appertained to the branch of the inquiry entrusted to my colleagues; I may, however, observe, that the microscopical examination here detailed would lead to the conclusion that the presence of the *Cysticercus* in the numbers which occur in "slightly measled" pork does not appreciably affect the healthy condition of the muscular fibre, and that it is only when the numbers of this parasite are considerable that the degeneration and watery condition of the muscles become apparent; and as it further appears that the operations of curing, or cooking, destroy the assimilating powers of the cellules, and consequently the life of the *Cysticercus*, it would seem that no apprehension need be entertained of tape-worm following the use of "measled" pork provided the flesh be carefully cured or thoroughly cooked.—*Veterinarian.*

Never refuse instruction.

Talk About Sheep.

"Our best mutton now comes from Kentucky," was the reply of a seller in Quincy Hall Market, in Boston, to our inquiry during the last November, as to the supply of Boston market with meats. The English steamers bring across the ocean, we are informed, a portion of the mutton served up in the fashionable hotels in New York. It is notorious, that while in England, mutton furnishes a large proportion of the animal food of those who are fortunate enough to see meat upon their tables; in America, where we fancy nobody is too poor to be abundantly supplied with the best of food, there are large sections of the country given over to "hog and hominy"—where a mutton-chop or roast leg of mutton is unknown, and even Beacon Hill in Boston, cannot spread her elegant and hospitable table, without a contribution from the rich pastures of Old Kentucky. The yankee notion seems to be that sheep were made to bear wool, but all through New England, where the farms are old, and the land is comparatively poor, of late the opinion is gaining ground that it may be profitable to copy our mother England, and give more attention to producing sheep that may yield the double crop of food and clothing.

Great Britain is the model agricultural country in the world, producing now an average crop of twenty-eight bushels of wheat to the acre, while the average crop of the United States, by the census of 1850, was but nine and one-eighth bushels to the acre, and the average crop of France, naturally a better wheat country than England, is estimated at thirteen and a half bushels to the acre. Sheep-husbandry is the foundation of British agriculture. Mr. Webster returned from England impressed with this fact, and, both in public and in private, advocated something like their sheep and turnip system for our country.

England proper, with an area something less than that of Virginia, is supposed to contain forty-five millions of sheep, producing annually two hundred and fifty million pounds of wool. In a pretty thorough examination of English agriculture in 1857, we did not see the flock of Saxony or Merino sheep, or of any breed which with us would be reckoned fine woolled. We attended several county shows of animals, as well as the exhibition of the Royal Agricultural Society, and found the sheep-pens filled only with animals of the coarser grades. It is an interesting inquiry why the coarse woolled sheep should alone be found profitable in England, while in America attention is given almost exclusively to the fine wools. There is, however, no great mystery in the matter. Thus far, America has pursued the only course possible for her, but it is at least doubtful, whether, in many parts of her wide domain, the time has not come for a change in her policy, by the adoption of breeds with reference, in part at least, to the production of meat.

We are fully aware of the difficulties of discussing this subject in a journal having a circulation as well in the cold North, and long settled New England states, as in the fertile prairie regions of the West, and in the milder of the

South, yet there are general principles which eventually must control the whole matter, and some of these it is my purpose to discuss. It is obvious that where the market is remote, and where feed is abundant, as in Texas, and the new states of the West, and in Australia, wool must be the main object of the grower, because wool is easily stored, and light of transportation, and nice calculations as to the cost of keeping are unnecessary, while meat could find no market; and indeed the unlimited supply of pasturage at trifling or no cost, renders it for the interest of the owner of the flock to increase as rapidly as possible its numbers, and of course forbids the slaughter of any. On a given farm of limited extent, on the other hand, as in New England, where the winter is long and severe, the questions presented are nice, and of difficult solution. Here the railroad is at every man's door. The demand for meat is uniform and beyond the supply at reasonable prices. Every acre of pasturage, and every pound of hay has its market value, and the success of the farmer depends upon his converting the products of his farm eventually into cash, so as to bring him a reasonable profit for his labor and capital; and at the same time maintain the productive capacity of his farm. The practices of new settlers, who cut and burn off the primeval forests, and crop the land, year after year to exhaustion, with Indian corn and wheat, have no claim to the name of agriculture. This is only a system of plunder—a development of the resources of the soil, by taking out of it its life blood and sending it away to market.

The feeding upon the unocupied lands of a new country, although not like these, ruinous and exhausting, is a mere pioneer operation, temporary from its nature, and not therefore to be considered, when inquiring into the merits of a permanent and self-compensating system.

We see in England a constantly improving agriculture. The land, instead of becoming exhausted, after centuries of cultivation, now yields greater crops than ever before. Instead of becoming poorer, like many American fields, so as not to produce a crop of wheat which repays the labor of a half cultivation, many English fields under modern high farming, produce forty or fifty bushels of wheat to the acre, and are cropped contrary to the general principles of their husbandry, with two white crops in succession, because they are actually too rich. It is a complaint with the brewers that the best farmers produce a crop of barley too heavy, per acre, to be best suited for malting purposes.

Sheep husbandry, as has been said, is the basis of the English agriculture. It not only sustains the farm in increasing fertility, and renders it productive of crops to be sold, such as wheat and barley, but returns a profit of itself.

The farmers with whom we conversed, uniformly declared that they considered it a satisfactory result, in stall-feeding bullocks, if the increased value of the animals paid the actual cost of their food, the manure being all they expected to gain; while all seemed to agree that the sheep leaves them a profit in wool and flesh in addition to the expense of keeping.

That it may be clearly seen how conspicuous a character the sheep has become in

British husbandry, a brief sketch of the general system of the agriculture of that country is essential. The old four-course or four-shift system of England had its origin in Norfolk County, but has spread over the whole country, modified indeed by circumstances, but still remaining the basis of English husbandry. The lands of England, it will be borne in mind, are not usually owned by those who cultivate them, but are leased by the large proprietors, in farms varying from one hundred to one thousand or more acres each to the farmers, who are often men of large capital, and of good education and training for the business.

Holding either by written leases, or by customs equally definite and obligatory, the farmers are bound to a systematic course, usually very similar, over a county or wide district of country.

The regular four-course system divides the arable land into four divisions nearly equal, cultivated alternately with turnips, barley, "seeds" and wheat. The third crop, which they call "seeds," is a crop for green fodder, usually clover, rye-grass, or vetches, called also tares. This system provides, it may be observed, for two white crops, barley and wheat, which are sold, and two green crops, turnips and seeds, which are consumed upon the land The great problem of husbandry is, to consume enough upon the farm to preserve its fertility, and at the same time, to sell enough of its produce to pay a fair rent and the cost of labor, tools and other expenses of maintaining the farm and the occupant with his family.

We had intended to sketch in a few lines, the common four-course system of England, but find that it cannot be summarily disposed of. Without a clear idea of this system, the management of sheep in that country cannot be at all understood; and we will therefore in a future number describe the course of this husbandry, with sufficient minuteness to render manifest the importance of the sheep, and show how that humble animal is made not only to support herself but the farmer and farm. If we cannot adopt their management in full, we surely may gain many useful hints of practical value, and combining what is valuable from abroad, with what has been learned at home, we may create a system adapted to the various and varying wants of our country, so diversified in soil and climate, yet nearly all of it adapted to sheep husbandry.—*American Stock Journal.*

BELLE CLARKE was reading of some men starting into the field "with their hoes on their shoulders." But, being a city girl, and better acquainted with another use of the word, she thought it were "the last place where she would think of carrying *her stockings*."

Two old ladies, who we knew to be of the same age, had the same desire to keep the real number concealed; one, therefore, used always upon a New Year's day to go to the other, and say, "Madam, I have come to know how old we are to be this year."

For the Southern Planter.

The Culture and Management of Tobacco.

[*A Premium Essay.*]

Tobacco has for some years past engrossed the attention of a large portion of the agricultural community of this State and North Carolina. The counties of Henry and Pittsylvania, and some parts of a few other counties in this State, and Caswell and Rockingham in North Carolina, have far surpassed any section of the United States in the producing of an extra fine manufacturing article; and although it must be confessed that the lands of this section are better adapted to the production of this commodity, yet we have seen lands suited well for making fine tobacco where only a very common article was produced. Believing, therefore, that a great deal depends on the management, and that the finest crop on the hill may be butchered and ruined by bad management, we will in this article give such directions as are backed by practical experience, and will venture to assert that no manager of the weed will lose anything by following the path here laid out before him. First, then, we will begin with

THE KINDS OF TOBACCO.

We have no hesitation in asserting that there is a very great difference in crops, managed in the same way, arising from the different kinds of tobacco planted.

The two kinds most used in this section are the broad and narrow leaf Oronoco. The latter, though rather an uncertain crop, owing to its liability to spot, is of by far the finest texture, and will ripen at least two weeks sooner than any other article grown in this section. It is liable to the objection of being rather small for wrapping, and when planted on very rich land will, if the season is at all wet, be almost certain to fire up; but planted on moderate new land, or kind grey old land, it will produce a finer and sweeter article than any other kind. It is very heavy, and will outweigh a larger plant of the other kinds.

The broad leaf is very desirable for wrapping, and when not too large will make a very pretty article, but its texture is decidedly coarser than the other, even on the same land. The leaf is thinner, the veins coarser, and it is to a certain degree lacking of that oily richness which the narrow leaf possesses. It is much less liable to spot, and therefore can be grown on stronger land. The other kinds, we think, are about equal in all respects; while some possess one desirable quality, they also possess many objectionable ones. There is a kind now greatly used in our county which seems to be a mixture of the broad and narrow leaf Oronoco, which is very desirable, and our experience is that it should be cultivated, for it loses many of the objections of both by the mixture; and while it loses some of the good qualities, it is, upon the whole, a very fine kind of tobacco. It will be observed by what has been said, that neither this nor the narrow-leaf proper, is fit for any other than a fine manufacturing article.

SAVING SEED.

The earliest and most promising plants should be turned out for seed. These should be pruned of everything except the large leaves, and only the two topmost branches left to bloom.

The plant should be carefully suckered as the rest of the tobacco, and about the first of October every pod, not thoroughly ripe should be plucked off and the seed cut off and put in a dry place to cure. When dry they should be rubbed out and sifted, and put up in some dry vessel, such as a dry gourd, and kept where no dampness can get to them. Seed preserved in this way will keep ten years.

SELECTION AND PREPARATION OF PLANT-LAND.

We prefer a gentle slope, with a southern or south-eastern exposure, a rich grey soil, remote from any field or other opening if it is possible. We never yet have known any other land absolutely certain for plants. While some years plant-beds in the field may turn out well; yet the utmost precaution, other years, will not be sufficient to keep the insects from devouring them. While, if the beds are in the woods, they are very rarely found by the fly, and scarcely ever injured to any great extent. We never knew a bed in the woods, properly selected and properly managed, to fail. We have seen some land in second growth of pine to produce plants admirably, and as far as our experience goes, some of the very best is this kind of land. But a bed in an open field is never certain. This is the conclusion of years of practical experience, which, to us, is worth all the slip-shod theory ever published.

Avoid land that is too wet, for on it your plants, though they *may* eventually come, will very generally be too tall, and a hill-side be damp enough, if it is in the woods, and the plants will be at least three weeks earlier. Red land, no matter how rich, is uncertain, and should be avoided.

After a piece of land has been found, select a dry time, from the 1st December to the 1st February—the sooner the better—and after raking off the leaves lay down skids about three inches in diameter and about three feet apart, across which lay down a bed of wood five or six feet wide, and high enough to burn about an hour and a half, and then leave a sufficient quantity to move, so that there will be no difficulty in kindling after the first time. When it has burned enough, move the fire about as far as the width of the first layer, then throw on brush and a good bed of wood, and so on. Brush adds greatly to the burning of the fire, and must be used with every layer. Every farmer ought to provide himself with iron hooks for pulling plant-bed fires. There may be such a thing as burning land too hard, but we give it as our opinion that where one bed is injured by hard burning, ten are injured for the want of it. We have heard a great deal about raising plants with guano, and without burning, but in every case we have witnessed it proved a signal failure, if the spring was at all a dry one. We have seen the most carefully prepared bed without burning, by the side of well burnt beds, and receiving double the attention of the other, prove worthless,

while the burnt beds were good. Therefore, we advise, with the present lights, that no one shall leave the old way so far as to miss a crop of tobacco for want of plants.

We think, that for every ten thousand hills to be planted, there ought to be at least ten yards sqare of plant-land. A bed ten yards square will plant more than ten thousand, if it is good; but it is much better to have some for your neighbor than to be under the necessity of begging plants.

After the land has been well burnt, it should be allowed to lay until the first or second week in February, so that the rains and frosts may have the effect of pulverizing the land as much as possible; then, with mallock, dig up the land so as not to turn it over at all; and, with hilling-hoes and rakes pulverize the land thoroughly, remove all the roots, and if the land is thin, sprinkle a light coat of stable manure, (clear of grass seed,) and chop it in and rake again, and the bed is ready for sowing.

We think a large table-spoonful of seed to the ten yards square is full enough. The seed should be carefully mixed with nice sifted ashes, about half the seed sown over one way and the other half sown by walking across the first sowing. By this the seed will be more regularly sown. After the seed are sown, the land should be lightly raked and rolled or trodden until it is smooth—and now is the time to manure. Along in the fall there should be some stalls in the stable cleaned out, and the horses kept in them should be fed exclusively on corn and fodder, and no litter of any kind be put in. The manure from the horses should be suffered to collect and remain until you wish it for plant beds. It should then be chopped fine and sprinkled a little more than half an inch thick regularly over the beds. This manure should not be suffered to get wet until it is used. This should be the last manuring, unless the spring is very dry, then a light top-dressing once a week would be beneficial. As to the use of guano on plant beds, we are not prepared to recommend it as highly as stable manure. It has never acted for us as well, and we see no use in trying it, when we can so easily get a better article out of our stables. We like to try experiments, but do not think it safe to venture too far from the good old way, until experience has taught us the new way is better. We have known men, sensible in all other matters, to trust their whole crops to unburnt guano beds, and have uniformly known that they were plant-beggars, and very considerably cooled in their zeal against old fogyism.

We will add, that in the absence of stable manure, a light top-dressing of plaster will be of service; but if you have good stable manure "let well enough alone," for if the direction as to land and management be followed, there is about as much chance to fail in plants as there is to fail to go to sleep at night after burning land hard all day.

About the 1st of March the beds should be re-trod and carefully covered with straight fine twig-brush. Dogwood is the best brush, owing to the fineness and thickness of its twigs.

The brush should never be removed until the plants are large enough to pretty well cover the land. There are few circumstances under which a plant-bed, in the right locality, well burnt and manured, should be watered. We are disposed to think that watering is generally a disadvantage, unless the spring is very dry.

PREPARATION OF NEW LAND.

The first thing is to take up every growth not too large to grub, and throw these in heaps, then cut the smaller trees, the brush of which throw on the grub-heaps, and then the larger timber. The brush of a new ground should, if possible, be carried to gullies and galls; but, if this cannot be done, the old way of burning, though objectionable, is the only alternative. After the ground has been raked and cleaned off, it should be coultered at least three times, which, if well done, will be sufficient; then laid off and hilled. The hilling is very important, for a plough in new land will not prepare it right, and "whatever is worth doing is worth doing well." The manuring of new land, though troublesome, pays well. We would always recommend for it to be applied in the hill, if the land is rough, as broadcast will waste a great deal of manure the first year. It may be broadcast the second year. Thin ridge-land will produce a beautiful crop with a table-spoonful of guano to the hill. The second year it may be manured as other land, for if the first year's work is done well, it will be prepared to receive manure broadcast. The hilling of new land may be done at any time after March.

OLD LAND.

It is useless to think of making a fine article of tobacco, with manure, on stiff, red land, for though it may be strong enough, it will be too slow in the first place; and in the next, it will grow the plant, as the negroes say, of a "greasy green" colour, and though it may be cured, with very great patience and labour, of a tolerable colour, yet it will not be fine. A grey, gravelly soil, with manure, will make a fine article of tobacco, if the manure is properly applied. On common corn land, the application of two hundred pounds of good Peruvin guano, to the acre, will insure a fine crop, applied broadcast, but if the present crop is the object, it may be made by half that amount applied in the hill. We have succeeded well by the application of guano in drills. After the land has been thoroughly ploughed, lay it off in rows, three feet apart, and in these rows strew the manure, and with a small one-horse turn-plough, make beds on the rows, so that the manure shall be immediately under the bed, and then hill the land nicely. We think all upland ought to be hilled. About one hundred and twenty pounds guano will be enough to the acre when drilled.

CULTIVATION.

The main secret in this, is to keep the land clean and well stirred. In new land this may be done by two good workings in the proper time. If the land is freshly hilled, about two weeks after planting the hills should be scraped down and a little fresh earth put to each plant; about three weeks after this it should

be hilled up, and in ordinary cases this will be sufficient, except to keep down the sprouts that may put up. Tobacco ought not to be worked after topping, as it will break the leaves, beside making it too late. If the crop be planted in right time, (say from the 20th May to the 5th June,) it ought to be "laid by" certainly by the 1st of August. Ploughing smooth, new land once (at the last working) is of service, but if it be rough and stumpy, keep a plough out of it altogether.

CULTIVATION OF OLD LAND.

Old land should be planted as early as the 20th May, if possible. It requires more work than new land. As soon as the plant gets sufficient hold, it should be ploughed and worked with hoes, and should never be allowed to remain more than two weeks without working until it gets in the top, and the work every time should be well done.

TOPPING.

This should begin as soon as there is a sufficiency of plants large enough to make a respectable topping. In an early crop, large plants may be topped to ten and twelve leaves, from about the 20th of July to the 1st of August; but after that time no plant should be topped to more than eight leaves, to make fine tobacco. The priming should be according to the plant, but never too high. As a general rule, four or five of the bottom leaves should be pruned off. We have no faith in topping tobacco to fifteen and twenty leaves, with the expectation of making a fine article. It will invariably be too thin, and though it may be cured yellow, it will be wanting in strength and sweetness. The low leaves will never ripen with the top ones. In many sections of the State, the very mistaken idea prevails, that all yellow tobacco is necessarily fine. It is known to all good tobacco makers, that a half-ripe plant is as easily cured yellow as a fully ripe one, and it is also known that its the meanest chewing tobacco that ever was made. By high topping a yellow crop may be made, but a fine one, never. It is like the Irishman's persimmon, "it is pretty to look at, but, *faith*, 'tis bod to the taste."

Tobacco topped to just so many leaves as that each leaf may get fully ripe, and when cured, of a rich yellow colour, possesses beauty, sweetness and flavour. It will please the sight, the smell, and best of all, it will give entire satisfaction to the chewer. It is also a very mistaken notion that fine tobacco can be made on rich bottom land by topping high. If you wish to make fine tobacco, do not plant land rich enough for shipping tobacco. A crop that will average less than six plants to the pound is too large for manufacturing purposes.

SUCKERING AND WORMING.

This should be done at least once a week, and if the worms are numerous, twice would not be too often. The process is understood by every man that ever made a plant of tobacco, and all that is necessary to say is, to do it well. Destroy

every egg than can be found, and send the little negroes to the Jamestown-weed patch every evening, about sunset, to kill tobacco flies.

CUTTING.

By the middle of September, if your crop has been planted early, it will be fit for cutting. Never cut immediately after a rain, if you can possibly help it. We will give several modes of cutting: First, if the weather is settled, commence about two hours before sunset, and cut until night. It will not fall at all until the sun breaks out next morning. As soon as the sun has limbered it just enough to handle, pick it up and put in heaps, or stacks, as they are called, beginning with a handful of ten or twelve plants, set with the stalk as straight up as they can be made to stand, and the leaves slightly tucked on the ground. Then, with other handfuls, set around so that each handful shall bear its own weight. When all the tobacco near the spot is set up in this way, have the stack covered with bushes, so that the sun cannot burn the out-side, and as soon as it is all packed up, have it hauled to the barn-door and scaffolded.

If the cutting is put off 'till morning, manage in the same way, and always be sure not to let it get too limber; for it is impossible to haul limber tobacco without bruising it, when too limber, and a bruise, so far as it extends, is as bad as a frost-bite. Another mode for cutting is, for two hands, each cutting two rows, and a third hand, with a tobacco stick between them, and as they cut the plant, instead of laying it down, to throw it across the stick held by the hand between them. As soon as the stick is full, it is laid carefully down, and suffered to remain until it is limber enough to move. It is then carried to the scaffold on wagons, care being taken to pack it so that it will not bruise. This is a very swift way, and will do if the barn is not too far off.

SCAFFOLDING.

This should always be done at the barn-door. The scaffold should be made with the poles pointing to the door, so that there is no necessity of walking across them. It should be made just high enough for the tails of the tobacco to touch the ground, to prevent the air from passing under, and if the weather be mild, the tobacco may be suffered to remain on the scaffold until it is sufficiently yellow for firing; but if the weather is cool and windy, the tobacco should be put in the house as soon as it is cut. Wind will disfigure the finest tobacco in a very short time, and make it look very common. After the 1st of October, it is best to house immediately.

When the weather is favourable for yellowing on the scaffold, it will generally take from three to five days, according to the colour of the plant on the hill. In the house it will take longer to yellow, and will take greater care to cure it so. But it can as certainly be cured yellow by housing from the hill as by scaffolding, but we are disposed to think that it is not so sweet as when it is suffered to yellow in the sun.

CURING.

There are only two modes by which fine manufacturing tobacco can be cured, viz: by flues, and with charcoal. We do think that to cure tobacco with chunks is a disgrace to the tobacco-making community. It has been totally abandoned in all the fine tobacco-growing sections; and as for sun-curing, we have very little faith that a pretty article can be cured in that way. The process of curing with flues is certainly more simple, a greater saving of time and labour, and of more certain success than any other known. In some sections the stone for building flues cannot be procured, and we recommend as next best, the curing with coal. With flues, we recommend, that as soon as the tobacco is yellow enough on the scaffold, that it be put in the house, the sticks about six inches apart, and if the barn is clear of dampness, and the tobacco dry, it may be cured, stalk and stem, in twenty-four hours, if the flues are properly constructed. Nothing is necessary, when all this is the case, but to heat the flues as quickly as possible. The door should be left open for the first eight or ten hours, or until the leaf begins to crook, after which no heat, short of bad scorching, can hurt the tobacco. But if the tobacco is damp and clammy; the flue damp; the floor of the barn moist, the tobacco should be put in at least thirty-six hours before it is yellow enough for hard firing, and slow drying fires be applied until the barn is dry, by which time the tobacco will be sufficiently yellow; then fire as before directed, and in no case slacken the fires, after the flues are heated, until the tobacco is thoroughly cured, stalk and stem.

If the tobacco is to be yellowed in the house, it will be best to build a small fire in the flues once a day, so as to create about Summer heat, and never more until you begin to cure. It will take a good deal of patience and care, if the weather is cool. If it is warm and pleasant, it is best not to put fire to it all until you begin to dry off. Care should be taken not to let tobacco, housed from the hill, get too yellow, for the dampness will be almost certain to turn it red. A day or two before it is yellow enough for curing it should have drying fires, not enough to cure at all, for if it commences to cure, the best plan is to keep it on, as to spot it is certain to ruin it.

Curing with coal is done by the same process. The coal will raise a heat much quicker than flues, and care must be taken not to heat the tobacco too suddenly. Flues cannot be heated too suddenly, for under the best circumstances it will take three or four hours to get them hot, and if the tobacco is right for firing, this is gradual enough.

CONSTRUCTION OF BARNS.

We believe in small barns for any kinds of curing. A house built 16 feet inside and divided into four rooms and six tier high in the body is the preferable size for flue or coal curing. For flues they should be built on a very slightly sloping place; just enough to make the flues draw well. Flues four inches lower at the eye than the chimney will be slope enough.

The door should be always between the flues and in the end of the house, to prevent the drip from falling before the door and the eye of the flues. The tiers should begin eight feet above the ground and be placed two feet above each other to the top. They should be placed across the house so that the roof tier can conveniently be placed above them. The door three feet wide and six feet high, furnished with a good close shutter. A barn of this size will cure 800 sticks of common size tobacco, which will weigh about 1200 lbs. The proper construction of the flues is of great importance; they should be built of any stone that will stand fire without bursting. White sand stone, bastard soap-stone, or any other that does not contain flint. The size of the flue, for a sixteen foot barn, is generally about 12 inches wide by 14 inches high inside. Not much care need be taken to have them smooth on the outside. If stone can be had to make the inside smooth so as not to obstruct the putting in of wood, it is all that is necessary. They should be run just far enough from the house-side not to set the house on fire, and there is not as much danger of this as may be supposed. Run the walls of the flue parallel with the house-side, turning with the corner so as to preserve the same distance from the house-side all round, running the stem out at the middle of the upper side. The stem should be run far enough above the wall of the house to avoid danger of sparks from the chimney. The height of the inside of the flue should be preserved its whole length. The width may be slightly decreased from the elbow to the chimney. The inner wall is carried all around. But too much explanation often bewilders; we think we have said enough.

As before said, we like small barns; where too much tobacco is together, it all cannot receive the heat alike, which is our main objection to large barns.

As to the number of barns necessary, we would say that there ought to be enough to receive all the crop without moving any. Say one sixteen foot barn to every 8,000 hills of tobacco planted. As a general rule, plant one thousand hills for every hundred sticks house-room. That is, if you have three barns plant 24,000 hills, and if it is common tobacco, they will receive it. A much larger quantity may be saved in this number of barns by curing and moving out, but is very troublesome.

STRIPPING AND ASSORTING.

Tobacco should be stripped when it is in tolerably high order and hung back in the barn immediately and suffered to remain until the Spring. We don't like the idea of bulking tobacco to lay all the winter. The "coming and going" is a decided advantage. Furthermore, it cannot be put down in keeping order until the Spring.

In stripping, it should be tied up in moderate size bundles not too small, and a lug leaf should always be used for tying, as the tie leaf will always mould. The assorting is somewhat important to those who prize for market, but as our tobacco is always bought at the barn by country manufacturers, and a certain price given for the crop round, we generally make only two qualities—fine and

lugs. But, where the farmer is dependent on the whim and caprice of the town tobacconist, he must try to please him.

We have often thought that a fine crop of tobacco needs very little assorting, and a mean crop needs less, for if a crop is strictly fine, there can be only two qualities made of it; if it is mean, it ought to be sold as mean tobacco, and the few fine leaves ought not to be taken away to make mean meaner. This may be thought novel reasoning, but it must go nevertheless.

ORDERING AND DELIVERING.

If you do not suffer your tobacco to hang up during the Winter, it should at least be hanging by the middle of March, so as to take the first good season thereafter for putting down. This should be done in a warm season without rain if possible. The tobacco being previously thoroughly dry, as soon as the leaf is in order enough to bulk without breaking, it should be put down on a platform made of plank two or three feet from the floor. There should be at least three hands at each bulk. One to take it from the stick, two bundles at a time, and hand it to the second, and he, after straightening, will hand to the packer, who will put it down as carefully as if he were packing it in a box or hogshead for market. After the bulk is thus made, it should be covered with plank and weighted heavily. Nothing adds more to the looks of tobacco than careful handling at this stage. If it is to be prized it will be ready for packing without further trouble. If it is to be hauled loose to the factory, it packs a great deal better in the wagon than when carelessly handled. It will also preserve its order through the whole year, even if allowed to remain in the bulk. We know but little about prizing for market. Very little of our tobacco finds its way to town market in the leaf. When it is sent, it is generally packed in boxes lightly prized for wrapping tobacco. Presuming to know but little about this department, I shall not attempt to instruct others. One thing I will say: make your tobacco fine and very soon you will have a market at home for it. A fine article will never want for buyers, while a common article will always be dull of sale, and while there is so much land in Virginia and North Carolina that will produce fine tobacco, there is little or no excuse for making a rough article. One point more, and we are done.

AMOUNT OF FORCE TO THE 1000 HILLS.

There is an old saying that ten thousand to the hand is enough, but with young active hands, at least fifteen thousand to the hand may be well managed. This will insure a crop of about two thousand pounds to the hand, which, with a moderate crop of other things, is very good work. The crops for several years past have commanded from fifteen to twenty-five dollars round Two thousand pounds at these figures will be good wages to the hand, after making enough other crops beside to support him and pay all expenses. And on our fresh lands it can be done with ease. We have cultivated as much as twenty thousand to the hand, but it is too much to manage nicely. We have now said all that time

and space will allow. We hope it may be of benefit to some, and if the prize is not awarded to it, we hope at least we have lost nothing by writing it.

SAMUEL C. SHELTON.

Irisburg, Henry County, Va.

For the Southern Planter.

The Habits of the Earth-Worm.

Being somewhat confined to the house, I shall endeavour to give an account of a well known animal. Nature exhibits wonders that surpass credulity, and yet many marvellous things are believed which are totally unfounded in fact. Among the rest, it is said of the subject of my discourse, (popularly termed the Earth-Worm,) that if it be cut in pieces, each piece will turn out a complete worm. This is not true any more than to say that the claw of a lobster, taken off, will produce another lobster. The lobster, up to a certain age, will indeed put forth another claw, and the excised claw will, for a long time, exhibit muscular irritability. Human beings, if history lies not, exhibit in their members the same muscular irritability after death, as Charlotte Corday was said to blush and frown when her head was in the hand of the executioner, who slapped the face. If a worm be cut through, in a particular part of his body, neither part can be made to survive, but if the tail part, for a considerable length, be cut off, that will exhibit muscular irritability for a long time, but ultimately perishes, while the head part will have its wound healed and seems to get on very well without the other part But, still, many things can be related of worms sufficiently wonderful, and we shall endeavour to prove that he has really a high organization. In fact, he is the most thorough ventilator known in nature, and requires constant supplies of food, water, and, above all, fresh air. We will relate how we became familiar with the habits of worms, so that some curious investigator may pursue these researches, and verify or disprove our conjectures. Being fond of fishing and on some days being able to obtain any amount of worms, while on an emergency we often failed to obtain a sufficient supply, and being advised by old fishermen to put up a large supply of worms in meal, as they said to purge them of the grit in their bodies, rendering them more palatable to the fish, we began to speculate on the subject. We concluded that they only swallowed grit on the principle, that a hungry boy would swallow cherry and grape stones, not that he liked them, but was unwilling to take time to separate pulp from seed, and so the worm, if he could get at meal or flesh unmixed with grit, would do so. So we obtained a box, pierced the bottom with holes, so small that the worms could not escape, but that water could drain out, filled up the box with a kind of sandy clay, embedded a brick on top of the clay, put in a handful of worms and kept them supplied with meal, blood or flesh sprinkled on top of the clay, and put the whole in a place secure from all kinds of animals, keeping a good supply of water in the box. The worms soon seemed at home in their new domicile and ho-

neycombed the clay soon with their galleries. The rapid disappearance of their food testified to their appetites, and they evidently used a great deal of water. They soon became too much our pets to think of devoting them to fish, and the following observations we make on their habits. Whether the British worm is like our earth-worm, we know not. We have never seen them accurately delineated in print, and we are such an indifferent draftsman, that we cannot begin to draw one accurately.

Being a very poor naturalist, we cannot describe fully the parts of such delicate organs, as stomach, spiracles, organs of generation, ovaries, &c. We have often seen worms in such close contact, that we have concluded that impregnation takes place by a kind of pressing of the organs of generation lying in a sack under the stomach of the worm, and the semen of the male thus ejected upon the ovaries of the female, mouth to mouth. However this matter takes place, the mother worm incorporates a jelly-like substance with earth, and in this deposites the spawn which comes out alive. So abundant are these spawn in some places, that hogs will eat the earth, and probably that is the kind of earth which certain tribes of savages are said to devour. The young worms soon form innumerable galleries in this earth, almost invisible to the naked eye, feeding upon the jelly, until large enough to provide for themselves. Each worm has a system of gallaries for ventilation, and when near the surface of the earth, probably to avoid the effects of evaporation, they hide under a stone, brick, log, or any thing else partially embedded in the ground, with several galleries running outside of them to the air. How far they extend we know not, probably to running water, as we have seen worms thrown out near the bottom of a deep well. The walls of the galleries are cemented with a kind of glue from their bodies, so as to be air-tight, but not water-tight. They are not exactly cylindrical, but are full of smooth cavities, so that the worm can fill them by his swelling out his body, and thus pull himself along by muscular power. No one can form an idea of the swiftness of a worm, under ground, by seeing him crawl on the earth, for he has not such cavities on the surface, as in his galleries, to fill up with his body and thus afford him a purchase by which to pull himself along. When he requires ventilation, he first rises to the surface of the earth to see that all his galleries are clear, and then commences to pump air into the cavities, as he fits the cavity precisely by shortening and enlarging his body, he pushes out the foul air before him, and then converting each end of his body alternately into a piston and piston rod, by proper motion, he can send the air along the gallery in any direction that he pleases. He then descends, drawing the air along with him. Thus his gallery has constantly a supply of fresh air drawn into it, and the foul air pumped out. In some rivers in Virginia, there is a fish which never rises from the bottom, and unless the bait is kept on it, the fish will never bite. When the fish is caught, if his stomach be opened, fresh worms will be found in it, which shows that they get a plentiful supply at the bottom of the stream. Yet a worm cannot live long under water. Neither can an otter, but both can feed

in it. The worm gets under some log at the bottom of the stream, running a gallery to the places haunted by the fish to feed, perhaps on their spawn and excrements, or dead fish; then he constructs another to the bank, and thence to the air. He has a kind of cell under the log air tight, and upon the principle of a diving-bell, he pumps air into the cell under the log from the aperture in the bank, and thus furnishes himself with a supply of air; when he forages upon the fish ground and feeds, he retires to his cell to get a fresh supply of air; no doubt when seeking his food, under water, the fish catches him.

NORBORNE BLOW.

For the Southern Planter.

Tobacco Barns.

LOUISA, February 18th, 1861.

In reply to "A Subscriber," making inquiry concerning the best method of building tobacco barns, I submit the following plan:

A house 24 X 44 feet; 20 feet high, will cure 10,000lbs. of tobacco, if it is large and ripe.

The house should be raised 18 inches from the ground and cellared 6 inches.

The first, or "ground tier," must be 6 feet from the floor, and a space of 3 feet from the top of 1st tier, to the top of 2nd, and so on through the house.

The perpendicular framing must be 4 X 6 inches, and 4 feet apart, the horizontal "laths" 2 X 3 inches, and let into the perpendicular "studs," at the proper distances for the tier poles to rest on; the house to be covered with perpendicular boards, and the joints covered with strips, the strips should be omitted in the upper part of the gable ends.

The roof must project 1 foot *at both sides and ends*, for ventilation, and if covered with shingles, (as it should be,) ventilated again on the south side, near the "comb" of the house.

A window must be left 6 *inches wide at both ends of every row of tier poles*, to be closed with an inch plank, hung with 4 butt hinges.

A house built on this plan, is perfectly close when desired, and the reverse when air is needed. Respectfully, &c.,

A PLANTER.

For the Southern Planter.

Fertilizers---Drilling versus Broad-Casting.

In the Planter for February, I find an enquiry from "A Farmer," as to the drill in comparison with broad-casting the same quantity of fertilizer per acre; and though I may not be able to give a single new idea in regard to either, I can give my experience in regard to both.

Before I do this, suffer me to say that I have been impressed, frequently, with the importance of suggestions made through the "Planter," that farmers might interest and enlighten each other, by regularly contributing, in condensed form, their *experience* in regard to a multitude of things which pass under their observation. Many have done so to their credit, and to the improvement of others.

But what a vast majority, in our State, have kept silent. Why may not these devote an hour now and then to this subject? Much of what might be written in this way would no doubt be considered by many as of small importance; but some, beyond doubt, would prove valuable. As you, Messrs. Editors, print this farming experience for nothing, of course you must exercise the right of excluding the indifferent and publishing the best.

I have heretofore held back from considerations identical, no doubt, with those which have influenced others; but as I mean now to *begin* to show my faith, in the importance of this interchange among the farmers of Virginia, by my works, I hope that many others who, like myself, have heretofore been afraid of being seen *in print*, will follow the example.

I hope "A Farmer"—for whose benefit more especially I send my first effort in agricultural *essaying* to the Planter—will pardon this digression.

For several years past I have used a drill, and, except part of a field in 1859, have always drilled Guano or Sup. Phos. of Lime (chiefly the latter) with the wheat, putting in about half my crop every year in this way, and broad-casting the remainder, both wheat and fertilizer.

I have a great liking for the drill; not so much because of any very obvious difference in the crop at harvest, all things being equal at seeding time, but for other reasons. Now, if "A Farmer" had reference in his inquiry, specially to exact difference in yield between the two methods, I cannot inform him; but if to ease and regularity in sowing fertilizers, then I may offer the following, having an eye to the *amount* of work as well as the regularity of it. You can with one hand and a pair of horses put in with a drill from six to sixteen acres a day, according to the size of the drill and character of land, depositing wheat and fertilizer with almost exact regularity. When 200 pounds or upwards of fertilizer is required to the acre, the drill, for regularity in distributing it, is far superior to any broad-casting by hand. When 100 or less to the acre is required, the drill in *very* damp weather is not so reliable; the guage has to be drawn so close, that all descriptions of fertilizer which I have used will clog. My experience is, that 100 pounds or less to the acre by hand, is very difficult to regulate, but even this small quantity in dry weather can be done nicely with the drill.

Broad-casting fertilizer by hand is both hard and dirty work. The drill avoids both. In high winds the regular distribution of fertilizer by the drill is not interrupted, indeed the accuracy is promoted thereby, because the wind dries on the fertilizer, and prevents all clogging.

Broad-casting by hand in windy weather with accuracy is simply impossible.

Wheat properly drilled is safer in the majority of winters against frost than that sown broad-cast. Then, if this be the only advantage the average yield of a given number of years must be in favor of the drill.

I do not think the drill saves anything in the quantity of wheat sown. Our stiff lands require from one and a half to two bushels per acre however sown.

Grass following fertilizers sown by the drill has, with me, done quite as well as that after broad-casting, in most cases better,—owing, no doubt, to the protection afforded the young plants by the drill furrows.

I have no experience in sub-soiling.

LIMESTONE.

Clarke County, Va., Feb. 23rd, 1861.

For the Southern Planter.

On the Importance of elevating Mechanics and Artizans to a Social Equality with other Professions.

MESSRS. EDITORS.—The improved dress of the January number of the Planter and the value of its contents, (allow me to say greater than usual,) suggest the propriety, if not the duty, of those acknowledging its benefits, to contribute a *quid pro quo*. I was formerly an occasional correspondent of the Planter, and propose resuming that post, after years of additional experience, provided my reflections are deemed worthy by you of a place in your columns. There are several subjects of peculiar interest to Virginia farmers, which, in my opinion, have not hitherto been duly considered, upon which I propose, at an early day, to submit to you some thoughts.

The excited condition of the public mind at this time, however, precludes the consideration of questions not bearing, in some degree, upon the disturbing causes of the present unhappy condition of affairs. Your extract from De Bow's Review presents vividly the humiliation of the South in this her day of trial, the necessary result of long and passive dependence upon our bitterest foes for a thousand articles, some trifling in themselves, yet necessary to our comfort, which could and ought always to have been manufactured by our own citizens. Our Southern people seem hitherto, in a great degree, to have been the victims of a fatal delusion or stupid folly regarding their own and the best interests of the country. The professions of Law and Medicine, and another not less popular and equally a profession—that of gentlemen of leisure—have chiefly been the avenues through which the sons of landed proprietors, large or small, have sought honour, wealth or distinction. Into the comparative merits of these, or the comparative degree in which they have contributed to the material interests of society, I will not now enquire.

While it must be admitted a vast improvement has taken place, more recently, and our young men are beginning to be educated with a view to the more practical interests of society, yet how little attention is even now bestowed upon mechanical pursuits by educated youths! Why is this? Is an educated man less a gentleman or less refined in his tastes because of mechanical occupation? Is he less entitled to consideration and respect because he is the ingenious manufacturer of wares which are indispensable to the ordinary comfort of both rich and poor? Is the cunning architect of the stupendous locomotive, carrying progression and civilization in its train, of minor consequence in comparison with the briefless advocate or the village doctor? Or what claims to precedence

has the retail vendor of dimity and tape over him, whose skill and science in his humble vocation, shapes our vestments to adorn the person or hide the deformities of nature? These are pertinent enquiries, Messrs. Editors, and their force must be admitted, however inveterate our prejudices. The truth is, our public mind is diseased on this subject; there exists a moral delinquency which must be reformed; we must learn to appreciate and to honour intelligent usefulness, to co-operate with and sustain it, if we would be released from a degrading dependence on those who despise us, for nearly every necessary article—from the brush of the toilet to the tacks in our boots. This absurd sentiment has driven from our midst in the past half century an army of youth, whose talent and enterprize if fostered at home by an enlightened and patriotic public sentiment, would by this day have placed Virginia in a position of material wealth and independence as unrivaled as that she has ever occupied for patriotism and devotion to principle.

But, sirs, it is useless to discuss this subject further; action is what we want —immediate action, as well on this as on others of vastly more importance at this particular crisis, and we may tremble for the consequences if it is not had. It is in our power to force into existence amongst us manufactures of almost every indispensable article, by united and concentrated patronage, and others will speedily follow. The progress of our woollen factories in the last twelve months is proof of the declaration. By a firm and determined policy in socially elevating the followers of mechanic arts and bestowing merited honour on industry and talent, the South can in a few years sever its degrading and chafing bands, and feel secure in its dependance on its own work shops.

Upon whom, than the farmers, can the patriotic duty be devolved with more propriety of inaugurating a new order of things? A few years since, and even now to some extent, we get from Baltimore, and cities even farther North, much of our agricultural machinery. Is there any substantial reason for this course? Is it a wise policy on our part, or just to our mechanics? We have amongst us native mechanics—men to the manor born—who will compare most favourably with any upon the continent in intelligence, patriotism and fidelity; who work up native materials, and faithfully contribute their quotas to the national wealth. At Somerset in Orange county you have A. P. Routt and at Gordonsville, Fishback & Moyers—faithful, intelligent and enterprizing gentlemen, who understand their business, and are always prepared to supply you with any implement, from the simple coulter to the threshing machine of the highest capacity, and of the best material. The improvements and perhaps inventions of the former fairly constitute him a benefactor of the farming community. As efficient and labour-saving implements, his Drain-Plow, Iron Double Shovel, and Tobacco Cultivator, need only to be used to be appreciated.

These are the men, our own citizens, whom duty and patriotism require should be patronized. It is the talent and enterprize of these and such as these, that must be relied on to expel from amongst us the thousand cheats palmed upon

us by the Yankees in the form of painted wares and chip-soles. When correct views are cherished on the subject of our independence, and men shall fall into those pursuits for which nature designed and fitted them, with the assurance of domestic patronage and future competency, the period will not be remote when we shall be liberated and disenthralled from a worse than colonial vassalage; and industry and enterprize shall pervade our land, shedding contentment and prosperity throughout our borders.

PIEDMONT.

From the Working Farmer.

The Tomato—Its Uses and its Cultivation.

The following letter on this subject will be read with interest by all who have contemplated the influence which the universal cultivation of the Tomato is destined to have upon public health and economy. Probably few persons have bestowed more attention on the Tomato, than the writer of the subjoined letter.

[ED. FAR.

Dear Sir:—Since you and many other cultivators of the Tomato have expressed your surprise and satisfaction on examining some of my Seedling Tomatos, and a desire to know their origin and proper treatment, I will, with pleasure, comply with your request.

Until within a few years, very little was known in this country about the TOMATO. It was grown as an embellishment in some corner of a flower garden, and called the *Love Apple*. Now, it is an article of daily food; and in a few years it will be in common use in almost every part of the globe. Its culture and use will everywhere extend just in proportion as reliable and exact information on the subject is spread. It does not take long now to scatter facts. The human race is coming near together, and all facts concerning our common welfare should be freely disseminated. I have grown the Tomato, and watched its culture in many of the climates and countries of Europe and America, and I will furnish my little quota of observation and practical experience, hoping thereby to draw out valuable information from others. Everybody knows something of the value of the Tomato as a fruit, and how we should miss it if it could be raised no more. But very few persons know how easily and abundantly it can be grown in perfection, how cheaply it can be preserved for future use in many forms, nor its invaluable medical properties as conducive to health and vitality. I will speak only on two or three of these points.

1st. *The best Kinds and Varieties.*—Six years ago I began a more thorough system of experiments than I had ever practised or seen. I prepared my beds for growing Tomatoes, and the analysis of the soil corresponded very closely with the chemical components of the fruit. I then germinated ten or twelve of the finest varieties I had, or could get, and obtained large, vigorous plants of the same kinds from our New York gardens. One of each was planted by itself, where it

could not hybridize. In another bed *I planted all the varieties together, to make them hybridize, and multiply new kinds!*

I succeeded in getting one variety, which I found superior to any I had seen, in the following qualities—(1) *delicacy of flavor, thinness and smoothness of skin, fewness of seeds, solidity of meat, earliness of ripening, richness of color, evenness of size,* and *ease of culture.* The next year I cast all other varieties away, and brought this to perfection; and it has been universally pronounced by Agricultural Fairs, Farmer's clubs, and Scientific Horticulturists, to be superior to any other.

2d. *My Mode of Culture.*—Germinate in a hot-house, hot-bed or kitchen; for *very early* fruit, transplant when quite small into pots. The Tomato improves by every transplanting, and each time should be set deeper. From the time four or six leaves appear, pinch or cut off the larger lower leaves and the terminal buds, and continue this process of pruning, till the fruit is far advanced; so that when ripe, the bed will seem to be covered by one mass of large, smooth, even sized Tomatoes, of the richest pomegranate color—and the leaves hidden by the fruit.

Set plants three or four feet apart, in the warmest spot you have, and let them fall over to the Northern frames twelve or fifteen inches high; or on pea brush; anything to sustain them; and keep the fruit from touching the ground, which delays ripening, creates mould, invites cut-worms, and always gives the Tomato an earthy taste. Try for only one cluster, (the first that blossoms,) and cut everything else gradually away. This will give you Tomatoes in perfection in the latitude of Buffalo, four or six weeks earlier than they are usually ripened in our climate. If you wish *late* Tomatoes, pull up each plant by the root (just before the frost comes) and hang them up on the south side of a building, top down, with a blanket to roll up in the day and let fall in the night. When ice makes, hang them up in any room that does not freeze, or in a dry cellar, and you will have fresh Tomatoes all winter—somewhat shrivelled, but of fine flavor.

Having thus brought this Tomato to comparative perfection, I wish to have the seed scattered as widely as possible. This last season I saved, with great care, some of the seed from the most perfect fruit in my garden, and I have left it with Mr. Charles V. Mapes, (at his Agricultural Warerooms in Nassau street, New York,) to whom any communication on this subject may be addressed.

Most respectfully, C. Edwards Lester.

Summer Pinching.—By a judicious pinching in of the terminal buds of growing trees, in itself an art that can only be acquired by practice, almost any tree or shrub, if taken in season, can be made to assume almost any form desired. The beautiful pyramidal pear trees of nearly all foreign gardens, as well as other dwarf fruit trees, broad at the base and gradually tapering to a point at top, is the result of a systematic, summer pinching in.

From Hunt's Merchants' Magazine.

Statistics of Population, &c.

UNITED STATES CENSUS FOR 1860.

The returns furnished by the Census Bureau to the Governors of States for the purpose of apportioning members of Congress, give the following aggregates:

NORTHERN STATES.

	Population. 1850.	Population. 1860.	Apportionment. New.	Apportionment. Old.
Maine,	583.169	619.958	5	6
New Hampshire,	317,976	326,072	3	3
Vermont,	314,129	315,827	3	3
Massachusetts,	994,514	1,231,494	10	11
Rhode Island,	147,545	174,621	1	2
Connecticut,	370.792	460.670	4	4
New York,	3.097.394	3,851.563	30	33
Pennsylvania,	2,311,786	2,916.018	23	25
New Jersey,	489,555	676 034	5	5
Ohio,	1,980.427	2,377.917	19	21
Indiana,	988,416	1,350,802	11	11
Illinois,	851,470	1,691,233	13	9
Michigan,	397,654	754,291	6	4
Wisconsin,	305.391	768,485	6	4
Iowa,	192,214	682.000	5	2
Minnesota,	6,077	172,793	1	1
Oregon,	13,294	52.566	1	1
California,	92,597	384,770	3	2
Kansas,	.....	143,645	1	1
Total,	13.454.169	18.950,759	150	149

SOUTHERN STATES.

	Population in 1850. Free.	Slave.	Total.	Population in 1860. Free.	Slave.	Total.	Appor'nt. N.	O.
Delaware,	89,242	2,290	91,532	110.548	1.805	112.353	1	1
Maryland,	492,666	90,368	583,034	646.183	85,382	731,565	6	6
Virginia,	949.133	472.528	1,421,661	1,097.373	495,8 6	1,593.199	11	13
North Carolina,	580.491	288.548	869.039	679,965	328 377	1,008.342	7	8
South Carolina,	283.523	384,984	668,507	308.186	407.185	715,371	4	6
Georgia,	524.503	381,682	906,185	515.336	467.400	1,082.736	7	8
Florida,	48,135	39,309	87,455	81.885	68,800	145,685	1	1
Alabama,	428,779	342,892	771.623	520.444	435,473	955.917	6	7
Mississippi,	296.648	309.878	606.526	407.051	479,607	886,658	5	4
Louisiana,	272.953	244.809	517,762	354.245	312.186	666,431	4	4
Arkansas,	162,797	47.100	209,897	331.710	109.065	440.775	3	2
Texas,	154,431	58.161	212.592	416,000	184.956	600.956	4	2
Tennessee,	763.154	239.460	1,002.717	859.528	287.112	1,146,640	8	10
Kentucky,	771.424	210.981	982.405	920,077	225.490	1,201.214	8	10
Missouri,	594.622	87,422	682,044	1,085,595	115.619	1,145.567	9	7
Dis. of Columbia,	48,000	3,687	51,687	.....	.....	75,321	..	..
Total,	6,470,596	3,204,099	9,664,650	8,434,126	3,999,283	12,508,730	84	89

TERRITORIES.

Nebraska,	. . .	28.893
New Mexico,	61,547	93,024
Utah,	11,354	50,000
Dacotah,	. . . .	4,839
Washington,	.....	11,624
Total Territories,	72,901	188,370
Total United States,	23.191,871	31.647.859

Oxen, Horses, and Mules.

The consideration of the relative advantages of the different teams named above, when used for draft purposes, is of great importance to the agriculturist; for heavy loads for short distances, oxen may be used on roads with profit, as their great weight enables them to move corresponding quantities, if not required to carry them for too great a distance, where the return trip without loads would consume much time from their slow gait. In sub-soil plowing, oxen alone can be used with the highest profit; their steady pull together, with their immense force as compared with horses, render them peculiarly suited to this kind of use, and when those of quicker motion, such as the Devons, can be procured, they are invaluable for drawing the breaking plow, the sub-soil plow or soil lifter, when used in the making of drains; indeed, no team can be used for sub-soiling or in the making of drains, requiring a whiffletree, as the latter in resting upon the furrow slice or ditch bank, will prevent the descent of the plow. With oxen, by the use of a long yoke, the sub-soil lifter, attached to a chain on which is hung a weight immediately in front of the plow-beam, to secure the parallel position of the beam with the bottom of the ditch, becomes a horizontal pick, disturbing two inches or more at a time, of even the most compact soil, and thus permitting its being thrown from the ditch by long shovels, etc. In sub-soil plowing the same effects in degree prevail; the chain permits the lower side of the bottom of the beam to sink into the bottom of the surface-plow furrow, and thus enables the sub-soil lifter to penetrate the sub-soil to the greatest depth. Oxen do not start sudenly, and they move with a steady gait; and, although not so quick as the horse or mule, they are capable of giving greater intensity of force by this loss of speed.

The yoke and narrow bows impinging on the oxe's breast, occupy so narrow a space, as to materially annoy them and abridge their entire weight to the draft. We have lately made the experiment of using for our oxen a very large collar, with a broad face, so as to rest over a large surface, * * * * * * * * * and doing away with the heavy yoke; the collars are split at the top and there buckled, so that they may be easily put on and taken off. To this collar is attached a set of traces, supported by loops hung from a saddle and attached to whiffletrees, thus permitting the oxen to act independently of each other, each drawing as with the ordinary method of harnessing horses. Under such arragement, the oxen throw their heads about, and exhibit a vivacity never found in oxen wearing the inhuman yoke. They draw a much heavier load, and with less annoyance, nor do they lean away from the centre, calling on each other for support, as when yoked; they perform a larger amount of labor in a less space of time; indeed, they become a lively and good road team for the transportation of heavy loads. The age of the ox does not interfere with his weight and consequent strength. When too old to continue his service as a draft animal, he may be suddenly fattened, and will then give better beef than

if he had not been previously worked; his value is always increased, and he meets a market never to be over-stocked.

Horses are so well understood that it is scarcely necessary to recapitulate any of their advantages. For rapid work, loads, etc., they are inestimable, and their superior speed renders them great favorites, hence the term "noble animal," etc, has been applied; although it should not be forgotten, in estimating the value of horses for the transportation of heavy loads, that no animal can give a propelling force superior to his own weight. The difference in animals, in this particular, is entirely due to their ability to exercise greater intensity of action for a time, in place of a more divided and continued force; for this purpose the horse is very superior. When we require greater speed with lighter loads, the horse far surpasses the ox, while for intense action for short distances, the ox is very superior.

Mules have many advantages over the horse; they cost one-third less for feed and other expenses. They are not subject to many of the diseases of the horse, have much greater power of endurance, live to greater age, without depreciation in value. We now have a mule at our place sixty years of age, and perfectly active.

The charge of stubbornness so often made against the mule, is entirely due to the fact that he is generally more roughly used than the horse, and has a capacity to know it. When mules are as well cared for as horses, they are equally kind. They will stand greater degrees of heat and cold than the horse, and are more intelligent, that is, capable of being more readily taught. The mule has one fault; if he is left in the stable six weeks without use, he requires to be broken again. His memory is not equal to that of the horse, although his immediate intelligence is greater. He may be sustained on coarser food, with less expense for harness, shoeing, etc. No one ever asks the age of a mule, for they seem equally valuable at any age. Dickens tells us, "that sailors with white top boots, and dead mules, are never seen."

The ordinary cost of a fine mule is much greater than that of a good farm horse, but this is soon compensated for, in the difference of cost of the keep. It is difficult to understand why mules, so intelligent in comprehending new kinds of service, should be so deficient in some other respects; for if a mule be bedded with the commonest salt hay, and his manger filled with good oats, underlaid with a half peck of thistles, he will probably eat the thistles first, his bedding next, and the oats afterwards, unless intermediately he should take a notion to feed on his crib or the side planking of his stall.

A mule may be taught to drag a carrot weeder, No. 0. lifting sub-soil plow, or a horse hoe, through rows of every width. At a late visit of a committee of the American Institute to our place the mule *Kitty*, sixty years old, carried a sub-soil lifter through rows of celery plants, planted twelve inches apart, which by their growth had reduced the space to eight inches, without treading on a single plant; she moved her feet parallel with the ground beneath the plants and close

to the surface of the ground, placing each in front of the other without difficulty. The mode of drilling a mule to perform this operation, is by placing two joists, twelve feet long and four inches in diameter, on the ground at three feet apart, early in spring, driving the mule through the joists, without reins and by the word, twenty or thirty times; then turn over one joist toward the other, thus bringing them four inches nearer together, and drive the mule through again twenty times, practicing the short turning by word; then move the joist four inches again and so on until they are quite near together. If the animal should tread on one of these joists, it will turn inward and trip it up. When the mule is again on its feet it will tremble with fear; then place the joist one inch wider apart than the width of either of its feet, and the mule should be then walked through between the joist, thirty, forty, or fifty times, this it will do by placing the right and left feet alternately before each other, occupying but one line of space. If kept actively employed thereafter, it will be found capable of duplicating this action between row crops, carrying either the No. 0. sub-soil lifter, the carrot weeder, or the horse hoe, and doing the work of forty or fifty men with hoes, spades, or forks, and in a manner every way superior both as to depth, exactness of action, and quality of result

In the stabling of animals it is well to observe that too low a temperature calls for the use of a greater amount of food. Animal heat must be furnished, and in cold stables this can only be done by increased digestion; proper ventilation is also called for, for the exosmose action of the animal throws forth from the surface of its body, large quantities of gases, which should be removed by proper ventilation, as rapidly as presented. In addition to this method of freeing the stables from such base materials, their bedding should contain those materials which are capable of absorbing those excretory gases, which may be brought about by seiving plaster under the bedding, filling a concave gutter passing beneath the hind legs with swamp muck, decomposed by the lime and salt mixture, with charcoal, or with head-lands. This will not only receive urine as voided but will also absorb all those gases which, if remaining near them in excess, are calculated to reduce the health of the animals.

All must have observed the amount of ammonia given off from the feces of animals in stables, and where the mucus membrane is exposed, as on the surface of the eye, etc., it is peculiarly annoyed by its presence. When the absorbents we have recommended are present, and proper ventilation is afforded, this prolific cause of disease is removed.

Animals of different ages should not be stabled together; we refer of course to too great disparity of age; the young are found to fail when breathing atmosphere which has been exhaled by older animals, and charged with carbonic acid, etc. It may not be out of place here to refer to similar effect to the human species; it should be remembered that every man renders twelve gallons of air per minute, by breathing, incapable of sustaining human life; hence the deaths at the black hole of Calcutta. This, in degree, is equally true of mules; we

should remember that men and animals breathe air for the purpose of abstracting from it a certain amount of oxygen, and that the lungs, by nature's laws, configure themselves so as to take in the greater or less amount at each respiration, dependent upon the extent of dilation of the atmosphere. If we walk up hill, holding in our hand a closed balloon filled with atmosphere, even if but a single foot in diameter, and made of varnished silk or paper, it will burst before we ascend one hundred feet. This is due to the fact, that as we ascend in the atmospheric ocean the weight of the superincumbent portion lessens, and while at the surface of the sea it impinges itself with the weight of fifteen pounds on every square inch, it lessens as we ascend the mountain side; this dilation of the outer air permits the air within the balloon to expand, and the consequence is the bursting of the balloon. Birds of high flight have larger air vessels, because they are called on to breathe a larger amount of atmosphere to procure the same amount of oxygen. Fishes in mountain ponds contain air vessels of larger size than those of fishes found in the streams of the valleys. They have the power to compress their air vessels, so as to sink, as in winter, to a depth where they can find a proper temperature to enable them to exist. This temperature seems to be about forty degrees, which is the usual temperature of the blood of a fish in full health.

The man or animal residing on a mountain, always has a broad chest and large breathing apparatus. The City of Mexico, 9000 feet above the level of the sea, has never contained one consumptive man, not emigrating there, while the level lands of Mexico, nearear the sea, find pulmonary diseases their particular scourge. The hardy mountaineer is a common expression, and it is usually attributed to his active habits; but we have known many broad chested men residing on mountains, who indulge in excessive indolence, and the same may be observed of animals. Horses, oxen, sheep, even the wild animals in mountainous districts, are found to be broad chested; but if the God of nature had not provided the means by which the capacity of our lungs could be increased as we ascended the mountain side, every being would be forced to remain at a defined level. Pulmonics who go to the islands of Cuba and Santa Cruz, are materially benefited, while those who remain in the sea coast towns, die, for want of that condition which prevent the surfaces of their tubercular lungs from coming in contact with each other. As they ascend the mountain, they are called on to make respirations of a greater quantity of dilated atmosphere, each respiration is required to be of the same weight, and therefore of greater bulk; this prevents the slight breathing so readily observable in the growth of pulmonic diseases at the level of the sea, and therefore the tuberculous parts never come in contact with each other, and the patient has a hope of a recovery from his malady. All these facts are applicable to animals. They should never be placed in cellars, where the denser atmosphere will not call for full mechanical action of the lungs; we have known many an incipient consumptive relieved, by removing his dormitory from the ground floor to the fourth or fifth story of the

house. In addition to these effects of natural law, the owner of a stable should remember that the atmosphere is the vehicle of all of the exudations from decaying nature, also of the gases given off from the surface of every animal; and imperfect ventilation, like the pest houses of Egypt in a plague, reproduces disease while nature is making efforts to ward against it. All this has to be compensated for by extra amounts of food, sometimes ending with loss or failure either of the life or vigor or of several animals. Clean stables, well ventilated and at proper temperature, constitute in a great measure the difference between successful and unsuccessful farmers.— *Working Farmer.*

Deep or Shallow Vessels for Milk.

Many suppose that the quantity of butter obtained from milk depends greatly upon the treatment before churning, particularly upon the kind of vessels it is kept in. Thus, some prefer deep pans, and some will use none but shallow; some add saleratus to the milk to keep it sweet longer to give the cream more time to rise. Experience has convinced me that the amount of butter depends on the quality of the milk, rather than on its management. All the butter contained in the milk can be obtained, and no more. I remember fifty years ago, that my father, who had thirty or more cows, tried several experiments to ascertain this point. He first procured large, flat "keelers,"—wooden tubs about four inches deep—but the labor required to keep them sweet was so great, that a number of twelve-quart tin pans were also used. There was no difference in the amount of butter obtained from each. After this he was persuaded to have smooth, oak tubs made, each holding about four gallons, having been told that the milk would remain sweet much longer in them and the cream would be increased, but there was no improvement in the quality. I have for years used twelve-quart tin pails for convenience in handling, and find by keeping the temperature right, to allow a moderate cooling and a gradual rising of the cream, I get all the butter there is in the milk, which is the best any plan can do.— *American Agriculturist.*

The Tobacco Worm Poison.

Mr. Wm. Shepherd, of Anne Arundel county, to whom tobacco planters are indebted for his continued experiments with the tobacco worm poison, of which we have made frequent mention, informs us now, that he thinks any tobacco planter may protect his own crop by the poison, even if his neighbors neglect it. He says the poison, if made stronger than heretofore recommended, is more effectual—that he would use as much as a quarter of a pound of cobalt to a common tumbler full of water. The cobalt should be reduced to powder by the druggist when purchased. He thinks that loaf sugar, enough to make the water very sweet, is better than honey—not so liable to sour. The mixture is put into a small bottle, with a quill in the cork, and two or three drops through the quill deposited in the Jamestown blossom, or in the blossom of the tobacco plants. The horn blower will suck the poison till he dies.—*Amer. Farmer.*

For the Southern Planter.

Monthly Abstract of Meteorological Observations—Kept at the Virginia Military Institute, Lexington, Va., January, 1861—Elevation above the Sea, One Thousand Feet.

	THERMOMETER.				BAROMETER.	RAIN.	REMARKS.
	7 A.M.	2 P.M.	9 P.M.	DAILY MEAN.	DAILY MEAN.	INCHES.	
1	5.	20.2	15 5	13.56	29.310		Fog in morning, clear in evening.
2	5.	27.2	30.2	20.8	29.032		Cloudy, rain.
3	32.	39.2	35 6	35.6	28.689		Cloudy, rain during night.
4	36.1	36.8	26.6	33.17	29.032		Cloudy.
5	15.2	33.2	23.7	24.70	29.269		Cloudy, clear.
6	8.2	32.5	31.	23.9	29.153		Cloudy.
7	32.4	41.	37.5	36.9	29.199	0.097	Cloudy, rain from 9–10 A. M.
8	38.2	46.5	34.	39.7	28.908		Cloudy.
9	38.5	37 4	34.2	36.7	28.718	0.361	Cloudy, rain.
10	34.8	41.1	31.5	35.8	28.682		Cloudy.
11	21.	29.8	39.5	30.1	28.865		Cloudy.
12	3.7	40.	38.5	38.5	28.837		Cloudy.
13	25.4	27.8	24.2	25.8	29.347		Cloudy.
14	21.8	29.	30.6	27.1	29.139		Cloudy, rain, snow.
15	32.1	34.8	34.	33.6	28.812		Cloudy, rain.
16	35.	48.8	45.2	43.	28.587	1.475	Cloudy, clear, cloudy.
17	39.2	46.8	35.5	40.5	28.989		Cloudy, clear.
18	34.8	35.	34.7	34.8	28.898	0.421	Cloudy, rain from 6½–12 M.
19	41.8	47.4	42.	43.7	28.863	0.915	Cloudy.
20	31.7	39.2	29.	33.3	29.033		Clear.
21	22.7	39.2	32.1	31.3	29.187		Cloudy.
22	18.2	36.3	27.2	27.2	29.333		Clear.
23	24.4	29.5	24.4	26.2	29.385		Cloudy, snow about 3 inches.
24	29.4	36.2	31.8	32.5	28.902		Cloudy, rain.
25	30.2	40.1	32.8	34.3	29.040	0.915	Cloudy.
26	31.1	26.5	28.8	28.8	28.981		Cloudy, snow.
27	31.8	35.8	27.8	31.8	29.004	0.624	Clear.
28	24.2	31.2	21.2	25.5	29.018		Clear.
29	21.2	48.9	42.8	36.9	28.839		Cloudy, clear.
30	37.4	38.	26.1	33.8	29.976		Clear.
31	21.	33.2	26.4	26.8	29.063		Clear, Cloudy.

JANUARY.	MONTHLY MEAN.	MAXIMUM.	MINIMUM.	VARIATION.
BAROMETER.	29.004	29.516	28.509	1.007
THERMOMETER.	31.8	48.8	5.	43.8

Amount of rain and melted snow, 3.893 inches.

WHITEWASH.—Whitewash of a superior quality, is made by mixing one bushel of lime, (slacked in hot water) one quart of salt, four of sugar, two ounces isinglass, and two ounces saltpetre. Each ingredient dissolved in hot water, and the whole mixed while hot. This whitewash will neither wash nor rub off, and will last for years.

For the Southern Planter.

The Skin and its Functions.

This paper will be the first of a series of articles to be presented, from time to time, to the readers of the Planter; the object of which will be to discuss various physiological subjects in a plain and practical manner; and those will be especially selected which are calculated to awaken the attention, and arouse the interest of the farmer and naturalist.

The subject of the present article is, unquestionably, one of much importance and no little interest, inasmuch as the skin may be considered an immense gland, scarcely inferior, in respect to the value of its functions, to the liver or the lungs, and hence playing a much more serious rôle in the health of a man and lower animals than is commonly supposed.

The skin subserves, at one and the same time, the various purposes of protection, absorption, secretion, and sensation. Each of these will be considered in order, but before doing so it will be necessary to give a brief description of the structure of the integument. It is strong, firm, pliant, and elastic, and may be said to consist of three layers, an internal, which is soft and made up of cellular and adipose matter—a middle, true skin, or derm, formed of interlaced fibres, nerves, blood-vessels, and absorbents—and lastly, an external layer, or epidermis. This external layer, or cuticle, will first claim our notice, as being chiefly concerned in the office of protection, and is composed of a series of layers of flattened cells, super-imposed and cemented together. Under the microscope it presents the appearance of a tesselated pavement, and so constructed as to leave no vacant spaces between the edges of the cells, each stratum being cemented by an exuded plasma from the true skin beneath. As the formation of this cuticle is continually going on from within, so its superficial layer is continually falling off, constituting what is known as desquamation, or loss of dead skin, and an equilibrium between its loss and re-production must be maintained, in order that perfect health be preserved.

This phenomenon of desquamation frequently takes place in a most obvious manner after certain cutaneous diseases, such as scarlet fever, measles, erysipelas, &c.; and there are certain animals, especially those of the reptilian order, which desquamate the entire cuticle at regular periods of the year, which process is commonly termed "casting the skin." By means of the cuticle, the delicate extremities of the sentient nerves of touch are protected, and thus the tactile sense is not impaired by pain. Again, it protects the true skin, and prevents the absorption of very many deleterious gasses, and liquid animal and vegetable poisons; for it is well known that their contact is not usually productive of injury unless the cuticle be denuded.

In most of the mammalian class, the skin is more or less thickly covered with hairs, which subserve the two-fold purpose of protection from injury, and prevention of the loss of bodily heat. Indeed, of so much importance has this tegumentary appendage been deemed, that it has been proposed as a basis of

classification of animals, viz: *pilifers, pennifers,* and *squamifers,* accordingly as the skin is protected by hairs, feathers, or scales. The hair developed on animals having different physical uses, has received different names, and although apparently so unlike, are but modifications of one and the same product. We are familiar with them under the names of quills, bristles, fur, wool, hair, down, &c.

In regard to wool, the colour of it, whatever that may be, is dependant, probably, upon a fatty substance, which is soluable in boiling alcohol, and if it be removed from any kind of wool, the colour is transformed into a yellowish grey. Sulphur exists in all kinds of hair, and by union with iron, imparts to it a black colour. Advantage is taken of this fact in the manufacture of hair dyes, for the sulphur of the hair will readily enter into chemical union with the salts of silver, mercury, lead, &c., forming sulphurets, which give the hair a dark hue.

Climate very materially influences the development, growth, and texture of the hair. Thus, in the arctic regions, we have the thickest and finest furs, obviously because they are required to prevent the loss of bodily heat, being non-conductors, and to check radiation also; while under the tropics the hairs of animals are short, sparse, and stiff, or even entirely wanting. The same law regulates the production and development of hair during the winter and summer seasons in temperate latitudes, as exhibited in the shedding of hair—the moulting of birds, &c. The growth and development of feathers, or the plumage of birds, is entirely analogous to that of the hair, and like it, an epidermic product. The plumage of birds differs not only among genera, but in the same species at different seasons, or in different climes, the most gorgeous and brilliant being found in the torrid zone. There is this remarkable difference, however, between the physiological use of feathers and hair; that while both subserve the purpose of protection, ornament and beauty, each feather is penetrated by a central canal communicating with the lungs. This admirable contrivance greatly extends the respiratory apparatus, and by the extensive introduction of air, not only renders their bodies specifically lighter, enabling birds to fly with ease, but also to maintain their long continued flights, and, at the same time, keep up their bodily temperature. All aquatic birds have their feathers protected by an oily material, which enables them to frequent the water without fear of wetting their bodies.

Absorption by the skin—That the skin possesses the power of absorbing fluids with great facility is a matter of every day experience, in the immersion of the body in water to allay thirst, in the absorption of medicines when rubbed into it, by the passage of gasses through it, &c. But in addition to this function the skin is an important agent for exhalation, both in the form of vapor and also of carbonic acid—the former giving rise to cutaneous transpiration or insensible sweat, the latter to cutaneous respiration. By the former means is accomplished the elimination of a very large proportion of all the matter thrown out of the system—possibly as much as five-eighths—while by the latter process the extrication of much carbonic acid is achieved. The average diurnal quantity of water exhaled from the surface of the skin is about thirty-two ounces, or one

quart, and this quantity is independent of the amount lost by sensible perspiration or sweat. But it must be remembered that this exhalation varies greatly according to the hygrometric and thermal state of the air. The more humid the atmosphere the less the exhalation, and conversely the dryer the air the greater the amount exhaled. Hence this loss is greater in winter than in summer, while the reverse is true of sensible perspiration. Whenever this exhalation is checked by cold and moisture, an increase in the urinary secretion compensates for it, and thus prevents the system from suffering injury.

To ascertain the importance of respiration, as carried on through the skin, experiments have been performed upon domestic animals, such as horses, sheep, and dogs. These animals have first been carefully shaven and then their skins painted over with an impermeable varnish. This of course suspends both cutaneous respiration and exhalation. The animals so experimented upon have uniformly died in a few hours, and after death the organs and tissues of the body were found gorged with venous, black, or carbonized blood; thus proving that the cause of death was the non-interchange of oxygen and carbonic acid through the skin, and that the condition was one of asphyxia. In other words, that death was as effectually, though more slowly produced, as it would have been by the suspension of pulmonary respiration.

Now what is true in regard to domestic animals is so, inferentially, with man; for if in him asphyxia and death be produced by suspending pulmonary respiration for the brief period of three or four minutes, it is reasonable to suppose that a complete suspension of cutaneous respiration for two or three hours would be attended by the same fatal result.

These facts are suggestive and bring prominently forward the serious importance of attending to the state of cutaneous cleanliness not only in man himself, but also in those domestic animals which minister to his wants. But this subject, together with kindred topics, must be deferred to another paper. M.

Spaying Cows.

Translated from the "Journal d' Agriculture Pratique."

A farmer has recently demanded that there should be a law made to prevent the slaughter of calves; it would be necessary to demand at the same time a law requiring the farmer to produce two, three, or four times the usual amount of forage. The second decree should at once follow the first, for we cannot suppose it would be possible for a farmer to keep or raise a calf when he has not food sufficient for it.

If we consume more of veal in France than in England, it is for the reason that we produce less roots and forage. Now in interdicting the slaughter of calves, we do not make the least gain in the world. Is it true that at the end of year there remains a surplus of unconsumed forage? If not, it is not true that consumers are wanting.

This simple argument answers the objections which have been made to the spaying of cows.

"But you diminish the production of meat, you dry up the sources of public aliment.

Do you believe, then, that if we spay cows at the age of eight or ten years, after they have borne three or four calves, the quantity of edible meat will be diminished? It is probable that the number of calves will decrease, that is to say, the number of calves from old cows, and which are killed at six weeks old—animals of bad shape, with skeletons prominent with narrow chests and big bellies, poor consumptive beasts, children often of consumptive mothers.

There will be, perhaps, less veal, but more beef. It is not so much the numbers of animals killed upon which depends the quantity of edible meat, but the state of the animals as to their more or less perfect fattening. What advantage is there in having a mass of bones covered with muscular fibres containing neither juice or other nutritive qualities? What we do need is flesh, and good beef flesh, when at least it can be produced by the cow.

Do you not know that among domestic animals the flesh of the female is more tender and succulent than that of the male? To make the cow a better animal than the ox, we have but to do as with the male,—to take from them those organs which have become useless and which by their powerful influence upon the animal economy tend to prevent their taking on flesh.

We shall thus slaughter less poor cows and more good ones. There are old worn-out cows killed at fifteen or eighteen years of age, of which the flesh is hard, tough, and with but little nutritive quality, to the detriment of the reputation of the beef of cows. But we are well convinced that the production of meat in place of being diminished will augment. Instead of losing nourishment in a bad machine which consumes much and returns nothing, we put roots and forage into an excellent apparatus which receives little and returns much. A beef animal is a machine to produce flesh, as the field is a machine to produce corn; there are good and bad animals in point of fattening, as there are good and bad fields in point of production.

Consider an unhappy man afflicted with a tape worm; he eats like an ogre and remains as thin as a nail; nothing profits him. Most old cows have a tape worm.

But the production of milk? you will say. Nourishment given to a spayed cow produces a double effect. It augments the production of milk at the same time that it predisposes the animal little by little to lay on fat; thus when the cow does not produce a quantity of milk sufficiently remunerative, she is found presently fatted and all ready for the butcher. A good spayed cow gives in the first year of milking four, five, and six thousand litres (quarts) of milk. These figures have been sufficiently established by the most unquestionable authorities.

The flow of milk is as abundant during the year as in the first days, and lasts

much longer than with an ordinary cow. It has been estimated that for an ordinary milch cow receiving sufficient aliment, the augmentation of milk may be reckoned at the least at thirteen hundred and fifty litres.

On the other hand, the yield of milk is not only superior with spayed cows, not only is the fattening of these animals quicker, more easy and complete, but the milk will return a third more in butter and cheese, and the flesh is more succulent, tender, and more thoroughly penetrated with fat.

This double phenomenon is easily explained by the youth of the cow, by the distance from calving, by the placidity of the cow disembarrassed of the troubles caused by the rutting seasons. The digestion is always good, and the animal is always quiet, and all that it consumes goes to its profit.

In proportion as the time of calving grows distant, the milk becomes more equal and more homogeneous; it acquires, in a word, more of the quality of that which comes from a cow not spayed when she is in a state of perfect quiet.

But it is often very difficult, if not impossible, to obtain without spaying, this state of quiet; above all, when we give much provender to obtain large products. And if we prevent the covering of the cows, what disorders are produced in the milk functions from the fact that the natural desires are unsatisfied? How many cows contract then the terrible malady of hysteria or nymphomania? The number of cows "bull mad" can fairly be estimated at one-tenth, and all these cows are sick animals.

It is easy to render an account of the advantage offered by spaying cows under the report given of their milking qualities, when we know to what regimen the herdsmen in the vicinity of Paris submit their milch cows, to the end that they may relieve them of those affections which spaying makes completely and suddenly to disappear.

The milch cows of Paris receive abundant and succulent nourishment, but that which debilitates them and renders them lymphatic, and augments the quantity of milk to the detriment of quality. They are confined permanently to stables, and never allowed to see the light, in order that the rutting season may be delayed as long as possible. They become rapidly consumptive, and produce poor milk during their period of lactation, and give, after they are slaughtered, flesh worse than the milk.

With spaying, the necessity of this unwholesome treatment ceases. The herdsman buys good cows after their third or fourth calving; he has them spayed, and puts them on good healthful treatment; he obtains more and better milk than from his poor and consumptive cows. When the milk diminishes the animal takes on fact, and is sold for a good price and in excellent condition.

These are the different considerations which have determined us after a long and serious study of all the facts gained by repeated experiments, to put the spaying of cows among the number of operations that it is needful to encourage among farmers.—[*American Farmer.*

From the British Agricultural Magazine, Plow and Farmers' Journal.

Jethro Tull's Principles of Cultivation.

BY PROFESSOR WAY.

Two lectures were delivered [in 1852] on the above subject, at the Rooms of the Royal Agricultural Society, in Hanover-square.

FIRST LECTURE.

Prof. Way stated that his object in the present lectures was to call attention to the principles enunciated by Jethro Tull fully a century ago, and to make such quotations from his work as would seem most forcibly to illustrate his views and the arguments by which they were supported. In doing so Mr. Way wished it clearly to be understood that he was not advocating any system or practice founded upon those principles, but simply pointing out how far the ideas of an author who wrote almost before the dawn of modern chemical science were compatible with the facts and laws which have been since recognized and established. As might be anticipated, wherever Tull attempted any scientific explanation of facts, the terms he employed were antiquated and obsolete—in accordance with the vague and fanciful theories of the older chemists and physiologists, but utterly inconsistent with the present state of these sciences. Still, in the midst of all these crudities there might be seen a large amount of philosophical reasoning; and those who carefully studied the writings of Tull would find that many of the discoveries in agricultural science which are accorded to philosophers of the present day, were more or less clearly anticipated and announced by the author in question. Cobbett, to whom we are indebted for the most convenient edition of Tull's book, takes occasion in his preface to pay a deserved compliment to the excellence of its contents, and to remark that the re-publication of the work would strip many modern agricultural writers of their borrowed plumage. The great principle of Tull was, *that the soil and the air together contained all that was necessary, without the aid of manure, for the production of luxuriant vegetation;* but that, in order to render the one and the other available for this end, *it was necessary that the soil should be opened up by abundant pulverization and comminution of its parts.*

The arguments with which this view was sustained were most forcible and convincing. The better to illustrate his meaning, he had compared the parts of the earth to which the roots of plants attach themselves with the grass or herbage on which animals feed. Thus the fissures or openings through which the roots penetrate, and the internal surface upon which they spread their delicate fibres, constitute, in Tull's language, the "pasture of plants"—a most happy expression, and one which facilitates in the mind the comprehension of his subsequent reasonings. So then, as an animal will grow and fatten in proportion to the suitability in quality and sufficiency in quantity of the food to which it has access, in the same manner the rapidity of growth and the luxuriance of a plant will depend upon the nature and abundance of the pasture provided for it in

the recesses of the soil. But the pasture of plants differs from that of animals in this important respect—that whilst in the latter case the quantity can only be increased by taking in more surface, the pasture of plants may be indefinitely extended and renewed by the pulverization of the soil, which is constantly exposing new surfaces to the roots. Nothing can be more true, as Tull says, than that for all practical purposes the soil is infinitely divisible; and that, since the roots of plants cannot by possibility occupy every insterstice which may exist in a highly comminuted soil, each additional stirring is tantamount to the production of a new internal surface, and a fresh source of food. Then he argues that constant comminution and opening of the soil not only enables the roots of plants to benefit by the stores of food already existing in the soil, but that it at the same time materially increases that stock, by letting in the atmosphere loaded with invigorating and healthful supplies. It is obvious that Tull could have had only a faint notion of the changes in the nature of the soil which might be brought about by the influence of the air, and we can imagine the pleasure which he would have derived from the acquisition of the more exact knowledge which in relation to this point we now possess; but none the less was he convinced that such an influence was exerted, and one of the objects of his method of cultivation was to take full advantage of it. Acting upon these principles, Tull had introduced a system of cultivation of crops planted in rows by the drill, and had earned thereby the gratitude of posterity, which was exhibited in the almost universal adoption of that system. But he had also attempted a method of growing crops which had not been so generally followed. In addition to the provision for stirring the soil between the rows of plants, he had left intervals of varying but very considerable width, between every second or third row, which enabled h'm at all times of the year to carry out his principle of pulverizing the soil. These intervals were in fact in the position of a naked fallow for the year, and were in the succeeding season, in their turn brought under a crop. Mr. Way did not intend to enlarge upon the practical part of this subject, which many of his hearers understood far better than himself; but he wished, irrespectively of any particular form of accomplishing that end, to impress upon them the great importance and value of a thorough comminution of the soil, both as rendering available its present riches and enabling it to receive from the air whatever beneficial effects the latter was able to produce. Mr. Way read a number of passages from the author's work, commenting upon and explaining them as he proceeded, and concluded his lecture by commending the book to the careful study of all those who had not yet become acquainted with it.

SECOND LECTURE.

Prof. Way's object in this second and concluding lecture was to examine how far the views and principles of Tull were consistent with the modern discoveries of agricultural chemistry. Plants consisted of certain organic and mineral ele-

ments, the nature of which was now well understood. The question was, could these substances be supplied by the air and by the soil without manure, as Tull supposed? It was pretty generally conceded at the present day that carbonic acid, ammonia, and water, together, were capable of furnishing all that was necessary to build up the organic structure of plants; whilst no soil of ordinary fertility would be found, upon examination, to be absolutely deficient in any of the mineral ingredients that were required by vegetation. The air contained both ammonia and carbonic acid, but it might be open to question whether in sufficient quantity not merely for a *natural* but for a *forced* production of wheat and other crops, such as alone would suffice for the wants of a populous community like that of this country. The quantity of carbonic acid in the air had been found by repeated experiments of M. Saufeure to amount, on the average, to a thousandth part of its weight, and Liebig had calculated that at any one time there was in the air as much carbon in this invisible form as would suffice for the production of the whole coal fields existing throughout the world. It required no stretch of the imagination, therefore, to suppose that with the air constantly in motion, and constantly renewed to the roots of plants, they might receive from this source all the carbon which was required for their growth. Whilst, too, every disintegration of the soil gave access to this carbonic acid in larger quantity for the direct supply of food, indirectly it contributed to the sustenance of plants by rendering available the necessary mineral elements of their food, which water impregnated with carbonic acid was capable of dissolving. With regard to the quantity of ammonia in the air, we did not possess such satisfactory information. Of its existence there, no one entertained a doubt; it was produced by the decay of animal and vegetable bodies, given off in the exhalations of living animal bodies, and probably in the sweet perfumes of flowers, and thrown out in certain parts of the world in immense quantities by volcanoes. But to ascertain the proportion of ammonia in the air was extremely difficult, and although it had been attempted by more than one able experimenter, the results must only be looked upon as distant approximations to the truth. Fresenius, to whom the most careful experiments on record in regard to this matter are due, found that 1,000,000 parts by weight of air contained 0.133 parts of ammonia. Without stopping to examine the probability of these figures representing the average amount of ammonia in the air, we might ask whether such a quantity would suffice for the wants of an abundant vegetation. This question it was impossible to answer. Mr. Way's own recent investigations had brought to light the existence in the soil of certain double silicates, possessing the power of abstracting the carbonate of ammonia from the air with as much avidity as if they were strong acids. A good soil, well opened by cultivation, would therefore be constantly at work, day and night, collecting ammonia from the air; and the quantity that could be so obtained would only be limited by the frequency of the renewal of the air. Of course we could not say how often this would take place; but what with alternations of temperature, differences in the

heat of the soil and the air, the influences of wind, and perhaps also a constant interchange in the particles of air themselves, it was evident that the renewal of the air in the soil, and the consequent acquisition by it of ammonia, might go on to a very great extent. And it was worthy of remark, too, that this collection of ammonia by the soil was quite independent of rain and dew, and was always proceeding. The more, therefore, the soil was exposed to the air the richer it would become. Of course Mr. Way spoke of soils containing a sufficient quantity of clay. Some light soils there might be that would be injured, not benefitted, by such exposure. Mr. Way went on to speak of the experiments of the Rev. Mr. Smith, at Lois-Weedon, expressing the great gratification which he had experienced from a visit to that place. These crops of wheat, which were now growing on land which had been for six years under wheat without manure of any kind, looked as if they had received a dressing of ammoniacal salts; and that, indeed, was the fact, though the ammonia had been added not directly, but indirectly, and from the air, by the abundant cultivation which Mr. Smith's method enabled him to give. Mr. Way was of opinion, then, that, so far as the organic elements of vegetation were concerned, there was no absolute impossibility, but, on the other hand, every probability, that they might be secured in all abundance for large crops without manure, provided that the soil was fully exposed to the influence of the air. The only question that remained was in regard to the exhaustion of mineral matters by this mode of cropping. Mr. Way believed that the danger of mineral exhaustion in soils was frequently very greatly overrated. There was no doubt that the continuous cropping by wheat, or any other plant, without the return of anything in the shape of manure, would gradually, but certainly, reduce the quantity of mineral matter contained in the soil; but the quantities so removed were now accurately known, and it would be found that a continuous course of cropping by wheat for many years took from the land only a very insignificant quantity of these substances. The following table showed the amount of phosphoric acid, potash, &c., removed by a large crop of wheat in one year and twenty years respectively, and in another column of the table would be found the per-centage composition which the soil must have to yield them for twenty such crops:—

THIRTY-FIVE BUSHELS OF WHEAT AND TWO TONS OF STRAW.

	1 crop. lb.	20 crops. lb.	Per-centage removed from soil by 20 crops.
Silica, . . .	171	3420	0.152
Phosphoric acid, .	30	600	0.027
Sulphuric acid, . .	8	160	0.007
Lime, . . .	16	320	0.014
Magnesia, . .	10	200	0.009
Potash, . .	39	780	0.036
Soda, . . .	3	60	0.003
	277	5540	0.248

The per-centage removed from soil by 20 crops is calculated on the assumption that the soil is 10 inches deep and weighs 1000 tons.

Those who had had anything to do with the analysis of soils would see that no soil of ordinary fertility would be found without a small quantity of those minerals here mentioned—indeed, it is usually the case that a loamy soil would contain from two-tenths and upwards of potash, and other things in proportion; and although the whole of this might not be available at any one time, the constant stirring of the land bringing into play the action, furnished a constant supply adequate to the wants of the plants. But although there might be no danger of exhausting the land by this system of cultivation, Mr. Way did not see what good reason there was for continuing it on the same land for more than a certain number of years—say seven or ten—and then alternating with other land which had been meanwhile under manure. In conclusion he begged to say that, having shown as far as he was able, the admissibility of the improved Tullian system on theoretical considerations, his duty was over: it was for practical men themselves to test thoroughly the merits of the plan, and to decide upon its ultimate adoption or rejection.

For the Southern Planter.

Defense of the "Rafter Level;" Separating Onion from Wheat, and Protection against Sheep-killing Dogs.

MARCH 18th, 1861.

DEAR SIRS.—In your last number I have just read, with much pleasure and profit, the premium Essay of Mr. Edmund Taylor, and while I ratify the most of his positions, and smiled at his happy hit at "the Devil on two sticks," I must nevertheless take leave to make my earnest protest against his denunciation of the "*rafter-level as utterly useless.*" I know not how they are made, or how used in his section, but opine that he has never seen one rightly constructed. For fifteen years or more I have used one, and would not be without one for a hundred times its cost. Neither can I believe that his "legged scantling" will answer well unless supplied with proper pedestals or horizontal foot-boards. Anyhow, I would not exchange mine for his. I admit that as first used, without pedestals to obviate depressions, the Rafter-Level was unreliable on plowed or uneven land; but with horizontal foot-boards attached from two and a half to three feet long, I know from years of experience that the Rafter-Level thus constructed is as reliable, cheap and convenient as any instrument of this kind can possibly be. Being too old to manage one myself, I trained a couple of my men to use mine, and though not smarter than negroes generally, they manage it without any difficulty and with rare failures, and travel with it almost as fast as they can walk. I very seldom superintend them, but entrust them with general directions, and I am sure that their work will abundantly commend both them and the implement. Anyhow, I would be very happy to compare the results of my Rafter, managed with negroes, with the results of friend Tay-

lor's, even if managed by himself, and I will give him the benefit of my horizontal pedestals to help him.

While with pen in hand, I trust I may be pardoned if I drop another might in your charity-box for our brother farmers. A portion of my farm, which has six shifts, is badly infested with wild Onion,—and the more so the seldomer it is cultivated. Year before last a portion of my wheat-field was so much beset with this pest that in reaping I ordered it to be gathered and kept to itself. The land being well manured, the grain was very good, and the quantity too considerable to be thrown away or given up without an effort to redeem it. Wherefore, after threshing and cleaning the body of the crop, I then threshed the infested portion, and tried to clean it with the fan, but soon found it was labour to little avail. Despairing of this means, it occurred to me that the Onion would probably *float on water*, while I knew that sound wheat would *sink* to the bottom. I determined instantly to test the idea, and on doing so in a tumbler of water I was much pleased to find the experiment admirably successful. Without any difficulty, except the labour of toating the water, pouring in the wheat and skimming off the floating Onions, I soon washed and cleared my wheat, and when dried, had it ground into fine and pure family flour. I deem this a very valuable discovery, especially to sea-board farmers, if they have found no better mode of separating the Onion. For large crops this means may not be available without appropriate fixtures, but for seeding and for family flour it may be used without difficulty and with much despatch. The quantity of Onions thus separated would, I suppose, amount to three bushels. But I am grieved to add, that this triumphant success cost me no less than from twenty-five to thirty dear little Muscovies, which, as soon as they espied the bright shining globules poured out to the ground, gathered themselves with more than usual alacrity and delight to the tempting treat; but, alas! not one escaped, but in an hour or so they all paid the sad penalty of their delightsome debauch by giving up the ghost in violent convulsions, and for whom my old house-keeper mourned one week at least.

And while in the good spirit of communicating, perhaps my brother farmers will not grumble if I drop them another mite in your treasure-box. In our section, dogs have ever proven a serious impediment to sheep-raising. My own flocks, in particular, suffered from this enemy so often and so much, that I was once on the verge of abandoning the care altogether. Like other beasts of prey and assassins in general, dogs do their depredations under cover of the night, and rather shun the day, lest they be identified and have to pay the penalty of their crime. Now, I have found a remedy for this pest also; and it is as simple and as sure as my other mite. It is to *pen* your *sheep* with one, two or as many more *cows* as you like. *Cows* having young calves are preferable. Cows, as everybody knows, abominate dogs, and will not suffer a dog to tarry with them a minute in the same pen; and hence they are a certain defence against this enemy. I pen them also for their manure, and in bad weather I

put them with my cows under a common shelter. Whoever may try this remedy, will never repent it, and if he values mutton and wool as I do, will never drop it, while there are any dogs to fear. But I must stop, lest I be deemed vain-glorious of *mites*; and three mites at one offering ought to suffice for a sexagenarian. Your friend,

Mount Latium. R. H. De Jarnette.

Influence of Different Kinds of Manure on Herbage.

The grasses form a most important tribe of farm plants. Nutritious in their bulky green state, and highly conducive to the health of the stock which browse upon them in our pasture fields, they are no less valuable when dried into hay. The natural history of the grasses has long since been written; they are what belong to one great family of plants—the graminaceous—and possess certain characteristic properties, by which we readily recognize them. The chemical and other properties of the grasses differ very considerably. One contains more albuminous compounds; another, more mineral ingredients; one is most nutritive at the period of flowering; another contains most nutritive matters when fully matured. It is, however, singular that we are not in possession of reliable data whereby to pronounce an opinion on the relative merits of the grasses. Science has thrown some light upon this subject; it is but a dim glimmer which prevents our seeing the entire distance before us. There is a dark place which must be illumined, and an ignorance which must be corrected, ere the farmer and the grazier can truly balance the merits and demerits of particular grasses, for particular purposes. Chemical analysis alone will not accomplish all that we require, any more than the empyrical conjecture of the more practical man; the two must coöperate, and naturally correct and assist each other.

The grasses, like other plants, are amenable to those various physical agencies which influence vegetable life. Heat, air, and light, exercise their own distinctive functions in modifying the size, etc., of plants. That there is a most intimate connection, too, between the soil and character of the vegetation which it naturally bears, is well known. It is also a well known fact, that the manures with which we top-dress grass lands very considerably influence the character of the sward, diminishing the proportion of one species of grass, and increasing that of another. The laws by which these modifications were effected, remained unknown, however, until Messrs. Lawes and Gilbert undertook to investigate the subject. In experiments instituted to test the effects of different manures, in simply increasing the valuable yield of grass, they were so struck with the marked effects of some of the manures in destroying certain plants and families of plants, that they sought the assistance of the late Prof. Henfry, in classifying the plants composing the sward. The plots selected for botanical examination were:

1. Not manured.
2. Manured with ammoniacal salts alone.

3. Manured with mixed mineral manures alone.
4. Manured with do. and amoniacal salts.
5. Manured with do. and double quantity of do.
6. Manured with farm-yard manure.
7. Manured with do. and ammoniacal salts.

The herbage was classified chiefly into (*a*) graminaceous plants, (*b*) leguminous plants, (*c*) miscellaneous herbage, principally weeds.

The graminaceous plants formed, at the time of cutting, 75 per cent. of the produce of the unmanured portion; on the part manured with farm-yard manure, they found 87¾ per cent.; 79¾ per cent. when farm-yard manure and ammoniacal salts were used; 72 per cent. on the portion to which mineral manures were applied; 80 per cent. where forty pounds of ammoniacal salts alone were used; 97¼ per cent. where the double allowance of both ammoniacal salts and mineral manures were applied. The quality of the graminaceous herbage varies, no less than the proportion of it which composed the herbage under the different manures.

At one time, the graminaceous portion of the herbage consisted of 66 per cent. of flowering or seeding stem, and 34 per cent. of leaf and undeveloped stem, on the unmanured plot; 59 per cent. of flowering and seeding stem by mineral manure alone; 40 per cent. of the same by ammoniacal salts only; 75 per cent. by the joint application of animal and mineral manures; 67 per cent. by double application of both manures; and 80 per cent. when farm-yard manure and ammoniacal salts were applied.

It has been found that the manures which increase the amount of whole produce, also increase, in a very high degee, the proportion of graminaceous herbage, a conclusion which is not of less interest than importance. The foregoing facts also lead to another instructive conclusion, namely, that nitrogenous manures have a special effect in developing the "proportion of leaves and shoots," while mineral manures tend to the increase of the flowering and seeding of the plants; a conclusion of great practical value to the farmer, as it teaches that guano and sulphate of ammonia produce very different results from those mineral manures which depend for their efficacy on their containing the ash constituents of plants.—*Irish Agricultural Review.*

Cure for Fever and Ague.—Just before the chill comes on have a pot of very strong coffee made and keep it hot, and when the first chill is felt, pour out about a pint and squeeze the juice of a couple of lemons into it, and a little sugar to make it palatable, drink it off, go to bed and cover up warm. One trial of this often cures, whilst two or three trials never fail.

The Worst Form of "Hanging."—The following gives the substance of a verdict of a recent coroner's jury on a man who died in a state of inebriation: "Death by hanging—round a rum-shop!"

Editor's Department.

Clover and Plaster.

A question asked by "A Farmer," in the February number of this journal in regard to the experience of farmers in the use of clover and plaster, suggests a few remarks upon their importance in agriculture. The use of clover and plaster as improvers of land have become so general and the experience of farmers almost everywhere is so decidedly in their favour, that any arguments at this time would seem to be almost unnecessary, if not out of place, if it were not that the question asked by "A Farmer" would seem to imply a doubt upon his mind, and that in our own experience we have seen so many farmers who practically ignore the use of clover, if not both clover and plaster, as to lead to the belief that they know nothing of their virtues.

In every country in which agriculture has made any progress, the growth of certain crops to be plowed in as *green manures* is very common, and in those countries where agriculture is most advanced, their use is almost universal. Prominent among the plants used for this purpose, on all soils suited to its growth, stands the common red clover. Indeed, so well known have its virtues become, that when in the improvement of land, the former gets it in such condition as to produce good crops of clover, judicious farmers regard that land as susceptible of a high degree of improvement.

All plants derive their nutriment partly from the air and partly from the soil; the inorganic portion, that which constitutes the ash when the plant is burned, is derived exclusively from the soil through the roots, while the organic, or vegetable portion, is derived in part from the soil through the roots, and in part from the atmosphere through the leaves—by far the largest portion, in most cases, being derived from the latter source. Those plants, such as clover, which have long roots, take up mineral matter not only from the surface soil, but from the subsoil also, provided it is not too hard to permit them to penetrate it, and when they are turned into the surface soil by the plow, the latter becomes the recipient of mineral fertilizing matter from below, while it at the same time receives large supplies of vegetable matter which the plants derived from the atmosphere. And thus they become important agents in supplying the soil with nutriment for future crops.

The native forest trees send their roots down deep into the earth, many feet sometimes, from whence they draw up and deposit in their stems and leaves such mineral matter as may be necessary for their development; while their leaves are spread out to draw organic food from the air. The leaves, small branches, &c., fall, taking with them, of course, all the fertilizing matter they contain;

thus the surface soil receiving this annual *top-dressing*, becomes more fertile from year to year. Again the exhausted field, after being turned out as no longer worth cultivating, grows up in old-field pines, which deriving their mineral food from the subsoil *below* the exhausted surface soil, and like the forest trees drawing their organic food from the air, a large portion of both of which being returned to the surface soil in the falling leaves, &c., the surface soil in the lapse of years is restored to fertility. In this way thousands and tens of thousands of acres, which were impoverished by the exhausting system of our forefathers, have been restored.

Now, the farmer who grows green crops and plows them in, imitates nature in her processes; his land goes on improving from year to year, or he keeps it in good heart, and he is enabled to take large crops from it without any apparent exhaustion.

"In addition to the matter these plants collect from the air and from the subsoil for the use of future crops, we must not overlook the physical influence they possess. In a strong clay, warmth and porosity are given; and upon light and friable soils, tenacity and firmness are imparted by the fibrous roots. Without a previous crop of this kind, many lands are too light to grow wheat."

Among the plants grown for green crops, clover deservedly holds the first place in our country. Its growth is rapid and vigorous; its roots are long and abundant, &c., so that if cut for hay, or is pastured—if not grazed too close—the roots will still yield a large percentage of organic matter to succeeding crops. It has been shown by actual experiment that the quantity of dry vegetable matter contained in the roots after cutting the clover, is more than half of the weight of the hay which the clover yields.

But we do not propose to confine ourselves to theoretical considerations; the almost universal use of clover by good farmers as a green manure, wherever it can be successfully grown, demonstrates its great value as a fertilizer. It is universally conceded, too, that, excepting in particular localities, the plowing in of the clover crop is the *cheapest possible way to keep up the necessary supply of organic matter in the soil, or to restore it after exhaustion.*

Plaster, on a great variety of soils, is found to exert a marked influence upon the growth of the clover crop, very largely increasing its yield, and thereby becoming an exceedingly valuable fertilizer.

Examples illustrative of the great value of clover as an improver of land, and of plaster when used as a top-dressing to clover, may be found in every neighbourhood in which clover is grown; in our own limited experience we could point to many farms that have been brought up to a high state of fertility by their use. Of these we propose to mention a single one, and we mention this because of the fact, that by the use of *clover and plaster only*, in connection with the straw, corn-stalks, &c., of the farm it has been brought up from a state of great apparent exhaustion to a condition of great fertility. We refer to the farm of Mr. Samuel Line, of Rockbridge. This farm had, for many years before Mr.

L. purchased it, been growing poorer and poorer, and two or three successive owners had been broken up by it. Now it is one of the most productive in the county, the simple result of twelve or fifteen years judicious use of clover and plaster. Mr. Line's rule is, to fallow his grain crops with clover in all cases, which is kept on the land for from two to three years. The clover is seldom cut, and but little stock is allowed to graze upon it; hence the soil seeds itself from year to year, until now he does not find it necessary to sow clover seed after any crop of grain; the clover follows the grain crop without fail. After breaking up the clover sod, one crop of grain only, except in rare instances, is taken from the land before it is again allowed to come up in clover, after which, as we before remarked, it stands from two to three years. He keeps but little stock on the farm, and hence has but little stable-manure. But all the straw, corn-stalks, &c., are returned to the land, generally as top-dressings to the clover, and now the land in good seasons yields from thirty to forty bushels of wheat per acre, with corresponding crops of oats and corn. Mr. Line, by this *nursing* system, may not, and we believe has not, realized the same profit from his farm that he might have done had he varied his system somewhat; but all must see that he has been eminently successful, and the great benefits resulting from the use of clover in this instance, furnishes the strongest possible argument in favour of its extensive use by all farmers who look to their own interests, or wish to improve their lands.

The Virginia Central and Orange and Alexandria Railroads.

Through the kindness and courtesy of some of the officers of these two roads, we have lately enjoyed the treat of a free ride over them to Alexandria. As a boy, we were well acquainted with many of the farms situated on them, and had in "auld lang syne" spent many happy months and days among the farmers of Orange and Culpeper, taking then, as we do now, much interest in agricultural operations.

We don't like to acknowledge how long ago it has been since we enjoyed the plain, cordial, genuine Old Virginia hospitality of these gentlemen farmers, since, in our recollections of the past, we cannot trace farther back than "*time was.*" However, we do most heartily rejoice for ourselves, and for them that *time is*, and that they at least are improving its fleeting opportunities in works of usefulness and good example to our agricultural brethren, if the increased value, fertility, and beauty of their farms may be received as testimony in favor of their industry and success.

There are many valuable farms along the route between Gordonsville and Alexandria—the cultivation of which has perceptibly improved within the last few years. The wheat crops were looking remarkably well, and we could see an increased energy and neatness in the preparation of the lands, on the part of the owners, evinced by the general appearance of the plantations.

Much of the scenery is charming to the traveller's eye—particularly if he be

a "low-lander," to whom a glimpse of the mountains is something new and agreeable.

For our own part, we cannot go in sight of the mountains without feeling as if we were a boy again, when the first view we had of them, was our very first assurance that we were to be free from the drudgery of lessons and school for two months of "vacation"—during which we had a perfect right, and the most honest intention, to "run wild," until compelled by "higher law" than our own inclinations to return to schools and lessons again.

Well! we must confess to being *just a little older now*, or we are in danger again of running wild over the memories of "time was."

We must say, however, that having known this region well in earlier years, we noticed it as closely as we could to detect the changes made in it during our years of absence from it. It is as important for the farmer as it is for the politician that he should "tread no step backward." If we would avoid loss, we must press on. We were gratified to note many changes for the better. The improved style of building some fine *new* houses—the *remodelling* of some old familiar ones—the manifest effort to render the tillage of the soil *neat*, as well as useful and necessary, all tended to show an increased cultivation by the farmers themselves, in matters of rural taste and accomplishment.

The country would be still more improved by *Draining*, and we would suggest, to some of our friends there, some experiments with *Tile* for this purpose. We are sure they will be pleased, as well as profited, if they will make them.

In Alexandria we were glad to see so much of the "Old Virginia" feeling prevailing, notwithstanding they live in such close proximity to "the powers that be," *and the big guns and troops of armed men which at present make up so conspicuous, if not necessary a portion of the "forms of government" observed among them.* We found some of the good citizens quite "sassy," politically; or, at least, they might be so considered by some of the members of the "Constitutional majority!"

We heard talk of "secession" amongst them in such tones that we concluded they had forgotten where the "border" is, or that they were not at all frightened by the chances and dangers of the "first fire." They are a creditable set of representative men for the "Old Dominion" to have on her border to show to all incomers as samples of the "Old Virginia Gentlemen." We shall not forget their kindness and hospitality readily. Having no particular claim on either, we found them unmeasured, and enjoyed them exceedingly.

In the city we found evidence of increased energy and business effort among the merchants of the place. We paid a visit to the Guano Works of Messrs. Fowle & Co., and had an opportunity of witnessing the process by which their guano is "manipulated" and rendered "soluble" under the special superintendence of Dr. Stabler. We were glad of the opportunity politely afforded us, as we like to know how the "Peruvian Guano" is mixed with the "phosphatic materials" before it is offered for sale to the public, since we have for sometime

past believed in, and acted upon the theory of mixing the two, upon our own farm.

We have access to the mills of *this* city at all times, and the most perfect confidence in the genuineness and good quality of the guano sold by them and by Messrs. Fowle & Co.

In recommending the "Manipulated Guano" of Richmond and Alexandria, we do not wish to be understood as undervaluing *any put up outside of the State*, but simply to appeal to our own citizens to buy nothing from the other side of our borders, which can be, and is produced among ourselves as cheaply, and of as good quality as can be promised elsewhere.

Some of the best *plaster* we ever examined was being ground and sent off to some of the "Planter's" friends on the Central Railroad, *at the mill of H. D. Wright, Esq., at the rate of Six Dollars a ton, too.*

Look well at this, you Richmond manufacturers, if you please, and see if you can, give us the benefit of a reduction in price *here*. Mr. Wright has a large steam mill, situated between the railroad and the wharf—admirably located and arranged for filling orders with promptness, and our word for it, every customer of his will get satisfaction, in a good article, and good measure. We could wish no friend of ours any better luck than to fall into his hands, as we did.

We looked into the large agricultural warehouse of our old patrons, Messrs. Meade & Marye. We were sorry not to find them at home, but we did find an admirable selection of implements and seeds of every description, needed by our brother farmers.

During our stay in Alexandria we took a ride out to Mr. Geo. D. Fowle's farm, "Burgundy," for the express purpose of seeing the effects of the guano he manufactures upon his own soil. We found it acting well there, and we had the *extra* gratification of closely examining a herd of fine Alderney cattle, the descendants of six cows and bulls, which Mr. F. imported from the Isle of Jersey in 1855. We were so much pleased with them, that we wrote to Mr. Fowle after our return home for their history, and give herewith an extract from his reply, describing them, and a remarkably fine colt of his, which we thought promised great speed as well as beauty :

Alexandria, March 12th, 1861.

Dr. J. E. Williams, Richmond:

My Dear Sir—Your valued favor addressed to my firm is before me, and in accordance with your request, I beg to state in reference to my herd of Alderneys, that they were imported (6 cows and 2 bulls) from the Island of Jersey by myself in the summer of 1855, and were all premium animals, having taken the first prizes at the Fairs of the "Jersey Agricultural Society." I have, at present, about twenty head, having disposed of a number of calves to farmers residing in various parts of the county. Hon. Jas. B. Clay of Ashland purchased from my herd after having examined others. He pronounced my herd to be the most thorough-bred looking he had seen. I have, however, never made an effort to bring them into notice, having imported them for my own special use. My stock

is now becoming rather larger than I desire, and I should like to dispose of a number of calves at moderate prices.

My Black Hawk colt, "Black Prince," was sired by my Black Hawk stallion Greyhound—purchased by myself from a Mr. Stone of Bridgport, Vermont. Greyhound was sired by old Black Hawk, as is proven by a letter addressed to me by David Hill, his owner, and now in my possession. His dam (so says Mr. Hill in said letter) was sired by a horse called "North America," whose sire was "Sir Walter," "said to be from Viaginia." Black Prince's (my colt) dam is my grey mare "Pet," one of the most perfect animals I ever drove. The pedigree is unknown to me. I remain, very truly yours,

GEO. D. FOWLE.

We cannot take our leave of Alexandria without mentioning one article of their "*home produce,*" which struck us as being particularly abundant in quantity and very extraordinarily good in quality, to wit—*pretty girls.* Happy boy should he be who lives here, or in Petersburg, surrounded by so much beauty of an attractive kind. They can well afford to brag of their ladies. For ourselves, we are out of the market; and while we cannot help "risking one eye at them," whenever we get a chance, we are *somewhat afraid* to talk too loud, or too much about them, afterwards.

For the Southern Planter.

Suggestions to the Editors.

MESSRS. EDITORS.—As I have been always a subscriber to your excellent journal, and very earnestly desire its full success, you will, I hope, excuse me for venturing to offer a suggestion in respect to the conduct of it. It is, that you adopt the plan of those excellent journals the American Farmer and Rural Register, of having at the commencement of each number a head of "Work for the Month"—with sub-divisions, for the "Vegetable Garden," "Green House," &c. It makes those papers not only agreeable but very valuable, and far more useful and popular than long essays, although these are not to be dispensed with entirely. You will render much service, too, by giving the quantities of seed of all kinds proper to be sown and planted.

Allow me, if you please, to offer another suggestion. It is, to use your scissors more; give us more clippings and cuttings from other agricultural papers, and sometimes even a little bit of news proper. Among the selected articles I would especially ask for Dr. Voelcker's article on Manures, before the Royal Agricultural Society of England. May I ask you to re-publish, also, a description of a subsoil plow, which you will find on page 250 of the number before last of the Farmer, and recommend to some of our vendors of agricultural implements to obtain one or two specimens of it, at least? I will purchase one. If it is the thing it is described to be, it is an admirable implement, indeed, a great dissideratum. LABURNUM.

REMARKS.—We are glad that our old patron "*Laburnum*" has kindly manifested so friendly an interest in our success, as to induce him to give us the benefit of suggestions which he thinks calculated to make our efforts more acceptable and useful. We sincerely thank him for it, the more especially since we must, in reply, act on the defensive, and plead somewhat in justification of ourselves in regard to the manner in which we have conducted this journal. We think we have discovered under the disguise of "Laburnum" a gentleman

well known and distinguished in our community for his great courtesy and tender respect for the feelings of others, which so beautifully adorn the conduct and character of "the pefect gentleman." We know, therefore, that to such a friend we may speak with no fear that aught we say will be unprotected by the mantle of charity.

1st. We have thought always that the best way to serve the interests of our patrons, was to give them all the essays on Agriculture and its kindred subjects—from the pens of distinguished and practical farmers—that we could procure, *because* our journal, being "put up" in magazine form, is suitable for their preservation, and for reference to them at all times.

2nd. We have not hesitated to use our scissors freely, transferring to our columns any article, from any paper in any quarter of the globe, which we thought would benefit or interest our readers, and make them more zealous and active in the cause of farm improvement; in short: we have tried, to the best of our ability, "to improve the soil and the mind" of all those who were disposed to place themselves amongst "our readers."

For this cause we have been scolded, and told that if we did not give more of the experience of Virginians, we would not be supported.

We have been asked more than once in this connection, "What have we to do with England or English agriculture? What do we care for extracts from *other* papers?"

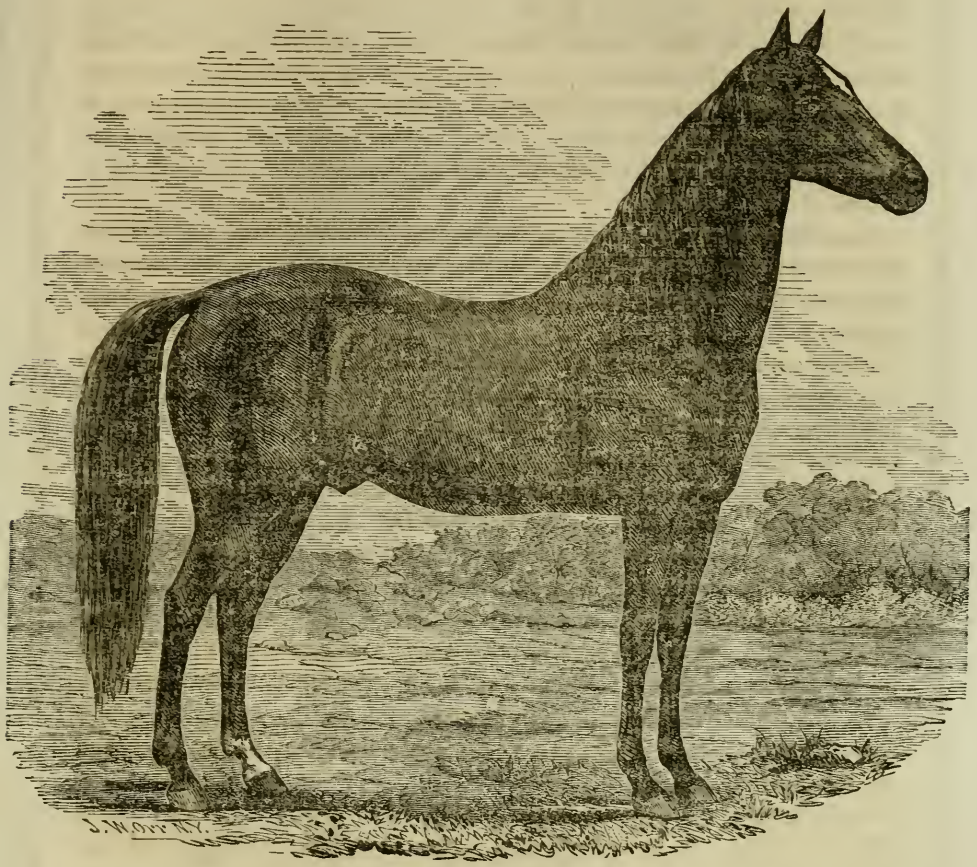
WE, in common with such complainants, *want communications from Virginia farmers.* We print what we can get, and *are always asking for more.* This fault and the remedy for it lie entirely in the hands of Virginia farmers. They "will not consider" and repent of the one, nor apply the other. But we hope they are waking up at last to a sense of the good they can do one another, and to poor begging Editors, and will begin to write, and aid us by all the means in their power in circulating everything "of good report" in agriculture.

3rd We have been warned to print *nothing but strictly agricultural matter.* We run the gauntlet, and not unfrequently "catch it" on both sides—so that our correspondent will not fail to see that the *post of Editor, or any other servant of the Public,* is neither "a bed of roses," nor a sinecure.

It would give us the most unalloyed happiness to possess the power to "please everybody," could we exercise so desirable a charm without any sacrifice of duty or principle. We beg to assure all the friends of the "Planter," *particularly the old ones, who, like "Laburnum," have been steadfast and kind,* that we are always willing and ready to receive gratefully any suggestions of improvement, and to do everything in our power for their gratification and interest. All we ask is, that our faults may be considered (as they truly are) "errors of the head, and not of the heart." We desire the support of farmers everywhere—*from Virginians,* we think we have *almost a right to claim it.*

We will cheerfully attend to the requests of "Laburnum," and comply with his suggestions as far as is in our power.

This cut of "Black Hawk," although a good engraving, as a *drawing*, does not do justice to the horse by any means. He is very far superior in appearance to his likeness, as here represented.



BLACK HAWK.

Black Hawk, (late Hardroad,) now the property of S. W. Ficklin, of Belmont, near Charlottesville, Va., was foaled the property of Col. Bela Howe, of Shoreham, Vermont; his dam was a raven black, by a colt of old Hamiltonian, owned by Isaac Bishop, of Granville, Vt.

Black Hawk was sired by Hill's famous Black Hawk, he by Sherman, and he by Justin Morgan; is now eleven years old, a glossy black, 15½ hands high, weighs 1,085 lbs., is perfection in form and power, his gait and style inspiring his appearance so much, it is difficult to believe him to be the horse the above cut represents.

He was trained but three weeks when six years old, and trotted in a race with "Sherman Morgan" or "North Horse," (his half brother,) over the Colchester track, near Burlington, Vt., making six heats of one mile each—trotting a mile in 2.44; and has been kept since only for stock purposes, and the last eighteen months as such by his present owner.

Agricultural Communications.

Since our connection with the Agricultural Press, we have not failed to beg the farmers of Virginia to write for our pages on any and every subject of interest to them, and we have often felt discouraged at the want of success attending our appeals. We hope a better condition of things is about to be inaugurated, and that we shall have very frequent essays, not only from *our* particular friends, but from *farmers* who are actuated both by the desire of improving themselves, and of doing good to others by imparting useful instruction, the result of their experience, or making hints for farm management or experiment, which may add variety and interest to our employments, and money to our incomes.

Farm Literature has been too much neglected in our own State, and if we can all communicate the results of our practice to one another, we shall doubtless find much of good to copy from others, and something to abandon in our own systems.

Again we ask every farmer who may read these lines, to determine at once to communicate either to our own, or to the paper of some brother Editor, any and everything connected with rural matters which he thinks may be useful or interesting to the rest of his craft.

The time has passed when any sensible man can be found willing to hazard a sneer at "book farming," as everything new and of a scientific nature used to be called. Agriculture has advanced with rapid strides during the last decade, and its useful progress has, in a great measure, been promoted by the number of good agricultural books and papers, which are scattered through the length and breadth of our country—by the discoveries and teachings of chemistry, and by the advice of many of our most energetic and public spirited "book farmers."

Depend upon it, in ten years more, the "Old Fogies" in farming will be left out of sight in our race of progress, and they deserve to be, as they are rapidly becoming, out of mind.

The sensible, scientific farmer is the only man who *can* keep up. Muscle alone won't bear us along in safety to success. We must have brains as well. We must be forewarned, to become forearmed against the ruinous errors of ignorance and prejudice; and there is no better way for us to place ourselves in such a position as farmers, than by careful study and experiment, and by frequent consultations with each other. We offer you a medium for such intercourse in the "*Southern Planter*," and will be happy if you will avail yourselves of it.

"A word to the wise is sufficient."

Piedmont Communication.

THE article which the reader finds in this number of the *Planter* from the pen of our correspondent, "PIEDMONT," contains the "seeds of things." With philosophical discernment and the pen of a ready writer, he traces out some of

the principal causes of the humiliating dependence of Virginia on the North for many of the most common necessaries and conveniences of life, while if we did but obey the impulses of patriotism and the dictates of sound policy, we should exclusively patronize the producers of such articles at home, as entitled to preference on account of the highly important relations they sustain to our national and social interests. We hope to hear from "PIEDMONT" frequently.

Dwarf Pear Trees.

We return our thanks to JAMES GUEST, ESQ., for a bundle of excellent Dwarf Pear Trees, to which we promise to devote our best attention. We take pleasure in commending the Nursery of Mr. GUEST to public notice, as he is in all respects reliable and skillful.

The Bee Journal

Is an excellent little volume, published monthly in Philadelphia, by the Editor of that valuable agricultural paper, *The Farmer and Gardener.* It is entirely devoted to the interests of those engaged in raising Bees and Honey; and it should be liberally encouraged by all persons who are interested on the subject, and who wish to improve their knowledge of the proper mode of managing Bees to the best advantage.

Catalogues Received.

Messrs. Barnes & Washburne's Flower and Vegetable Seeds. Harrison Square, Boston.

Bridgeman's Flower Seeds, with directions for culture and treatment. No. 876 and 878, Broadway, N. Y.

Affleck's Rural Almanac. Thos. Affleck, (near Brenham,) Washington County, Texas.

The Mutual Re-action Between Thought and Language.

Thought and language have ever been most intimately allied. If language, by its originality of structure, and its native richness, can, in its delineations, interpret thought with grace and clearness, and if, by its happy flexibility, it can paint with vivid truthfulness the objects of the external world, it re-acts at the same time upon thought, and animates it, as it were, with the breath of life. It is this mutual re-action which makes words more than mere signs and forms of thought; and the beneficent influence of a language is most strikingly manifested on its native soil, where it has sprung spontaneously from the minds of the people, whose character it embodies. Proud of a country that seeks to concentrate her strength in intellectual unity, the writer recalls with delight the advantages he enjoys in being permitted to express his thoughts in his native language; and truly happy is he, who, in attempting to give a lucid exposition of the great phenomena of the universe, is able to draw from the depths of a language, which through the free exercise of thought, and by the effusions of creative fancy, has for centuries past exercised so powerful an influence over the destinies of man.—*Humboldt's Cosmos.*

CONTENTS.

THE SOUTHERN PLANTER

Is published monthly, in sixty-four octavo pages, upon the following TERMS:

TWO DOLLARS AND FIFTY CENTS per annum, unless paid in ADVANCE.

ADVANCE payments as follows:

One copy, one year, - - - - -	$ 2
Six copies, do - - - - -	10
Thirteen copies, one year, - - -	20
Twenty do do - - -	30
One copy, three years, - - - -	5

And one copy free to persons sending us the NAMES and MONEY for thirteen or more new subscribers.

All money remitted to us will be considered at our risk, ONLY when the letter containing the same shall have been *registered*. This rule is adopted not for our protection, but for the protection of our correspondents, and we wish it distinctly understood that we take the risk only when this condition is complied with.

ADVERTISEMENTS

Will be inserted at the following rates:

Business Cards of 5 lines or less, per annum, - - - - -		$5 00
One-eighth of a column,	1st insertion, - -	1 00
	Each continuance, -	75
	6 months, without -	4 00
	12 " alteration, -	7 50
One-fourth of a column,	1st insertion, - -	1 75
	Each continuance, -	1 25
	6 months, without -	7 50
	12 " alteration, -	14 00
One half of a column,	1st insertion, - -	3 25
	Each continuance, -	2 50
	6 months, without	14 00
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	Each continuance, -	4 50
	6 months, without	25 00
	12 " alteration,	40 00
One page,	1st insertion. - -	10 00
	Each continuance, -	7 50
	6 months, without	40 00
	12 " alteration, -	70 00

Advertisements out of the city must be accompanied with the money or city references to insure insertion.

OFFICE OF THE

SOUTHERN PLANTER,

NO. 148 MAIN STREET,

A few Doors below Exchange Bank,

RICHMOND, VA.

THE

SOUTHERN PLANTER,

ADVERTISING SHEET.

No. 4. RICHMOND, VA. APRIL, 1861.

PLANTATION BOOK.

"We consider it as indispensable to the farmer, as the ledger to the merchant"—*N. C. Planter.*
"This book supplies a real want on every plantation."—*Southern Planter.*
"This is a most admirable work, and one which every farmer should possess."—*Amer. Farmer.*
Published and for sale by **J. W. RANDOLPH,** Richmond, Va.

☞ For sale also by Booksellers generally.

PLANTATION AND FARM INSTRUCTION, REGULATION, RECORD, INVENTORY AND ACCOUNT BOOK.

For the use of Farmers and Managers of Estates, and for the better ordering and management of Plantation and Farm business in many particulars, by a Southern Planter. "Order is Heaven's First Law." New and improved edition. Cap-folio, half calf, $1 50; also a larger edition for Cotton Plantations, price $2. Either sent by mail, post paid, to all who remit the price in money or stamps.

The Author is one of the most successful farmers in the Southern States, and the systematic use of this book has added tens of thousands of dollars to his estate.

Published and for sale by **J. W. RANDOLPH,** Richmond, Va.

"IF THIS BE TREASON, MAKE THE MOST OF IT."

ANTICIPATIONS OF THE FUTURE TO SERVE AS LESSONS FOR THE PRESENT TIME, in the form of extracts of letters from an English resident in the United States, to the London Times, from 1864 to 1870, with an Appendix, on the Causes and Consequences of the Independence of the South.

"If this be treason, make the most of it."—PATRICK HENRY.

J. W. Randolph, Richmond, Va., has just published the above in one volume 12 mo. of over 400 pages. Price $1.

NOTICE TO BOOK-BUYERS.

All who are forming or adding to their Libraries would do well to send to J. W. RANDOLPH for his

CATALOGUES

Of New and Standard Works, published by him for free circulation. They embrace

MANY THOUSAND

Volumes in every department of Literature, with the date of publication, size, binding, and price of each book. These six Catalogues will be mailed to all who enclose 6 cents to pay the postage.

J. W. RANDOLPH, Bookseller and Publisher,
121 Main Street, Richmond, Va.

April 60.

The former Firm of

GEO. WATT & CO.,

having been this, 22d day of December, 1858, dissolved, we have associated ourselves in business, under the firm of GEO. WATT & CO., for the purpose of making and selling the WATT

CUFF-BRACE PLOW,

With the

BREAST IMPROVEMENT

thereon, and the

HANOVER PLOW,

And shall keep constantly on hand a large assortment of these Plows, and Castings of these and other popular kinds, with Cultivators, Harrows, Corn or Tobacco Weeders, Hillside and Subsoil Plows, new ground Coalters., &c

All of which are made in our own Factory.

Also, Straw Cutters, Grain Cradles, Corn Shellers, Corn Planters, (Caldwell's make,) and a variety of other useful implements in our line, which we warrant to give satisfaction, or be returned. We solicit a call from the Agricultural Community, assuring them that our best efforts shall be used to give them superior aritcles.

GEO. WATT,
HUGH A. WATT.

Richmond, December 23, 1858.

Grateful for the patronage given me heretofore, I solicit a continuance of the same to the above firm; and will only add that having spent the better part of the last 16 years in making my Plow what it is, I pledge my best efforts still to improve it—having PATENT RIGHTS for the BREAST IMPROVEMENT and the HANOVER PLOW, secured November 1856 and February 1858. I will sell Rights to both in remote sections of this and other States on reasonable terms. The public are cautioned against infringements on these Patent Rights.

GEO. WATT, PATENTEE.

Richmond, January 1859.

PLANTATION BOOK.

Plantation and Farm Instruction, Regulation, Record, Inventory and Account Book, for the use of Managers of Estates and for the better ordering and management of plantation and farm business in every particular. By a Southern Planter. "Order is Heaven's first law." New Edition, with additions, cap folio, half calf—price $1.50. Also a larger edition for the use of Cotton Plantations—price, $2.00, either sent by mail post paid.

This book is by one of the best and most systematic farmers in Virginia, and experienced farmers have expressed the opinion that those who use it will save hundreds of dollars.

J. W. RANDOLPH, 121 Main Street, Richmond, has just published the above valuable works

---

R. O. HASKINS,

Ship Chandler, Grocer and Commission Merchant,

In his large new building, in front of the Steamboat Wharf, ROCKETTS, RICHMOND, VA.

Sept 1859—1y

MITCHELL & TYLER,

DEALERS IN

Watches, Clocks, Jewelry, Silver and Plated Ware, Military and Fancy Goods.

RICHMOND, VA.

GREAT REDUCTION in THE PRICE OF

HATS AND BOOTS.

FROM 15 to 20 per cent. saved by buying from J. H. ANTHONY, Columbian Hotel Building.

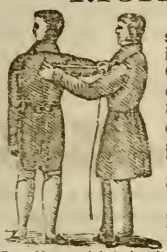
Moleskin Hats of best quality, $3½; do. second quality, $3; Fashionable Silk Hats, $2 50; Fine Calfskin Sewed Boots, $3 50; Congress Gaiter Boots, $3 25; Fine Calfskin Sewed Shoes, $2 25.

J. H. ANTHONY has made arrangements with one of the best makers in the city of Philadelphia to supply him with a handsome and substantial Calf-skin Sewed BOOT, which he will sell at the unprecedented low price of *Three Dollars and a Half.*

July 59—1y

Southern Clothing House

RICHMOND, VA.



The subscriber keeps constantly on hand a large and Fashionable assortment of Ready-made Clothing, of his own manufacture, of the latest and most approved Styles. Also a large assortment of Gentlemen's furnishing Goods, such as Handk'fs, Cravats, Neck Ties, Shirts, Drawers, Gloves and Suspenders, Collars, Umbrellas.

In addition to which he keeps a large and general assortment of Piece Goods of every Style and Quality, which he is prepared to make to measure at the shortest notice and in the best and most fashionable style.

E. B. SPENCE.

No. 120, Corner of Main and 13th Sts.

July 59—1y

HOSPITAL FOR SLAVES.

This Hospital is situated near the corner of Main and 26th streets, and is admirably adapted in airness, privacy and healthfulness of position, to the purposes for which it has been instituted, namely: For MEDICAL, SURGICAL and OBSTETRICAL treatment of SLAVES. The rules and regulations governing this institution have already been published. A circular containing full particulars will be furnished those who may desire further information.

TERMS.—Patients per week, $5; less than a week, $1 per diem; *but the aggregate shall not exceed the charge for a full week.* Patients attending the daily examinations, (not fit subjects for HOSPITAL CONFINEMENT,) charged the regular fee adopted by the profession at large. The above charges include board, medicine, medical attendance and nursing. Surgical operations charged according to rules of other Hospitals of the city. For further information apply to the Physician resident at the Hospital, or to either of the undersigned Physicians and Proprietors.

FRS. W. HANCOCK, M. D.,
Main st., bet. 3d and 4th, or No. 130 Main st.

ST. GEO. PEACHY, M. D.,
Exchange Hotel, or Grace st., bet. 5th and 6th.

R. S. VEST, M. D.,
Franklin Street, below Ballard House.

PHILIP S. HANCOCK, M. D.,
Resident Physician.

CYRUS BROOKS,
Resident Assistants.

July 60—1y

IMPORTED CLEVELAND BAY

"SYMMETRY"

Will stand the present season at Holkham, near Ivy Depot, Albemarle, at $30 the season, $50 insurance, and fifty cents to the groom. Pasturage, &c., at the usual rates. Mares sent from a distance will be properly cared for, but no responsibility for accidents. All bills due 15th of July, the close of the season. Mares put by the season and failing to stand, will be insured the next year for the season price. Symmetry, when at home, will be allowed to serve mares during the summer and fall, free of any additional charge.

All mares will be considered as put by the season, unless notified to the contrary before service.

Symmetry was sired by Perfect, whose name indicates his high character, and out of one of the finest Cleveland mares in England. He is six years old this spring, is a rich mahogany bay, with black legs, and full 16½ hands high.

He was exhibited at the last State Agricultural Exhibition and pronounced by many of the best judges to be unrivalled as a coaching stallion, his size, lofty imposing appearance and rich color being fixed types. He must produce, crossed on our mares, the most of which are under size, horses admirably adapted for the carriage, buggy, and other useful purposes. JOHN R. WOODS,

Near Ivy Depot P. O., Albemarle county, Va.

April—1t.

BEDDING PLANTS BY MAIL,

Packed so as to insure their safe delivery in any part of the United States.

PRICES, POST-PAID:

Verbenas of 1860 (named)		$1.00 per doz.
do	do (mixed)	85c "
Fuchias	do (named)	1.80 "
do	do (mixed)	1.25 "

Together with a large variety of other plants.

☞ Send for a Catalogue.

GEO. NICHOL,

Lock Box 205, Providence, R. I.

April, 1860.—1t

SOUTH DOWN LAMBS

FOR SALE.

I have for sale several South Down Buck Lambs. My flock is now the finest in Tide Water Virginia. The Lambs are one-half, three fourths, seven-eighths, fifteen sixteenths, and thorough bred, and I sell them at ten, fifteen, and twenty dollars, according to purity of blood. I shall have not more than eight or ten for sale. FRANK. G. RUFFIN.

April 60—tf

J. R. KEININGHAM,

DEALER IN

BOOKS AND STATIONERY,

211 Broad Street, between 4th and 5th,

RICHMOND, VIRGINIA.

March, 1859.

Cephalic Pills

CURE Sick Headache

CURE Nervous Headache

CURE All kinds of Headache.

By the use of these Pills the periodic attacks of *Nervous or Sick Headache* may be prevented; and if taken at the commencement of an attack immediate relief from pain and sickness will be obtained.

They seldom fail in removing the *Nausea* and *Headache* to which females are so subject.

They act gently upon the bowels,—removing *Costiveness.*

For *Literary Men, Students,* Delicate Females, and all persons of *sedentary habits* they are valuable as a *Laxative,* improving the *appetite,* giving *tone* and *vigor* to the digestive organs, and restoring the natural elasticity and strength of the whole system.

The CEPHALIC PILLS are the result of long investigation and carefully conducted experiments, having been in use many years, during which time they have prevented and relieved a vast amount of pain and suffering from Headache, whether originating in the *nervous* system or from a deranged state of the *stomach.*

They are entirely vegetable in their composition, and may be taken at all times with perfect safety without making any change of diet, *and the absence of any disagreeable taste renders it easy to administer them to children.*

BEWARE OF COUNTERFEITS!

The genuine have five signatures of Henry C. Spalding on each Box.

Sold by Druggists and all other Dealers in Medicines.

A Box will be sent by mail prepaid on receipt of the

PRICE 25 CENTS.

All orders should be addressed to

HENRY C. SPALDING,

48 Cedar Street, New-York.

April, 1861.

☞ A single bottle of "SPALDING'S PREPARED GLUE," for repairing Furniture, Toys, Crockery, &c., will save ten times its cost annually.

Dec. 60—ch2

RUFFIN'S

PHOSPHOR-PERUVIAN GUANO,

TOBACCO MANURE,

AGRICULTURAL SALT AND GROUND BONE ASH.

F. G. RUFFIN,

CORNER ELEVENTH AND CARY STREETS, ON THE BASIN,

RICHMOND, VA.,

Offers to the farmers the following MANURES, all of his own manufacture, viz:

RUFFIN'S PHOSPHOR-PERUVIAN GUANO,

Containing 8 per cent Ammonia, and 40 to 50 per cent Bone Phosphate Lime, per ton of 2,000 pounds, $50.

RUFFIN'S BONE ASH GUANO,

Containing 5 per cent Ammonia, and about 70 per cent Bone Phosphate Lime, per ton of 2,000 pounds, $50.

RUFFIN'S TOBACCO MANURE.

Containing 5 per cent Ammonia, 34 per cent Bone Phosphate Lime, 22 Chloride of Sodium, and 17 per cent Sulphate Lime, per ton o 2,000 pounds, $45.

RUFFIN'S GROUND BONE ASH,

Containing about 80 per cent Bone Phosphate Lime, dry and pure, per ton of 2,000 pounds, $35.

AGRICULTURAL SALT,

Loose in bags, per ton of 2,000 pounds, $11.

AGRICULTURAL SALT,

In bags, per to of 2,000 pounds, $13.

THE ABOVE MANURES are put up in strong bags, containing 167 pounds each, twelve bags of which make a fraction over a ton, and can be had of F. G. RUFFIN, at his mill, of any Commission Merchant in Richmond; of THOMAS BRANCH & SONS, Petersburg; M. HOLLINS & CO., Lynchburg; LEIGH & BROTHER, Norfolk; MASON, MARTIN & CO., Scottsville; JOHNSON, CLARKE & CO., Danville.

April 60—tf

SOMBRERO GUANO,

SOMBRERO GUANO AGENCY, 73 SMITH'S WHARF,
BALTIMORE, 8th October, 1860.

To Messrs. August & Williams:

I have just returned from Sombrero Island, and beg leave to say a few words in reference to the series of strictures upon Sombrero Guano, which have been published in your journal and in the "*Farmer*" during my five months absence. So long as honorable means are used to promote any opposing enterprise, I have not a word of complaint to utter; but when the proprietor of Navassa or other Guano, puts himself in opposition to our business upon premises which he has invented, and well knows to be utterly groundless, it becomes me to speak out and expose the fraud which is thus designed upon me and the public.

Sombrero Guano is not known for the first time to-day; for it was inaugurated in 1856, as an institution upon a solid basis. Then it was analyzed, and repeatedly since it has been analyzed by all the competent chemists in the United States, and by many abroad. In each instance, the result attested its pre-eminent richness in available phosphate. Years of practical experince in its use by planters, have further strengthened and established its claims to be "the" standard bone phosphate; and now at this day, it is well known, that those soluble or manipulated fertilizers, such as made by Fowle, Reese, and the Petersburg Company, into which it enters as material, enjoy a reputation, and exert an efficiency, which no competing compound has been able to accomplish without it. Thus it is that the real excellence, and high repute of our Guano, have provoked the jealousy of the proprietor of the Navassa, who seeks to divert attention from the intrinsic worthlessness of his own article, by decrying the Sombrero, with the hope of making a ruin of us upon which to build a success for himself. Thus it is too, that he has deemed it necessary to tip an inspiration to a collegiate chair to plead for Navassa, and against Sombrero Guano, so that by the prestige of such accidental position the words of the "*Professor*" may strike the unthinking and unsuspecting with a force of authority which is not justified by either their substance or their truth.

Now, with a profound reverence for science and its true followers, but contemptuous in my regard of those unscrupulous ones, who affect its accomplishments when they are ignorant of even its simplest rudiments, I protest indignantly against the unfairness of the publications in point.

But that the author may have the opportunity of vindicating himself before his profession and the public, if he can do so, I propose that his statements shall be submitted to a scientific tribunal of three persons, two of whom may be chosen by Mr. Cooper, the proprietor of the Navassa, leaving only one of the Chemists to be selected by our house. Premising that the whole expense of this commission shall be jointly incurred by Mr. Cooper and ourselves, I propose to prove before it in the most unqualified manner, upon a penalty of two hundred dollars, payable on default, to the Orphan Asylum of the City of Richmond.

AS TO NAVASSA GUANO,

1*st. That Navassa Guano is nearly "dirt poor" as a fertilizer.*

2*d. That apart from its poverty in Bone Phosphate it is inferior in other respects.*

3*d. That Navassa Guano is inferior to* "COPROLITES" *for any and all of the purposes of a Phosphatic material.*

4*th. That the solubility of Navassa Guano under atmospheric influences is barely appreciable compared with that of Sombrero Guano.*

5*th. That Navassa Guano will not make either a Commercial or Agricultural Super-phosphate of Lime.*

6*th. That on account of the large proportion of Iron and Alumina which it contains, the Navassa might almost be considered a raw material for the manufacture of Copperas and Alum.*

AS TO SOMBRERO GUANO,

1st. That Sembrero Guano is the most efficient and economical of the Phosphate Guanos.

2d. That it contains nearly twice the amount of actual Bone Phosphate that Navassa Guano does.

3d. That Sombrero Guano is not "*Coprolite*" nor of that species.

4th That Sombrero Guano is a most serviceable material for Super-phosphate and Manipulating purposes.

5th. That Dr. Stewart's published statements in depreciation of Sombrero, compared with Navassa Guano, are incorrect in nearly every particular.

Believing that this is the fairest method of coming to the right of the contest imposed upon us, and in the hope that Mr. Cooper may respond manfully to this call, I ask that you will insert this paper as a communication, and oblige

Dec. '60—6mo Your obedient servant, **ANDREW C. ELLIOTT.**

RARE AND BEAUTIFUL FLOWERS.

A. BORNEMAN,

Seedsman and Florist,

VERSAILLES, WOODFORD COUNTY, KENTUCKY,

Would inform his friends and patrons that his New Descriptive Catalogue of *Flower and Vegetable Seeds* for 1861, will be ready for delivery early in February, and will be mailed to all applicants inclosing a three cent stamp. Much pains has been taken in preparing it, and it will contain, in addition to the information that is usually found in such lists, many descriptive and cultural notes for the benefit of the amateur and unprofessional florist.

It will embrace all that is *new* and *most desirable* among annuals, Biennial, Perennial and Green House Seeds—alike suitable for the Flower Garden, Pleasure Grounds, Lawns, Shrubberies and the Conservatory, as well as many matchless novelties of the highest merit, which have been selected by his European correspondents from the most reliable sources. Collections of

FLOWER SEEDS BY MAIL, POSTAGE PAID.

The following collections now so favorably known in every part of the country, have been sent out from his establishment for six years past. He will continue to give especial attention to this branch to render them complete and satisfactory in every respect They will be found to embrace many novelties, and only such as are well worthy of cultivation. They are equally adapted for the requirements of those who have large, as well as others who have only small gardens. The uninitiated may therefore order them without fear of disappointment, and the experienced cultivator will find them equally acceptable. Full directions for culture will accompany each package, which will be sent, postpaid, to any address in the Union, under 3000 miles, at the following prices:

ASSORTMENT No. 1—Contains twenty choice varieties of Annuals,..... $1 00

ASSORTMENT No. 2—Contains twenty choice varieties of Biennials and Perennials,..... 1 00

ASSORTMENT No. 3—Contains ten extra fine varieties of Annuals and Perennials, embracing many of the new and choicest in cultivation,..... 1 00

ASSORTMENT No. 4—Contains five very choice varieties selected from *Prize Flowers* of English Pansies, German Carnation, and Picotee Pinks, Verbenas, Truffaut's French Asters, Double Hollyhocks..... 1 00

Any one remitting $3 will receive the four assortments, postage free.

The following additional assortments will also be sent at the prices annexed, *free of postage.*

ASSORTMENT No. 5—Contains fifteen very select varieties of Greenhouse Seeds..... $3 00

ASSORTMENT No. 6—Contains one hundred varieties of Annuals, Biennials, and Perennials, including many new and choice varieties,..... 5 00

ASSORTMENT No. 7—Contains fifty varieties of Annuals, Biennials, and Perennials,..... 2 50

ASSORTMENT No. 8—Contains twenty varieties of Annuals, Biennials and Perennials, for sowing in the Autumn..... 1 00

The seeds contained in the above assortments are of his own selection. Purchasers who prefer to make their selection from the Catalogue, will be entitled to a discount proportionate to the quantity ordered. See schedule of prices annexed.

Great Inducements for the Formation of Clubs.

Being desirous of introducing his Flower Seeds as extensively as possible throughout the country, he offers the following inducements to those who wish to purchase in large quantities, or for the formation of Clubs, by which a great saving may be effected. The seeds will be forwarded *by mail, post paid*, to any address in the United States *under* 3000 *miles*, on receipt of the amount of the order. Those who reside beyond 3000 miles, are requested to remit two ten cent stamps, or their equivalent, in addition to the amount named, for every dollar's worth of seed ordered.

Purchasers remitting

$ 1 00	may select seeds at Catalogue prices amounting to				.....	$ 1 10
2 00	"	"	"	"	.....	2 25
3 00	"	"	"	"	.....	3 50
4 00	"	"	"	"	.....	4 75
5 00	"	"	"	"	.....	6 00
10 00	"	"	"	"	.....	12 50
20 00	"	"	"	"	.....	26 00
30 00	"	"	"	"	.....	40 00

All orders must be accompanied with the cash.

Prices to dealers in larger quantities, will be given upon application.

COLLECTIONS OF BULBOUS ROOTS.

For the convenience of those who desire a fine collection, but are unacquainted with the varieties, we have put them up in collections as follows, with full directions for culture:

COLLECTION No. 1—PRICE $10—CONTAINS

20 *Double and Single Hyacinths*, (all named flowers,) and those varieties only which are best adapted for culture in glasses or pots.
20 *Double and Single Hyacinths*, for the open border.
20 *Early Double and Single Tulips*, for pot culture or the open border.
20 *Late Tulips*, for the border.
6 *Polyanthus Narcissus*, for pot culture or border.
6 *Double Roman Narcissus*, (very fragrant.)
2 *Crown Imperials*.
12 *Double Jonquins*.
100 *Crocus*, finest mixed.
2 Strong plants of the new and splendid Chinese Plant *Dielytra Spectabilis*.
4 *Peonies*, distinct and fine.

COLLECTION 2—PRICE $5—CONTAINS

One-half of each of the above varieties, with the exception of the Dielytra.

Jan 61—4t **A. BORNEMAN**, Versailles, Woodford Co., Ky.

MANIPULATED GUANO! MANIPULATED GUANO!

We offer to the Planters of Virginia a Guano prepared by us as follows:

1000 lbs. of the best Peruvian Guano that can be procured;
800 lbs. of the best Sombrero Guano, containing *full* 80 ℔ cent of the Phosphate of Lime.
200 lbs. of the best Ground Plaster, for which we pay $2 ℔ ton extra.

Planters and others are invited to examine the article. From the best information we can obtain, we believe the mixture is one of the best that can be prepared for the Virginia lands.

Price to Planters, $48 ℔ ton, or $2 ℔ ton less, where they furnish bags.

For sale by EDMOND DAVENPORT & CO.

Also for sale by Commission and Grocery Merchants in this City.

We refer to Planters who have used the Sombrero and the Manipulated Guano—among them James Galt, Esq., A. Warwick, Esq., Joseph Allen, Esq., R. H. Styll, Esq., and others.

Below we give D. K. Tuttle's (Chemist at University of Virginia) report of the same, samples from 72 bags, *and it shall be kept to that standard.*

"I am now able to give you the results of analysis. They show the Mixture to be what you stated in a former letter, and I judge that you are very fortunate in the selection of materials, especially of Peruvian Guano. The per centage of Ammonia shows the pure Peruvian to contain 12·4 per cent., which is more than the average The Analysis is as follows:

Moisture (given off at boiling point of water,)	10.05
Phosphate of Lime,	48.26
Sulphuric Acid, 5.45 } Lime, 3.64, }	9.09
Ammonia,	6.20
Insoluble Matter,	1.55
A small quantity of Alkali—undetermined. } Water in combination and *Organic Matter*, }	24.85
	100.00

Hoping that your Fertilizer may meet with the success which it deserves,

I remain, very respect yours,

D. K. TUTTLE."

Jan—tf

CO-PARTNERSHIP NOTICE.

I have this day admitted as a partner, Mr. JOHN N. JENNINGS. The business will in future be conducted at my old stand, No. 118 Main Street, under the firm and style of SAMUEL S. COTTRELL & CO., where we have on hand a fine assortment of Saddles, Bridles, Whips, Carriage, Cart and Wagon Harness, of every description and quality, and will continue to manufacture to order and for sale, every class of goods in our line.

There was awarded me at the United States Fair last Fall, three silver Medals for SUPERIOR SPECIMENS OF WORKMANSHIP; since which time our facilities have greatly increased, and we now flatter ourselves that we can furnish every article in our line, not to be surpassed in quality, and at as low prices as any other establishment in this country.

I beg leave to return my sincere thanks to my old friends and the public generally for the liberal patronage heretofore bestowed upon me, and respectfully solicit a continuance of the same to the new concern, pledging ourselves to use our utmost endeavors to please our friends and patrons.

Feb 1859- ly SAMUEL S. COTTRELL.

DRAINING TILE.

"MARYLAND TILE AND FIRE-BRICK WORKS,"

SOUTH SIDE OF BASIN,

Office Corner of Pine and Lexington Sts., Baltimore, Md.

The subscribers have constantly on hand any quantity of DRAINING TILE, of the most improved patterns, which they will dispose of at low rates.

HORSE SHOE TILE.		SOLE TILE.	
1½ inch bore,	2½ inch bore,	1½ inch bore,	2½ inch bore,
3 " "	4 " "	3 " "	4 " "

July 60—tf

LINTON, RITTENHOUSE & CRAWFORD.

RHODES' SUPER-PHOSPHATE.

The Standard Manure.

FOR TOBACCO, COTTON, CORN AND WHEAT CULTURE, ROOT CROPS, &c.

Manufactured under the supervision of Eminent Manufacturing Chemists, and warranted "*pure and free from all adulteration.*"

B. M. RHODES & CO.,

Office 82 South Street, Bowly's Wharf, Baltimore, Md.

AGENTS IN VIRGINIA.

Richmond—SCHAER, KOHLER & CO,
Petersburg—VENABLE & MORTON.
" THOS. BRANCH & SONS.
Lynchburg—M. HOLLINS & CO.
Norfolk—B. T. BOCKOVER.
Alexandria—WM. H. MAY.
Fredericksburg—HUGH SCOTT.
Farmville—HOWELL E. WARREN.
Blacks & Whites—JEFFERSON & WILLIAMSON.
Clarksville—JAMES E. HASKINS.

Jan. 60—tf

WAGONS AND CARTS.

I have now on hand and am constantly making Wagons and Carts; Threshers, plain and with Separators and Cleaners; Horse-powers, from 2 to 12 horse power; Reapers; Hay Presses; Cider Mills; Seed Drills; Land Rollers; Clod Breakers; Wheat Fans; Wheat Gleaners; Hay Rakes; Plows; Harrows; Cultivators; Straw Cutters; Corn Shellers, for power, and several sizes for hand. A very superior fixture for raising water from wells, being a combined curb windlass, self-emptying bucket brake, and is all in about the compass of a barrel, and warranted superior to any thing in use. Price, small size, $9, larger $12. Garden seeds, and general assortment of Garden and Farm Tools.

I am prepared to do repairs to all kinds of Reapers, Threshers, Fans, &c. Orders by mail for new work promptly filled and shipped with care, without charge for drayage.

Feb 61—3t

H. M. SMITH.

FOR SALE.

I have for sale two YOUNG JACKS, one 5 and one 4 years old, trained to serve mares, and proved as foal-getters. For terms, visit or address

SHARPE CARTER,
Jeffress' Store, Nottoway County, Va.

Feb 61—4t

IMPORTANT TO FARMERS!

VANDEMARK'S SELF-FASTENING, OR HOOK AND EYE

PORTABLE FENCE.

(SEE CUT IN READING COLUMNS.)

The observing farmer will readily perceive the numerous advantages of a PORTABLE FENCE which can be easily put up, taken down and removed from place to place, as convenience may require, at so little cost of time and labor.

The cost of this fence is only about *one-half* that of ordinary board fence with posts, and is more durable, there being *no posts* to rot off.

Not more than one-half the fence being required when portable, as the fence between growing crops can be removed to where it is wanted; thereby saving one-half by this mode of fencing, and prevent the growth of briers and bushes along your fence.

From the fact that the panels constructed upon the plan of this patent will make either a Worm, Straight, Square or Circular Fence, it possesses a double advantage over every other invention of the kind. To make 4 feet worm in 10 feet panels, the end batten should be 5½ inches apart on inch lumber. The Fence is not only the cheapest that can be made, where boards are used, but it has other great and good advantages.

1st. It can be made in bad weather or in the winter, when farm hands are commonly idle.

2nd. The fence being all above ground, will last without repair twice as long as a post and board fence.

3rd. The fence being portable, can be changed and moved without injury, and in a short time.

4th. It is all made of inch boards, and so simple in its construction that any farmer can make it, and all the tools necessary is a hand saw and hammer, avoiding the necessity of a carpenter, as in most cases necessary.

5th. The panels all being so that the same panel will make either a straight or zigzag fence, a square or circular enclosure, gives it material advantages over all other fences. When straight, it is supported by a triangular brace put in between the end battens or uprights, as shown in the cut, and made of the same material as the fence. The panels of this patent are so constructed that they will conform to the surface of uneven ground.

It is estimated that a log 12 feet long and 24 inches diameter, will make only 24 good sized rails, which will make only about two rods of fence, seven rails high without stakes; the same log sawed into 1 by 4 fence boards will make 300 feet—the same put in this kind of fence will make over eight rods of fence—so that if a farmer should give one-half his lumber for sawing, the balance would make more than double the fence the rough crooked rails would, and make use of timber that cannot be split into rails; and a man can certainly put up, take down, or remove 8 or 10 rods of the board fence, while he can one rod of the clumsy rail.

When the materials are furnished, this Fence can be built cheaper than an ordinary post and board fence. In building 20 rods of this Fence where lumber is worth $12 per M., and posts cost 13 cents each, we can save the builder $8, $40 on the 100, $400 on the 1000 rods of fence.

County or Farm Rights will be sold on the most liberal terms, in Augusta, Rockbridge, New Kent, Chesterfield, Powhatan, Hanover, King William, Buckingham, Amelia, Prince Edward, Prince George, Nottoway, Charlotte, Caroline, and Goochland counties, in the State of Virginia.

TERMS:

For a farm of 50 acres or under, $2,50; 100 acres, $5; and $2 for every additional 50 acres up to 300, and over 300 acres, the price to be arranged by the parties.

Correspondents are particularly requested to give the name of their Post Office and County in full. Address

JAMES A. AUGUST, Agent, Richmond, Va.

Dec.

SMALL FARMS NEAR THIS CITY FOR SALE.

One, containing eighty acres. IMPROVEMENTS GOOD AND NEW. Dwelling House has five rooms and eight closets. Two Wells of excellent water in the yard. Distance from the centre of the city three miles. Stables and out-houses as usual.

Two Tracts of unimproved land, each containing 100 acres, in less than five miles of this city.

The most accommodating terms given to purchasers. Enquire at the office of THE SOUTHERN PLANTER, or of Messrs. GODDIN & APPERSON.

PAINTS. PAINTS. PAINTS.

PURCELL, LADD & CO.,

DRUGGISTS,

No. 122 Main Street, corner 13th, **RICHMOND, VIRGINIA,**

Offer at low prices, a large and well assorted stock of articles in their line—embracing

PAINTS, COLORS, VARNISHES, OILS, &C.

LEWIS' WHITE LEAD,
NEW J. WHITE ZINC, Horsehead brand,
CHROME GREEN,
VERDIGRIS.
TERRA DI SIENNA,
LINSEED OIL,
MACHINE OIL,
PARIS GREEN,
CHROME YELLOW,
TURKEY UMBRE,
LAMP OILS,
SPTS. TURPENTINE.

All Colors for Painters, Coach Makers, and others, Dry and in Oil, Paint Brushes, Sand Paper, and a very large stock of best

WINDOW GLASS,

Comprising nearly every size made. We are also prepared to take orders for Imported

Polished Plate, Sky Light and Ornamental Glass.

☞ Particular attention to packing and forwarding all goods—and the quality warranted.

PURCELL, LADD & CO, *Druggists*,
122 Main Street, Richmond.

June 1858.

WM. L. HILL, N. M. NORFLEET.

HILL & NORFLEET,

GENERAL COMMISSION AND FORWARDING

MERCHANTS,

OFFICE---SHOCKOE SLIP,
RICHMOND, VIRGINIA.

AGENTS FOR

FOWLE & CO.'S

SOLUBLE PHOSPHATED PERUVIAN GUANO.

Oct 60—1y

1853. GEORGE STARRETT 1860.

Has in store his Fall Stock, comprising 284 varieties and sizes of STOVES, RANGES and FURNACES, many of them new and desirable articles, of his own make. He is also prepared to supply Northern Stoves at Wholesale or Retail, having contracted early in the season for two entire cargoes of the very best made in this country, at lower prices than the same goods can now be obtained. Also, Pumps and Pipe of all kinds, Plumbing, Gas Fitting and Tin work done in the best manner and cheap. Extra castings always on hand.

GEORGE STARRETT, Belvin's Row,
Governor Street, Richmond, Va.

Oct 60—1y

HIGHLY IMPROVED BREEDING STOCK.

After a long and extensive acquaintance with the relative advantages of various breeds of horses for general purposes, I have no hesitation in breeding altogether of the Morgan stock, and have owned Black Hawk and his son Post Boy for eighteen months. The first was sired by the famous Black Hawk, the best grand-son of Justin Morgan. They will stand at my stable, or I would sell Post Boy, having use myself for but one.

I am breeding Short Horn Cattle, and have now and usually have, young bulls and bull calves for sale, and calves of both sexes, nearly thorough bred, which I will only recommend where suited to go and worthy. Also a well-bred Devon Cow, and her Heifer, nearly two years old. I will sell low.

I raise only the Chester County Hogs, (white,) and sell the best pigs at weaning time or older. They are unquestionably the best hogs I am acquainted with, and their cross for pork or native sows is probably equal to full bred.

They, as well as my cattle and horses, have rarely failed to take first premiums in their classes at our Fairs. For particulars address me.

April 61—6mos. **J. W. FICKLIN,** Belmont, near Charlottesville, Va.

GUANO!

We would call the attention of Guano Dealers, Planters, and Farmers, to the article which we have on hand and for sale at

40 PER CENT LESS THAN PERUVIAN GUANO,

which we claim to be superior to any Guano or Fertilizer ever imported or manufactured in this country.

THIS GUANO IS IMPORTED BY

WM. H. WEBB, OF NEW YORK,

FROM

BAKER'S AND JARVIS' ISLANDS, IN THE SOUTH PACIFIC OCEAN.

Sold genuine and pure as imported by the Cargo, or at retail, by

JOHN B. SARDY, General Agent,
No. 58 South Street, Corner of Wall Street, New York.

It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent and popular Agricultural Chemists, including Professor Liebig of Germany, extracts of whose report and analysis are to be seen below, and found to contain (as will be seen by our circular) over 80 per centage of

PHOSPHATE OF LIME,

and other animal organic matter, yielding ammonia sufficient to produce immediate abundant crops, besides substantially enriching the soil. It can be freely used without danger of burning the seed or plant, by coming in contact with it, as is the case with some other Fertilizers; retaining a great degree of moisture, it causes the plant to grow in a healthy condition, and as experience has proved, **FREE OF INSECTS.**

For orders in any quantity, (which will be promptly attended to,) or pamphlets containing full particulars of analyses and tests of Farmers, apply as above.

Prof. Liebig says, under date—July 1860—The Baker's Island Guano contains more *Phosphoric Acid* than any other known fertilizer * * * * I regard the discovery of these Guano deposits as a most fortunate event for agriculture * * * * The Phosphate of Lime in the Baker's Island Guano is far more easily dissolved than that of bones * * * * *Agriculturists would be benefitted as much by using* 70 *pounds of Baker's Island Guano as by* 100 *lbs. of Bone Dust* * * * * The Jarvis Island Guano would seem to be an excellent means of restoring cotton or sugar plantations, whose soil has been worn out by long continued cultivation. *I think it is preferable to Peruvian Guano*, which being rich in Ammonia, tends rather to great development of leaves and stems.

Oct 60—1y

FOWLE & CO.'S

SOLUBLE PHOSPHATED

PERUVIAN GUANO.

MADE OF GUANOS OF

DIRECT IMPORTATION,

Under the personal supervision and direction of Dr. R. H. STABLER, Chemist, of this City.

THIS FERTILIZER we confidently recommend, as the most permanent and cheapest yet offered to the public. Being composed of

NO. 1 PERUVIAN AND SOMBRERO GUANOS

OF OUR OWN

DIRECT IMPORTATION,

FROM THE

CHINCHA AND SOMBRERO ISLANDS,

WE WARRANT IT IN EVERY RESPECT.

THE SOMBRERO GUANO

Before being mixed, is rendered *immediately soluble*, by the addition of Sulphuric Acid. This treatment is universally recommended by the most eminent Agricultural Chemists. Without it, the action of the two Guanos, when mixed, is not simultaneous, and consequently comparatively inefficient.

This is the ONLY mixture of the Ammoniated and Phosphatic GUANOS we know of, yet offered to the Agricultural Community, in a REALLY SOLUBLE form.

Price, $50 per Ton of 2.000 lbs.

Our reports from those who applied the above FERTILIZER to their crops last fall, are *highly satisfactory*—so much so, indeed, as to convince us that our *Soluble Phosphated Peruvian Guano* will ere long be altogether used in this section, as a substitute for the Peruvian Guano, which, *without the addition of Phosphates*, tends rather to exhaust, than permanently improve the soil.

FOWLE & CO.,

ALEXANDRIA, VA

May 60—tf.

SULTAN.

THIS BEAUTIFUL THOROUGH BRED YOUNG STALLION AND SURE FOAL GETTER, Now seven years old, will stand this, his third season, at Hanover C. H. and at Dr. John G. Lumpkin's, head of Mechanicsville Turnpike, and will be let to mares at $20 the season, discharged by the payment of $18 before the first day of July; $10 cash the single leap, and $30 insurance, and $1.00 to the groom; parting with the mare forfeits the insurance. Season commencing the 1st day of March, and ending 30th of June.

DESCRIPTION.

SULTAN is a dark brown, having no white about him; he is a horse of fine size, fully 5 feet 3 inches high, with great power and substance: his shoulder, the most material part of the horse, is strikingly distinguished, being very deep, fairly mounting to the top of the withers, and obliquely inclined to the hips; his girth is full and deep, back short and strong, thighs and arms long and muscular, his bone good, his head and neck well formed, the latter rising well out of his withers. Take him as a whole, he is a horse of more power and substance than is usually found in a thorough-bred. He was trained when two years old, and was thought to be very fast, but received an injury a few days before he was to have run.

PEDIGREE.

SULTAN was bred by James Lyons, Esq., of Richmond, and was gotten by the celebrated Race Horse and Stallion, Revenue; his dam by imported Trustee; his grand dam by Timolean; his great grand by Tom Tough, and was the full sister to the dam of Tally Ho. BILLEY W. TALLEY.

April 61—2t.

THE GREAT SOUTHERN

Hat and Cap Manufactory and Depot.

JOHN DOOLEY,

No. 81, Main Street, Richmond Va.

MANUFACTURER of HATS and CAPS on the largest scale, and in every possible variety, and Importer of North American and European FURS, HATS, CAPS, PLUSHES, TRIMMINGS, and all other articles belonging to the Trade, is always supplied with a splendid stock of Goods, for Wholesale and Retail, which in quality and quantity cannot be excelled by any other house in the South. His manufacturing arrangements are of the completest kind, and his facilities for supplying country merchants a the shortest notice cannot be surpassed.

July 1858—1y

THE

SOUTHERN PLANTER,

OFFICE

NO. 148 MAIN STREET,

A few Doors below the Exchange Bank,

RICHMOND, VA.

ALEXANDER GARRETT,

Cary Street, second door below 13th street, Adjoining the Old Columbian Hotel,

RICHMOND, VA.,

GENERAL COMMISSION MERCHANT,

AND DEALER IN

GROCERIES,

PERUVIAN, ELIDE ISLAND, AND RUFFIN'S PHOSPHO GUANO, PLASTER, &C.

Particular attention paid to the sale of all kinds of country produce:

Wheat, Corn, Flour, Tobacco, Oats, &c.

I have made arrangements with Mr. Jno. M. Sheppard, Jr, one of the best judges and salesmen of Tobacco in this city, to attend to the sale of all tobacco consigned to me. July 59—1y

PURE BRED STOCK
FOR SALE.

Pure Bred Durham Cattle, from $50 to $200.
Spanish Merino Sheep, and French Merino Sheep, at $10 to $30
Madagascar Rabbits at $10 per pair.
Improved White Pigs, at $8 each.
Brood Mares, served by "Bush Messenger." Morgan, Messenger and Basham, at $125 to $300.
Stallions from colts to well broke and trained animals, from $75 to $600.

All animals sold will be carefully boxed or haltered, and placed at the Express office.

My residence is 4½ miles east of Brownsville, Fayette County, Pa.

POST OFFICE BOX No. 6.

JOHN S. GOE.

Feb 60—tf

WM. P. LADD,

No. 319, head Broad Street, Shockoe Hill,

RICHMOND, VA.

Wholesale and Retail Detail Dealer in English, French and American

DRUGS, MEDICINES, CHEMICALS,

Paints, Oils, Varnishes and Dye-Stuffs; Window Glass Putty, Glue and Sand Paper; Paint, Camel's Hair and Whitewash Brushes; Cloth Hair, Flesh, Nail and Tooth Brushes.

Fine and Choice Perfumery, Fancy Goods,

PURE LIQUORS AND WINES,

For Medicinal and Sacramental Purposes.

Surgical Instruments, Trusses, Shoulder Braces, Supporters, &c.

Landreth's Celebrated Garden Seeds,

In great variety. Also,

DRS. JAYNES AND ROSE'S

FAMILY MEDICINES,

MEXICAN MUSTANG LINIMENT.

Together with all the most popular PATENT AND BOTANICAL MEDICINES, direct from the Proprietors.

Orders from Country Merchants and Physicians thankfully received and promptly attended to.

☞ All articles from this Establishment are warranted pure, fresh and genuine. dec 58—1y

SOMBRERO GUANO.

OCTOBER, 1860.

Attempts having been made, recently, to depreciate the enviable character of SOMBRERO GUANO as a fertilizer, by partisan and untruthful publications, the Proprietors beg leave to submit to the Agricultural community, the annexed portion of a letter from the most authentic chemical source in the United States, setting forth the REAL facts of the case upon the only reliable basis, that of an analytical examination of the several Phosphatic Guanos in Commerce. The data obtained by Dr. Morfit are incontrovertible, and not only attest the superiority of SOMBRERO GUANO, as the richest and most efficient Phosphatic Manure, but are suggestive also of the futility of any attempt to bring the Navassa or other similar Guano into successful competition with it. Orders received by ROSS W. WOOD & SON, New York,

Or, ANDREW C. ELLIOTT & CO., Baltimore.

EDMOND, DAVENPORT & CO., AGENTS, Richmond, Va.

CHEMICAL LABORATORY, No. 19 East 12th Street,
NEW YORK, 21st March, 1860.

Messrs. Patten & Miller, and
E. C. Wade & Co, Savannah, Georgia:

Gentlemen—In reply to your joint letter of 9th February, requesting my professional opinion upon certain points of Agricultural interest, and which more immediately concern you as honorable dealers in Fertilizers, I have given the subject its due consideration, and now submit my report.

1. Your first question, as to the rank which belongs, properly, to SOMBRERO GUANO, compared with the Phosphatic Guanos from Navaza, Jarvis and Baker's Islands, will be best answered by the annexed table, which shows their relative composition. Baker's Island Guano is omitted, however, from the comparison, for the just reason, that no cargo has been imported, it being known here, at this time, only by sample.

CONSTITUENTS.	Sombrero.	Navaza.	Jarvis Island.
Water	3.52	2.20	8.17
Sand and Silica,	.68	5 60	.16
Organic matter, insoluble	....	1.48	.81
Organic matter, soluble,	5 36	10.20	5.77
Fluorid Calcium,	....	Traces.	Traces.
Sulphate Lime	.86	2.49	44.81
Lime, (with Organic Acids,)	6.97	12 47	....
Carbonate Lime	5.34	2.00	....
Bone Phosphate Lime	64.67	37.72	13.33
Common Phosphate Lime	....	....	25.94
Phosphates Magnesia,	2.39	2.70	.84
Phosphate Alumina,	3.62	10.56	....
Phosphate Iron	1.95	2.20	....
Chlorid Sodium	....	Traces.	.19
Chlorid Potassium,	.09	....	....
Silicate Potassa and Lime,	.76	....	....
Oxide Iron,	1.10	3.50	Traces.
Alumina,	3.13	7.04	.63
Total,	100.44	100.06	100.65

COMMERCIAL AND AGRICULTURAL EXPRESSION.

Actual Bone Phosphate,	67.96	40.44	44.73
Or,			
Calculated Bone Phosphate	73 78	50.76	44.73

All the analyses were conducted with the rigid care of a scientific investigation. The samples employed were also of assured integrity. *The Navaza was obtained directly from the State Inspector of Maryland, as an average of six ca goes imported in* 1859*; consequently, the eighty and odd per cent of Bone Phosphate claimed for it in circulars and advertisements are a fabulous estimate, or else were deduced from extraordinary samples.* Jarvis Island Guano is represented by an average of the "Henry Brigham's" cargo, which is the best of the kind that has come under my observation. The Sombrero sample was also a fair average of several cargoes, and from a reliable source.

In the Commercial and Agricultural expression for the several Guanos, as above noted, I have distinguished the Phosphoric Acid, which exists in combination with Lime and Magnesia, as ACTUAL Bone Phosphate, while I give the title of CALCULATED Bone Phosphate to the actual phosphate, conjointly with that portion of Phosphoric Acid present in the Guanos as Phosphate of Alumina and Phosphate of Iron, because the equivalent of the latter in Bone Phosphate Lime is determined by calculation. The Alumina and Iron Phosphates, it may be proper to add, though of value in the fertilization of soils, are, in degree, inferior, for that purpose, to actual Bone Phosphate Lime. With this explanation, it will be evident, then, from the Table, that *precedence belongs to Sombrero Guano*, not only because of its *very much greater richness in Phosphoric Acid*, but also for the reason that nearly the whole of that constituent occurs in the Guano as ACTUAL Bone Phosphate of Lime. Moreover, Sombrero Guano is characterized by much uniformity of dryness and composition, as well as *by a very limited amount of matters which would be valueless to crops.*

2. The presence of oxide of Iron is detrimental to a fertilizer, when the proportion may be excessive and in indissoluble combination. But these conditions do not pertain to *Sombrero Guano;* for it holds only a small quantity of iron, and will yield with sufficient readiness to the solvent power of atmospheric agencies in the soil. I base my judgment upon a large, Laboratory experience with this Guano.

And I may remark, further, that the idea of its being deficient in capacity for making Superphosphate, as pronounced by others, is founded in ignorance of the true nature of the Guano. Indeed, with the proper knowledge, a Super-phosphate of the highest fertilizing efficiency can be made from it at a reasonable economy of cost. * * * * * * *

Respectfully yours,

Oct 60—tf CAMPBELL MORFIT.

SOMBRERO GUANO.

OCTOBER, 1860.

The proprietors of Sombrero Island fully confident that this locality is the richest known source of Phosphatic Guano, have established a Laboratory on the spot, and appointed a resident chemist, with strict instructions to select all cargoes by preliminary assays prior to their shipment from the Island, so that all Guano exported from the Island shall be of the standard of 70 to 80 per cent bone phosphate of lime. Cargoes of late importation have been, and those to arrive hereafter will be of that standard, and in order to give the consumers of Sombrero Guano the best advantages of the deposit a higher grade will be fixed as soon as arrangements can be completed for developing its still richer portions. It is the determination of the proprietors not only to maintain the present superior character of their Guano, but to increase its value by sending it ere long into market with a per centage of Bone Phosphate of Lime, even greater than that by which it now excels every other phosphatic material.

The following analysis by Drs. Piggot and Pitt represent several cargoes of late importation:

1860.

June 22nd,	cargo	Champion,	by Dr. Piggot,	70.00	Bone Posphate of Lime.		
June 28th,	do	do	by Dr. Pitt,	72.67	do	do	do
June 25th,	do	Golden Rod,	by Dr. Piggot,	73.02	do	do	do
June 28th,	do	do	by Dr. Pitt	70.20	do	do	do
July 25th,	do	St. Mary,	by Dr. Piggot,	74.62	do	do	do
June 28th,	do	do	by Dr. Pitt,	70.96	do	do	do
July 25th,	do	D. H. Baldwin,	by Dr. Piggot,	71.61	do	do	do
Aug. 22nd,	do	Sequine,	by Dr. Pitt,	74.64	do	do	do
Aug. 22nd,	do	do	by Dr. Piggot,	79.06	do	do	do
Aug. 22nd,	do	Ianthe,	by Dr. Pitt,	74.88	do	do	do
Aug. 22nd,	do	do	by Dr. Piggot,	78.72	do	do	do

Orders received by **ROSS W. WOOD & SON, 90 Front Street, New York.**

Or, **ANDREW C. ELLIOTT & CO., 73 Smith's Wharf, Baltimore.**

EDMOND, DAVENPORT & CO., AGENTS, Richmond, Va.

Oct 60—tf

CITY SAVINGS BANK OF RICHMOND.

Chartered in 1839.

Capital, - - - $100,000.

HORACE L. KENT, PRESIDENT.

N. AUGUST, *Cashier.*

W. GODDIN, *Secretary.*

This *old, well-known,* and *prompt-paying* Institution continues to receive deposites, on which interest is paid (semi-annually if desired,) at the rate of 6 per cent. per annum on sums remaining on deposite six months or longer, and at the rate of 5 per cent. for shorter periods.

OFFICE, No. 148, *Main Street.* Jan 61—tf

BLACK HAWK,

THE PROPERTY OF R. H. DULANY,

Will stand at Webourne, near Upperville, Loudoun County, Virginia, at thirty dollars the season, fifty dollars to insure and fifty cents to the groom. Pasturage, &c., at usual prices. Every care taken of mares sent from a distance, but no responsibility for accidents. All bills due at the close of the season

BLACK HAWK is a beautiful black, stands fifteen hands three inches high, has fine muscle, strong bone, good action, great endurance, and is perfectly docile.

Black Hawk is out of a well bred English mare and by Sherman Black Hawk, sometimes called the Morick Horse. Sherman Black Hawk by Hill's old original Black Hawk.

BLACK HAWK'S Colts are very large for the breed, many of them being sixteen hands high. They have been shown at the "Upperville Club for the improvement of horses," at the Leesburg Fair and the last Fair of the State of Virginia and Central Societies, and *never been beaten.*

Two of BLACK HAWK'S Colts, Walter Morgan and Lady May, took both the purses for colts at the last State Fair, Lady May trotting her mile very easily in 2m. 54½s. Fifteen hundred dollars was offered and refused for each of these colts.

Feb 61—3t

SEPTEMBER 1st, 1860.

I have a large number of Farms for Sale in different parts of Virginia. With some of these Farms the negroes, stock, &c., will be sold. Those wishing to purchase in any portion of Virginia will be furnished descriptive letters, by enclosing me a stamp. When negroes are sold one per cent will be charged the purchaser. I. I. HITE, Land Agent.

I solicit business in any capacity an agent may be wanted. I refer to Messrs. Williams & August, Richmond, Va. Other references given if desired. I. I. H.

ARRINGTON DEPOT, NELSON COUNTY, VA. Oct 60—tf

IMPROVED STOCK FOR SALE.

South Down Bucks, 2 years and 1 year old. Devon Bulls, 4 years old, and Bull calves. Colts by Kossuth, 4 years and 3 years old, *unaltered.* A Morgan, 3 years old, *unaltered* Morgan, Voltaire, and John Henry colts, 3 years old geldings. Morgan fillies, 4 years old and 2 years old.

I will sell any of the above stock at moderate prices, deliverable at Gordonsville, Orange County.

The colts and fillies are out of fine mares.

April 61—4t R. BARTON HAXALL, Richmond, Va.

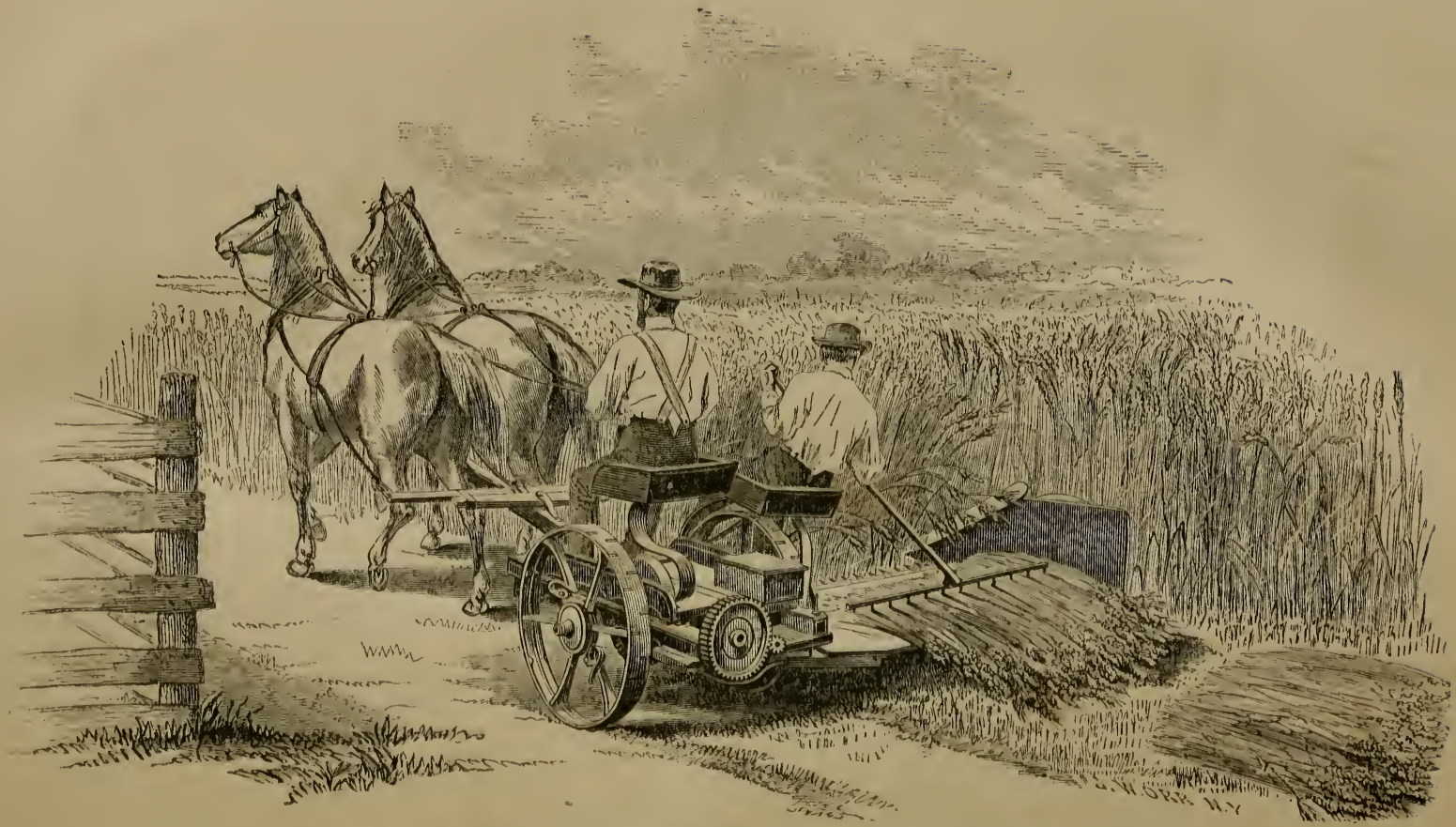
ROOTED CRANBERRY PLANTS FOR SALE

By the Subscriber, Hanover County. $5 per thousand. The crop last year yielded at the rate of sixty bushels per acre, paying about $375 per acre—without cultivation.

CHARLES B. CULLEN, M. D.,

March 61—2t (pd) Richmond, Va., P. O. Box 660.

INDEX TO ADVERTISEMENTS.



BUCKEYE MOWER AND REAPER.

BUCKEYE MOWER AND REAPER.

(SEE PRECEDING PAGE.)

We would respectfully call the attention of the farming community to the above named Machine, as one superior, in every respect, to any machine in use.

We are largely engaged in the manufacture of them for the coming harvest, and would recommend all in want of a *Mower* or *Reaper*, or a *Combined Machine*, to give the BUCKEYE a trial.

It has many advantages over any other machine, among which are *Two Driving Wheels*, *Double Hinge Finger Bar*, which also, in the Mower, is a *Folding Bar*, and has a lever attached to it by which the driver can, with one hand, while on his seat, raise both ends of the Bar from the ground to the height of 12 to 18 inches.

The Reaping attachment is made perfect in itself, cutting a swath of six feet, and does not have the platform attached to a Mower Bar as is the case with other combined Machines. It is made side or rear delivery, can be worked with or without the Reel, and the platform can be turned up to pass through gates or bars.

The BUCKEYE, during the few years it has been in existance, has received more premiums than any other Machine. It can be worked, with a single pair of horses, through the harvest.

The BUCKEYE is entirely free from *Side Draft*, and has no weight on the *tongue or the horse's neck*. The Draft is lighter than ordinary plowing.

Please call or send for a Circular containing full particulars, testimonials, price, terms, &c.

We also manufacture the celebrated *Geiser Threshing, Cleaning and Bagging Machine*, *Plain Threshing Drums*, *Horse Powers*, *Iron Beam Plows*, and other agricultural implements.

JOHN W. CARDWELL & CO.,

March 61—4t Cary Street, Richmond, Va.

ROUTT'S SOUTHERN CORN PLANTER,

WITH GUANO ATTACHMENT.

ROUTT'S IRON DOUBLE SHOVEL AND COULTER PLOW.—
ROUTT'S PREMIUM PATENT DRAIN PLOW.—
ROUTT'S TOBACCO CULTIVATOR.

I desire to call the attention of Farmers to the above Implements, which I am manufacturing with the utmost care, both as regards material and workmanship, and I can confidently recommend them, backed by the most reliable farmers of the State, as being all they are represented.

My Southern Corn Planter with Guano Attachment is the only reliable implement of the kind offered to the public, and gives entire satisfaction. My Iron Double Shovel Plow has two points, and they may be substituted with Coulters. It runs more beautifully than any other Shovel Plow, and has given more universal satisfaction than any Plow I have ever sold.

My Patent Drain Plow has no rival for making Surface Drains and Water Furrows. It makes at once running a complete furrow, not liable to fill by frost. It is a great labor-saving machine.

For premiums on all the above see Agricultural Society Reports for the last five years.

All kinds of Agricultural Implements made and supplied on short notice.

Thanking the public for past liberal patronage, I solicit a continuance of the same.

☞ Orders promptly attended to.

March 61—3t **A. P. ROUTT**, Somerset, Orange Co., Va., Jan. 10, 1861.

THE SOUTHERN PLANTER,

OFFICE---NO. 148 MAIN STREET,

A FEW DOORS BELOW THE EXCHANGE BANK,

RICHMOND, VIRGINIA.

RICHMOND FERTILIZER MANUFACTURING MILLS!

ROCKETTS, RICHMOND, VA.

S. HARTMAN, GENERAL AGENT,

OFFERS FOR SALE

EXTRA FINE BONE DUST,

HARTMAN'S AMMONIATED SUPER PHOSPHATE OF LIME,

HARTMAN'S IMPROVED MANIPULATED GUANO,

Adapted to WHEAT, CORN, OATS, TOBACCO, COTTON, and all Vegetables and Grasses.

☞ THESE MANURES ARE WARRANTED GENUINE. ☜

The BONE DUST is made of Bones in their Natural State, with all their organic matter.

SUPER PHOSPHATE OF LIME is manufactured from Crushed Bones, which also have all their organic matter.

IMPROVED MANIPULATED GUANO is composed of one half Best Phosphatic Guano, decomposed by Sulphuric Acid, the balance of the Best Peruvian.

To be had at the MILLS, or of Messrs. WOMBLE & CLAIBORNE, BLAIR & CHAMBERLAYNE, ALEX. GARRETT, Richmond; D. GRIGG, Esq., Petersburg, and Messrs. GUY & WADDELL, Staunton. April 60—tf

Seeds! Seeds! Seeds!

GARDEN, VEGETABLE, GRASS AND FLOWER SEEDS, OF EVERY DESIRABLE VARIETY.

PRICED CATALOGUES SENT FREE BY POST, ON APPLICATION.

No. 1.—Descriptive List of Flower Seeds, Horticultural Implements, etc.
No. 2.—Vegetable, Grass, Herb and Miscellaneous Seeds.
No. 3.—Wholesale price list of Vegetable Seeds, &c., for Dealer's use.

ALFRED BRIDGEMAN,

March 61—3t No. 876 Broadway, New York City.

CONCORD GRAPE VINES.

The subscriber has a choice stock of Concord Grape Vines, from one to four years old, at very low prices, all grown from Vines obtained from the originator of that variety in 1854, and are warranted genuine. For the table, wine and market, no other grape can be compared to the Concord. It ripens in any latitude South of Montreal, Canada, improves as it goes South, and is ranked far superior to the Delaware, and other popular varieties, as a *market* and *wine* grape, by those who fully understand its good qualities.

Circulars giving full details of juices, proofs of the great value of this grape, &c., will be sent to all applicants who enclose a postage stamp. Address

April 60—tf. T. B. MINER, Clinton, Oneida county, N. Y.

FOR SALE.

A Sleudid young thoroughbred STALLION, three years old, 15½ hands high, well made, with good bone and muscle, fine carriage, and promises to trot well; has taken several *first premiums*, at the Valley Agricultural Fair, at Winchester. His colour is a beautiful bay, with black legs, mane and tail, and star in his forehead.

Enquire at the Southern Planter Office for Pedigree and full particulars. April, 1861—3t

Prospectus

OF

THE SOUTHERN PLANTER,

A MONTHLY PERIODICAL,

DEVOTED TO

AGRICULTURE, HORTICULTURE AND THE HOUSEHOLD ARTS.

PUBLISHED AT RICHMOND, VIRGINIA.

EDITED BY

DR. J. E. WILLIAMS AND PROF. WILLIAM GILHAM.

THE SOUTHERN PLANTER, which has been established for twenty years, is the oldest Agricultural Paper in Virginia, and the Editor and Proprietors feel that they have a right to claim the patronage of the Farmers of Virginia and the South, if they have succeeded in making the paper worth the sum asked for it. That they have fully done that, they do not doubt for one moment. Many of the best farmers, and some of them among the ablest men and best writers of this and other States, have enriched the pages of the Planter with invaluable essays, drawn mostly from their own experience; and in the quantity of good original matter, it exceeds any paper of its size in the Union. In order to diffuse the information thus given, it is necessary to extend the circulation of the paper; and in asking the friends of Agriculture throughout this and *other* Southern States to aid in doing it, the Proprietors feel that they are not asking a favor but offering a valuable consideration.

THE PLANTER is published in monthly numbers, on fine paper, containing 64 super-royal octavo pages, exclusive of the Advertising Sheet; bound in a neat cover, making a volume of 768 pages of Agricultural matter, per annum, for two dollars and fifty cents, which may be discharged by the payment of TWO DOLLARS ONLY, *if paid in advance.* 6 copies for $10; 13 copies for $20; 1 copy 3 years $5. INVARIABLY IN ADVANCE.

Subscriptions may begin with any number, but it is preferable that they should begin with the commencement of the volume.

No paper will be discontinued until all arrearages are paid, except at our option.

☞ Exchanges favorable to this Journal will please notice.

AUGUST & WILLIAMS, Proprietors.

HOMES FOR THE INDUSTRIOUS,

IN THE

GARDEN STATE OF THE WEST.

THE ILLINOIS CENTRAL RAILROAD CO., HAVE FOR SALE

1,200,000 ACRES OF RICH FARMING LANDS,

IN TRACTS OF FORTY ACRES AND UPWARD,

ON LONG CREDIT AND AT LOW PRICES.

THE attention of the enterprising and industrious portion of the community is invited to the following statements and liberal inducements offered them by the

ILLINOIS CENTRAL RAILROAD COMPANY.

which, as they will plainly show, will enable them, by proper energy, perseverance and industry, to provide comfortable homes for themselves and families, with, comparatively speaking, very little capital.

LANDS OF ILLINOIS.

No State in the Valley of the Mississippi offers so great an inducement to the settler as the State of Illinois. There is no portion of the world where all the conditions of climate and soil so admirably combine to produce those two great staples, CORN and WHEAT, as the Prairies of Illinois.

EASTERN AND SOUTHERN MARKETS.

These lands are now traversed by a railroad 700 miles in length, which connects with other roads and navigable lakes and rivers, thus affording unbroken communication with the Eastern and Southern markets.

RAILROAD SYSTEM OF ILLINOIS.

Over $100,000,000 of private capital have been expended on the railroad system of Illinois. Inasmuch as part of the income from several of these works, which is a valuable public fund in lands, go to diminish the State expenses; the TAXES ARE LIGHT, and must consequently ever be very low.

THE STATE DEBT.

The State debt is only $10,100,308 14, and within the last three years has been reduced $2,[illegible]46 81, and we may reasonably expect that in ten years it will become extinct.

PRESENT POPULATION.

The State is rapidly filling up with population; 868,025 persons having been added since 1850, making the present population 1,72[illegible]6, a ratio of 102 per cent. in ten years.

AGRICULTURAL PRODUCTS.

The Agricultural Products of Illinois are greater than those of any other State. The product in 1859 during the past year exceeded 115,000,000 bushels. The wheat crop of 1858 approaches 25,000,000 bushels, while the corn crop yields not less than 140,000,000 bushels.

FERTILITY OF THE SOIL.

Nowhere can the industrious farmer secure such immediate results for his labor as upon these prairie soils, they being composed of a deep rich loam, the fertility of which is unsurpassed by any on the globe.

TO ACTUAL CULTIVATORS.

Since 1854 the Company have sold 1,200,000 acres. They sell only to actual cultivators, and every contract contains an agreement to cultivate. The road has been constructed through these lands at an expense of $50,000,000. In 1850 the population of forty-nine counties, through which it passes, was only 851,470, since which 479,293 have been added; making the whole population 814,861, a gain of 143 per cent.

EVIDENCES OF PROSPERITY.

As an evidence of the thrift of these people, it may be stated that 700,000 tons of freight were moved 80,000,000 bushels of grain, and 250,000 barrels of flour were forwarded over the line last year.

PRICES AND TERMS OF PAYMENT.

The prices of these lands vary from $6 to $25 per acre, according to location, quality, &c. First class farming lands sell for about $10 to $12 per acre; and the relative expense of subduing prairie land as compared with wood land is in the ratio of 1 to 10 in favor of the former. The terms of sale for the bulk of these lands will be

ONE YEAR'S INTEREST IN ADVANCE,

at six per cent per annum, and six interest notes at six per cent, payable respectively in one, two, three, four, five and six years from date of sale; and four notes for principal, payable in four, five, six and seven years from date of sale; the contract stipulating that one-tenth of the tract purchased shall be fenced and cultivated, each and every year, for five years from date of sale, so that at the end of five years one-half shall be fenced and under cultivation.

TWENTY PER CENT. WILL BE DEDUCTED

from the valuation for cash, except the same should be at six dollars per acre, when the cash price will be five dollars.

Pamphlets descriptive of the lands, soil, climate, productions, prices, and terms of payment, can be had on application to

J. W. FOSTER,

Land Commissioner, Illinois Central Railroad,

CHICAGO, ILLINOIS.

For the names of the Towns, Villages and Cities situated upon the Illinois Central Railroad, see pages 188, 189 and 190 Appleton's Railway Guide.

THE

SOUTHERN PLANTER,

DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

VOL. XXI. [MAY.] NO. 5.

EDITED BY

DR. J. E. WILLIAMS AND PROF. WILLIAM GILHAM.

AUGUST & WILLIAMS, PROPRIETORS.

RICHMOND, VA.
MACFARLANE & FERGUSSON, PRINTERS.
1861.

MR. LEFEBVRE'S SCHOOL.

Grace Street, Between 1st and Foushee, Richmond, Va.

THE next session of our School begins on the first day of October, 1860, and terminates on the last day of June, 1861.

In consideration of the almost unprecedented success that has attended our efforts, we cannot refrain from expressing our thankfulness to our many friends and patrons, and think we may be pardoned for briefly referring to some of the many advantages afforded, on which the permanent prosperity of all such institutions must ultimately depend.

The buildings are large and commodious, planned for the wants and requirements of a large Female Institution—and affording almost unequalled advantages for the comfort and convenience of our pupils. Only two young ladies will occupy the same chamber, except when three may prefer to room together.

The Principal has made female education the study and business of his life, and has now been engaged in successful teaching for upwards of twenty years; his assistants are well qualified and experienced, selected with especial reference to the branches under their charge, and sufficiently tried in this Institution to be referred to with entire confidence.

Our system of education is thorough and complete, and while the best facilities are afforded for perfection in the accomplishments of female education, the greatest care is devoted to insure the acquirements of sound, practical learning; the reason and judgment are exercised in preference to memory, and the latter, while not wholly ignored, is made subsidiary to and dependent on the former.

Our daily system consists essentially in close, searching examinations, careful explanations, and familiar lectures. The plan pursued for many years in instruction in the French department has proved eminently successful. It is the language of the family, and much time and attention is given—indeed every facility afforded—to enable those pupils boarding with us to acquire an accurate knowledge of, and to speak with ease and fluency, the French of common conversation. In this respect, we think our school possesses advantages which can only be equalled by few Institutions of the kind in the country.

Music, Vocal and Instrumental, Drawing and Painting, both from models and from *nature*, are under the charge of Professors eminently qualified in their various branches. Most of these instructors are employed to teach exclusively in our school, and by devoting their time and attention entirely to our pupils, every advantage may be afforded for the acquisition of these accomplishments.

Such rules and regulations are enforced as are calculated to promote the welfare and interest of all the pupils.

TEACHERS.

HUBERT P. LEFEBVRE, A. M., *Principal*,
Natural Philosophy, Literature, Moral and Mental Philosophy, French.

WILLIAM G. WILLIAMS, A. B., *Vice Principal*, Astronomy, Mathematics, Chemistry, History, Latin.

EDWARD C. HOWARD, English Literature, History, Reading.

MRS. GRACE BENNETT, English Branches. MISS MARY C. GORDON, English Branches.

SENOR CARLOS CARDOVEZ MERA, Spanish and Indian.

SIGNORINA ANTONIETTA ERBA, Vocal Music. SIGNORINA MARIETTA ERBA, Piano.

JOHN A. CALYO, Drawing and Painting. WILLIAM F. GRABAU, Piano, Organ, Sacred Music.

C. W. THILOW, Piano. HENRICH SCHNEIDER, Harp. O. ERICSSON, Guitar.

The REV. GEO. WOODBRIDGE and the REV. FRANK BAKER have kindly taken charge of the Bible Classes.

TERMS FOR THE SCHOLASTIC YEAR.

Beginning the first day of October, and ending the first day of July.

For Board,	$200 00	For two lessons (of an hour) a week,	80 00
For Washing,	20 00	For three lessons (of an hour) a week,	120 00
For Lights,	10 10	For four lessons (of an hour) a week,	160 00
For Fuel,	10 00	For Sacred Music in class,	8 00
For English Tuition,	40 00	For Harp,	Teacher's fees.
For Modern Languages, each,	20 00	For the use of Piano,	10 00
For French, when studied exclusively of the English branches,	40 00	For Drawing, from Models,	20 00
For Latin,	20 00	For Drawing, from Nature,	40 00
For Literature,	20 00	For Painting in Water Colors,	40 00
For Music on Piano, Guitar, Organ or Singing		For Oil Painting,	50 00
For one lesson (of an hour) a week,	40 00	Primary Department, for children under 11 years of age,	30 00

REFERENCES.

THE PATRONS OF THE SCHOOL.—Right Reverend Bishop Meade, Va.; Right Reverend Bishop Elliott, Ga.; Right Reverend Bishop Johns, Va.; Right Reverend Bishop Cobbs, Ala.; Reverend A. Empie, D. D., Wilmington, N. C.; Rev. D. S. Doggett, D. D., Richmond; Rev. Charles Read, Richmond; Rev. Nelson Head, Danville, Va.; Rev. G. Gildersleeve, Richmond, Va.; Rev. T. V. Moore, D. D., Richmond, Va.; Rev. Wm. H. Wheelwright, Richmond, Va.; Rev. John Saunders, Richmond, Va.; The Clergy of the Episcopal Church in Virginia.

Sept 01.—tf All letters to be addressed to HUBERT P. LEFEBVRE, *Richmond, Va.*

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.

J. E. WILLIAMS, M. D.,
Prof. WILLIAM GILHAM. } Editors.

{ AUGUST & WILLIAMS, Proprietors.

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For the Southern Planter.

Grazing Cattle.

Most persons are, doubtless, inclined to the opinion that but little skill is required to fatten cattle upon grass; the only thing supposed to be necessary to this end, being to turn the animals into the fields and let them attain to a state of obesity at their leisure.

But when it is remembered that some farmers invariably have their cattle in high condition and thoroughly fat at market day, whilst others as constantly present theirs in that twilight state of dubiety, between "stock and beef," known as "half fat," there would seem to be something more requisite than simply giving the herd the range of the pastures.

In order to successful and profitable grazing, it is important that the stock should have been well wintered. When "gentle Spring" comes with its "deep green earth" it should find them in a healthy and vigorous condition, ready to improve, as well as enjoy, the luxury of being "turned out to grass." Animals which have been kept during the winter upon an insufficient allowance of provender, and are by Spring so reduced in flesh and exhausted in strength, that the vital organs scarcely perform their appropriate functions, require much time to attain the point, at which their more fortunate brethren, who have fared bountifully, if not "sumptuously every day," would commence that luxurious career, whose end is the shambles. Stock in good condition in the Fall, are much more easily wintered than those commencing that season of trial to the whole bovine race, as rivals to their "ill-favored" cousins seen by the dreaming monarch of Egypt upon the rich banks of the Nile. But I am straying from my subject. It being no part of my intention to discourse, either upon the principles that should govern the buyer, or the best mode of wintering cattle purchased.

As the grasses constitute the natural and appropriate food of cattle, and is that upon which they thrive most rapidly, in order that they may derive the greatest advantage and highest enjoyment from it during the season, they should be turned into the pastures as early in the Spring as the condition of vegetation will permit; which is just as soon as the grass has attained such growth as to enable the animal to crop it readily. I have known cattle lose more flesh by being confined to the barn-yard in the month of April, than they had done during the entire Winter. And this loss of flesh sustained by them, was not compensated for to the owner by the increased growth of the grass.

When stock are turned upon the pastures, whilst the grass is yet young, it springs up so rapidly after being cropped, that they not only have their food during most of the Summer, in the fresh, sweet and nutritious condition of early Spring, but the land actually yields a larger amount than it would otherwise do; for if everything is excluded from the pastures until the grass gets a "good start," that is, until it has attained considerable size and age, it not only grows up much more slowly after being eaten off, but is less acceptable to the animals. It is well known to every observant farmer that those spots where the grass is tallest and most luxuriant, are just those rejected by the descriminating palate of the fastidious quadruped, whilst the short and less flourishing are re-cropped daily with unalloyed appetite.

It is the practice of some successful graziers to winter their stock in the fields upon which they are to be grazed the next Summer, never removing them even for a day. in order to let the grass get ahead. This method is practicable when the farmer has a large quantity of close and heavy "old sod."

I am well satisfied that the same area of pasture-land will make more beef in a season, by turning the cattle upon it early in the Spring, than by the opposite method.

When cattle are turned to grass they should at once be given the entire range of pastures intended for them. To be changing them from field to field during the Summer, induces a discontented and unquiet disposition, in the highest degree unfavorable to the regular and rapid improvement in their condition. So essential is it to the fattening process, that the animal should be permitted to enjoy, in undisturbed repose, the calm pleasures of rumination; the farmer should be careful, as far as practicable, to remove every cause tending to disturb and agitate his herd. Colts and idle horses should therefore never be allowed to run with the fattening cattle.

During the Summer, stock should be salted regularly and abundantly. At this season they seem to require more than at any other period of the year. It would, perhaps, be the best plan to keep a supply constantly by them, but, as this is rarely practicable, it ought to be given to them frequently and at regular intervals. It is my practice to salt each alternate day in the Summer. Under this practice, cattle consume but a small quantity at a time, and it has the effect of promoting their quiet and contentment. The time of the day at which cat-

tle are salted is, I think, a matter of little consequence, although some persons attach importance to it. But as cattle are very regular and methodical in their habits whilst grazing, passing over the entire enclosure allotted to them, in nearly the same order every day, it is well to salt always at the same place, and so arrange the time as to reach the spot simultaneously with the cattle in the progress of their regular rounds.

I much prefer an abundant supply of running water in the pastures, yet those farmers who have to depend upon ponds, insist that cattle do just as well when compelled to allay their thirst from a green, slimy and filthy pool, as when drinking from the coolest spring or most sparkling brook. This comfortable faith in the virtues of stagnant water, I have no disposition to unsettle.

There is nothing more grateful to the panting herd on a hot and sultry day in July, than the cool and refreshing shade thrown over the parched earth, by the wide spread and leaf covered branches of a noble oak or beautiful ash; no humane farmer, therefore, who entertains a just regard for the comfort of his horned dependants, or who recognises the golden rule of "doing unto cattle as you would have them do unto you," will fail to preserve an ample supply of shade trees in his pasture grounds. Anything that adds to the comfort, likewise promotes the thrift of the animals, so that the pecuniary interests of the farmer combine with the voice of humanity and good taste, in demanding the preservation of shade trees.

The number of cattle that can be profitably grazed upon a given area of land depends upon such a variety of circumstances, that it is impossible to give any precise and definite rule in reference to that subject. The farmer, however, ought to be careful not to overstock his lands, if he wishes to enjoy the pleasure of seeing his cattle in a condition creditable to his care and skill as a grazier. Pastures of such long standing as to have formed a close, compact, and heavy sod, of the indigenous grasses will fatten a larger number of cattle than the same extent of similar lands recently laid down in grass. The size of the cattle is likewise another consideration to be taken into the account; as the same fields will pasture well a greater number of small cattle than of large ones.

The excellence of "old sod" for the purpose of grazing is due rather, I am inclined to think, to the greater quantity and better condition of the grass it furnishes, than to any intrinsic superiority in its nutritive qualities over similar grasses recently set. Upon rich land, which has long remained undisturbed by the plough, the artificial will, in a great measure, have given place to the natural grasses, and these rarely attain such size and rankness of growth as to render them distasteful to the cattle. Again owing to the number and vigor of the roots of these indigenous grasses, they are able daily to furnish a fresh supply of food, however closely they may be grazed.

The relative fattening qualities of different pastures, however, seem to depend more upon the character of the soil upon which they grow, than upon the kind of grasses composing them or their age. In this county, the best grazing farms are

composed of what is popularly denominated Slate lands. They are a heavy clay loam, generally underlaid by a stratum of soap-stone. Of course the richer these lands are, the greater number of animals will they sustain to a given area; yet the nutritive qualities of the grass they yield, seem to be independent of the fertility of the soil. I know some lands of this class, which are by no means rich, yet they fatten cattle admirably.

As this article is intended to be suggestive rather than exhaustive of the subject, I shall trespass no farther upon your columns or the patience of your readers. T.

Augusta County, April.

For the Southern Planter.

Manures.

There are so many manures now being used, without proper discrimination, by many of the Farmers of Virginia,—with detriment, often, both to the land and the pocket—that it appears to me, if any suggestion can be thrown out that may serve to arrest the tide of extravagant expenditures for the many "nostrums" which are now being vended to an unsuspecting community, it will be an act of true beneficence, and prove a profitable service to the agriculture of the country.

In presenting some reflections on the subject, I shall dwell only upon such manures as are known by actual experiment to contribute to the fertility of the soil.

The first and great improver—the basis of all permanent improvement—is *lime or other calcareous earth*. These have been attended with the most satisfactory results in every instance in which they have been judiciously applied. These results have varied only with the variations in the condition of the soil. Upon light lands the action of calcarious matter has been much quicker than upon stiff clay soils; yet, upon both, beneficial results have been certain to appear. It is generally regarded as a most essential element in the improvement of worn-out lands, since, without it, in some form or other, all attempts to resuscitate them have been fruitless. So powerfully has it acted upon acid soils—i. e., soils abounding in sorrel and other acid grasses—that the effects of its application can generally be traced even in the first crop. Upon soils which are close and compact, its mechanical operation has been to make them much more pulverable, and render their cultivation easier and more agreeable. It is a cheap and ready agent, not only for renovating our *worn-out* soils and *barren* hills, but of improving, still further, lands which are considered already in a comparatively good condition. It tends, as has been seen above, not only to break the tenacity of stiff clay and improve their friability, but also prepares them to be acted on by the atmosphere; while on the other hand, it increases the tenacity of light soils and improves their power of retaining manures, by preventing the exhalation of their nutritive gases. It converts inert vegetable matter remaining in the soil into plant-food by its solvent power. It is not only a solvent of *organic*

remains, but of many *inorganic* constituents of the soil also, setting them free to minister to vegetable growth and development. This may well be regarded as one of the most important properties of calcareous earth. It has also the power of attracting moisture from the atmosphere, thus enabling the crops to withstand the effects of our summer droughts, with little comparative injury.

Assuming, as we have done, that lime and marl constitute the basis of all permanent improvement, and knowing their action in decomposing vegetable and mineral substances in the soil, we need only recommend their use as preliminary to the application of other manures—as auxiliaries in the improvement of our lands. Soils may abound with calcareous matter, but if most of the other elements of fertility are not present in them, it is not to be expected that the presence of lime or marl will supply the dificiency.

As lime has been shown to be of so great importance in any well ordered system of improvement, it is a matter of primary importance to inquire: In what quantity and in what manner it should be applied? In determining this question as it relates to the first branch of the inquiry, reference should be had both to the quality and the condition of the soil. If it is capable of producing a heavy vegetable growth, and is, moreover, full of insect life, then it should be applied in larger measure,—say from 20 to 30 bushels per acre, (enough for a first application to almost any land,) once in the course of an ordinary rotation of crops, if followed up through successive rotations until the maximum of about 100 bushels per acre shall be reached, which is as much, I think, as any land requires; but if the soil is thin and barren, a smaller quantity would be required, at first, which might be gradually increased through successive rotations until the same maximum is attained.

With respect to the condition of the land for receiving lime, it is best used I think as a top-dressing, to be repeated at intervals, as above intimated. I am induced to believe, after careful observation, that where there is grass or a sod to be treated, it is best to apply the lime some months, or I may even say, a year or more before it is ploughed in. I know that in making this assertion I am in direct opposition to the usual practice of our farmers. As to the time of applying it to crops—especially the corn crop—it seems to be the prevailing opinion among nine-tenths of the farming community, that it should be scattered over the land after it is ploughed. I have, on several occasions, followed this method, and after thoroughly raking the land, planted corn, but, in every instance, I have found the results less satisfactory than when the lime was scattered over the grass and ploughed in together with the sod. It is with diffidence that I dissent from a practice so general among intelligent farmers, but believing it to be erroneous, I must adduce some of the reasons upon which this contrariety of my opinion to theirs is founded.

We have seen that lime, acting in conjunction with the atmosphere, decomposes the vegetable substances contained in the soil and converts them into food for the crops. In order then to the performance of this important function, it

is necessary that it should be brought into direct contact, or at least, in juxtaposition with the vegetable matter to be affected by its action. This cannot be so successfully done by a surface application after the land is ploughed, especially if ploughed according to the practice of the best farmers, namely: to the depth of ten or twelve inches as it would be by ploughing in the lime and sod together. The chief objection urged against my practice is, that lime being heavier than earth, has a tendency to sink, and should, therefore, be applied to the surface after the land is ploughed. This is the very reason why I prefer to plough it in with the vegetable covering of the soil, especially when applied sometime before, because its action is more immediate, when so ploughed in, and it is retained in a favorable position to be soon again brought to the surface, that is, by the next ploughing. Whereas, if applied upon ploughed land as a top-dressing, there is reason to fear that, meeting with so little obstruction to its descent, it may sink too far below the ordinary range of the plough to be ever again brought to the surface when the soil is afterwards subverted. I am aware of my seeming temerity in attacking a practice of such long-standing and general acceptation as to have attained the authority of an established axiom; yet, after fifteen years experience in the various modes of applying lime, I am constrained to dissent for the reasons briefly set forth above.

There is another mode of applying lime, which is growing in favor, namely: to scatter in the months of February or March about ten bushels broadcast over the growing crop of wheat. I have known instances of great advantage to the wheat crop derived from such application, and it has this additional recommendation, that it always promotes the growth of the vegetation which appears in the wheat field after harvest.

As to the best mode of distribution of lime, a few words will suffice.

Some farmers may prefer using a machine called the lime-spreader, others to distribute it from the cart in the act of unloading, while a third class prefer to have it disposed in piles at regular distances, and in prescribed quantity on the field, and then distribute with the spade or shovel. I have adopted the latter mode as decidedly preferrable to either of the others. I check my land each way with single ploughs, using stakes 27 feet long, then, with cart or wagon, I deposit in the centre of each square, having cleared the surface by scraping it, a half bushel of lime, which is then scattered evenly over the surface. I have generally reserved this operation for the month of August, but it may be determined, as to time, by the selection of an opportunity which least conflicts with the application of the forces of the farm to other employments.

What has been here said of lime is intended to have equal application to the calcareous earths of Virginia, especially of those of Pamunkey and James rivers, which are better than lime; as in addition to that substance, they contain gypsum, potash, soda and animal and vegetable remains, which constitute them a mine of wealth to the proprietors, and the adjacent districts enjoying the advantage of water transportation. It is this marl which has given such celebrity and

high value to the farms bordering the James and Pamunkey rivers. As there are two varieties of marl—the Miocine and Eocine; the one combined with clay and the other with sand; their application not only supplies the lime necessary for a productive soil to possess, but adds clay or sand as the one or the other may be used to meet the requirements of a stiff or light soil.

I have already occupied more time and space with this branch of our general subject than I intended, but if I can succeed in arresting the tide that flows so strongly in favor of bought manures, and direct it into the right channel by inducing a more general use of *lime, plaster, clover and peas*, I may claim that I have not labored in vain, but have done the State some service.

To follow the application of lime, in whichever of the forms indicated, with artificial grasses is, as I conceive, the first step in any well arranged system of improvement. Among the grasses, my preference has long been given to clover as the best of all grasses, not only for the purpose of improving the soil, but also as affording an abundance of good and nutritious food for stock. The turning in of green crops after an application of lime or marl is practised by many of our farmers, and on light river flats the pea more than any other green crop is used, because they grow much more luxuriantly, and thus afford more vegetable matter to serve as manure. The mode usually adopted in their cultivation, is to fallow the land in the month of June or July, then sow the peas and harrow them in. I have known them, in a few exceptional cases, to produce heavy growth even when sown as late as August, but as a general rule it is best not to defer sowing later than the middle of July. The best time for turning the pea fallow under is early in the month of October.

Another mode of cultivation, with those who practice on the three field system, with a standing pasture, is to sow the peas in the field of growing corn at the last working, and cover them with the cultivator or rake. This process of laying by the corn is a good one for the crop, but does not always secure a heavy growth of vine for the enrichment of the soil. It, nevertheless, is a good preparation for the following crop of wheat.

I will proceed now to consider *Guano and other bought manures.*

These have been extensively used in this section of Virginia, and I believe guano was used in this county as early as in any part of the State. I do not know the first individual who has made a fortune by it, but I do know several who are some thousands of dollars behind hand in consequence of its use. I happened to be in Baltimore in the fall of 1845 or '46 when I purchased half a ton, which then cost me, delivered at my landing, nineteen dollars. I applied it to about three acres of land—nearly 400 lbs. to the acre—which was scattered over very good land, and the result was not over three or four bushels of wheat to the acre more than the surrounding land yielded. I afterwards used it some four or five times, never having purchased more than five tons at any one time. I have since abandoned its use altogether, and can truly say that my original outlay has

never been repaid. I must, however, say that I am greatly indebted to the advice of an esteemed friend for having entirely abandoned its use.

On my way to Richmond, in crossing the Pamunkey river, at the Pipentree, I was delayed, and my friend in the course of our conversation on the subject of guano, informed me that most of the surplus of his crops of corn and wheat, were loaned out to farmers to purchase guano with, and that he did not believe that they had realized one cent from the use of guano, besides owing the money for the guano. The expectation of making large returns from its use had engendered speculation amongst farmers, and that they really were worse off then than if they had never purchased a ton of guano. My friend, however, had been, and is now, constantly using the green sand marl, found along the Pamunkey, has not only a fine farm, but makes large crops, entirely by the use of marl, clover and peas. He is, what is rarely to be found in this section of Virginia, a thrifty farmer. Now that the fact is notorious that guano, and all the varieties of manipulated manures, are in the hands of speculators and their agents, it becomes us, as farmers, feeling a mutual interest to rescue it from their hands and place it under the control of those who have won our confidence. Never has any class, in any community, suffered so much as the farmer, by speculators; his lands, his crops, and his manures are now under their controlling influence, so that, in many instances, he is not really purchasing what he supposes; especially is this the case with guano, as I hear that frequently our native dirt, with here and there a sprinkle of guano, has been imposed upon an unsuspecting purchaser. Ashes and bone dust are certainly of great value, and if they could be obtained at any thing like a reasonable cost, and could be warranted genuine, they would be great improvers, and I believe, they would pay in using them; but the same objection is here met with as in the case of all bought manures. There are other compounded manures, such as "*Manipulated Guanoes*," "*Salts*," "*Renovators*," &c., &c., (their name will, I am sure, be legion in a few years,) all made by different *Chemists* and *Doctors*, and the manipulators themselves differing in their compounds, and deprecating the use of the particular nostrum of their opponent, is a sufficient guaranty that they all will not answer the same purpose; and, added to the fact that they have not improved or benefitted our lands and crops, is sufficient to warrant us in recommending other cheaper and better manures. Such all will agree, are BARN-YARD AND STABLE MANURE.

Since the introduction of bought manures very little attention has been given to this most important branch of all improved agriculture. This is the valuable and prolific source from which the farmer is, by his own efforts and economy, to improve his land. It is the great reservoir from which he is, by his own industry and management, to draw supplies for the improvement of his land, as well as, in a measure, to derive his wealth, and he should husband his resources in such a manner as to have a constant eye to the accumulation of, not only all the excrementitious matter from his stock, but all the decaying vegetable matter from

his farm. The greatest negligence now prevails among many farmers, in relation to proper attention to their barn yard and stable manures, and the voidings from cattle. The evaporation of the nutritive portions of these manures, would, if properly guarded against, improve more land than what is effected by the little they carry out upon them. There is nothing which a farmer can more judiciously use than plaster, in absorbing and fixing the valuable properties of manure, which are constantly escaping in the form of gases. I would then advise the liberal use of it, also, in all the vegetable manures raised upon the farm. It is essential in all well regulated and ventilated stables and cow sheds, in preserving the health as well as the eyes of the animals, from the noxious exhalations of the pungent, if not poisonous gases, which are constantly escaping from the manures. Plaster repays the farmer who uses it, ten-fold. I conclude this subject by strenuously advising a more careful and constant attention to the accumulation and preservation of barn yard and stable manures.

In conclusion, whether you have the stiff clays or sandy loams to contend with on your farms, if you desire to restore them to fertility, you must give them the advantages of *Lime*, *Clover* and *Plaster*, with a regular rotation of crops. You must lend all your energies to the accumulation of manures—*animal, vegetable* and *mineral;* you cannot expect your lands to yield remunerating crops unless you continue to keep up their fertility by liberal applications of manure. Should your barn yard and stables fail to afford you a sufficient supply, you should go to your marshes, woods, and ditch banks, and there find the materials for manure. We know the chief element of all manure is vegetable matter, and its production being necessarily slow and laborious on exhausted soils, we should take advantage of every assistant, in increasing and applying it to the soil.

Wm. D. Gresham.

King & Queen County, Va.

From the British Agricultural Magazine, Plough and Farmers Journal.

Chippenham Hundred Farmers' Club.

What has Science done for Agriculture?

Mr. Scott read the following paper:—

In endeavouring to answer the question, "What has science done for agriculture?" I must ask—as I feel confident I shall obtain—your indulgence, from a deep sense of my inability to do justice to the subject, and from the fact of my not having had many days to prepare myself to bring it forward. I must claim your special attention to the remarks I shall make, as it is difficult to bring the facts and arguments of the case into a focus, to enable them to be easily seen and clearly comprehended by the general body of members of clubs such as this, who, however prompt and ready in their practice to avail themselves of the results of scientific discoveries, are not likely to be in the habit of discussing the processes by which they are arrived at. And here I would observe that it

can never be reasonably expected that farmers in general should become scientific scholars by studying the abstruse principles of chemistry, or by learning the botanical names of 50,000 plants, that they may cultivate a dozen. All experience is opposed to this, or to their turning aside from that course and from those processes which have been confirmed by the experience of centuries, and in which alone lies their safety. But when farmers know the principles on which their successful practice depends, agriculture then becomes a *science*, and remains no longer only an *art*; and you will all, no doubt, admit that one farmer with a knowledge of science must possess advantages over another without it, both being equal in practical ability. Take as an instance that both parties farm a thin soil, composed of inert vegetable matter, resting on what is called a moor-band pan, which is bound together by sulphate of iron, and discharges that yellow sediment so often seen by you in your ditches, called oxide of iron, so poisonous to vegetable life. Suppose this land to be managed exactly alike, until it came to be fallowed for green crop; then the one applies dung, because he knows it is usual to do so at this stage; but the other—the man of science—applies lime, and ploughs it in, that it may come in contact with the pan below, knowing, as he does, that the lime will liberate the potash and decompose the sulphate of iron, and, by taking up the sulphate, become sulphate of lime or gypsum, thereby affording suitable food turnips, wheat, and clover. The result in the former case will be almost an entire waste of the manure and a stunted crop of roots.

Until very recently science has been so little recognized as a handmaid to agriculture, and has met with so many rebuffs in its advances, that its progress has no doubt been retarded; so much so, indeed, that though it is many years since "Tull" wrote and "Davy" lectured, it would be much more easy even now to say what science proposes to do, than what it has actually accomplished for our profession. Fortunately, it is now recognised by agriculturalists as a body, and those farmers who endeavor to engraft it on their practice are no longer designated "mere theorists." Science never claimed the power to enrich individuals any more than our Club does—but only to improve our general practice and elevate our profession; and therefore it ought to be encouraged, or, at least, treated with that degree of forbearance necessary to enable it gradually to develop its resources. The facts of science generally, if properly tested by careful experiments and brought before us on high and reliable authority, are not to be put lightly aside, like many of the extravagant theories that start up around us from day to day. But, nevertheless, when we find men, as we too often do, of note and intelligence, propagating doctrines of practical value, such as that lightning and electricity stimulate production, and inducing sanguine farmers to surround their fields with wires to catch it—when we see such men as Prof. Liebig giving forth that plants require only an imperceptible amount of mineral food from the soil, the rest being supplied by the atmosphere—and publishing that one of the best manures for land is burnt straw or ground glass, and encour-

aging farmers to hope that the time had almost arrived when, in place of the cumbrous apparatus of farm yards and dung carts, they would have a laboratory in their fields to manufacture silicates and phosphates—when we find, I say, scientific men giving the weight of their authority to such doctrines as these, we need not much wonder that practical farmers so frequently turn their backs on science, and that its progress amongst them has been so materially retarded. An injurious effect, in the same direction, has, I think, been unfortunately produced by the expressed views of so many of our great agricultural authorities—such as Arthur Young, Dr. Coventry, Prof. Low, and all others—all of whom have discouraged the farmer from bestowing much study or placing almost any reliance upon the results of science. I will just read to you Prof. Low's remarks bearing upon this point, as he is undoubtedly the soundest instructor in practical farming we have ever had, and the greatest living authority.* "It is in Germany and France," he says, "that chemistry and vegetable physiology have been cultivated for the longest period as a branch of agriculture. But when we inquire in what manner these researches have improved the practical art in either country, we have only to consider the nature of the subjects themselves to be assured they cannot have done so in any sensible degree. They are seen to be the mere opinions of learned men, formed, for the most part, in the laboratory and closet, without a due knowledge of the business of the fields, and the modes by which agriculture can be cultivated as a branch of industry. Let us turn again to countries where theories of vegetation have been unheard of, and we shall yet find the art of husbandry in a high state of advancement. In the Netherlands the surface of the country is like a garden, and every available resource has been resorted to for rendering it fertile by the industrious inhabitants. In the North of England, and a part of Scotland, a system of agriculture has been established which has multiplied the resources of the country in a great degree; yet in the forming and perfecting of this system physiology and chemistry have had no share. If we turn to the sister art of gardening, which is the child of experiment in every country, we shall find that it has been perfected without the aid of those theories and researches which many hold to be necessary."

Notwithstanding this, I think the many scientific truths which have been floating in the atmosphere around us, are now beginning to stick to the agricultural mind, and as the soil is good, I have no doubt they will soon germinate and bear good fruit.

As a proof of their gradual progression, we find the Royal Agricultural Society of England at its formation, about 12 years ago, adopting the motto, "Practice with Science." Liebig soon after published his "Treatise on Agricultural Chemistry," by which he obtained an European reputation. This was followed by the farmers of Scotland subscribing upwards of £2,000 to establish a chemical association in that country, and support a professor at £500 per annum. The Cirencester College did the same, and its professor, Mr. Way, has repeatedly

* Prof. Low has since died.

been invited by the Royal Agricultural Society to deliver lectures at its annual meetings, which he has done with great effect. Prof. Johnston has also published his popular lectures, and a branch of agricultural chemistry has been established in several common day-schools, and its importance has been recognised in many other ways.

Agricultural chemistry, however, although so prominently put forward, and undoubtedly deserving the first place, must not be supposed to constitute the only physical science bearing upon the interest of agriculture. Geology, botany, meteorology, physiology, etymology, natural history, and medicine, all, more or less, seek to connect themselves with its principles and practice. So, likewise, may mechanical science claim some credit for its many inventions in aid of the business of farming.

The distinction between science and art I need not define. You are all aware that science explains the cause of results by a course of reasoning from fixed principles; nay, it takes a higher sphere, and by the same process it predicts, foretells, and guides. Art, on the contrary, only executes the edicts and decrees of science. The art must, therefore, in a certain sense, be subordinate to the science of farming. A Watts may have the genius to invent a steam-engine without the practical ability to construct it; so a Napier may have the talent to construct one, without a knowledge of its principles. Again, a Liebig may know what will produce a certain crop, without the necessary skill to grow it; and a farmer may possess the necessary skill to raise the crop without being aware of the causes which produce such a result. Thus a chemist may be a good philosopher without possessing a knowledge of farming; and a farmer may be a good agriculturist without possessing a knowledge of the theory of production. The one, you will perceive, partakes more of an intellectual and reasoning operation; the other more of a mechanical.

Both physical and mechanical science have advanced manufactures; and why, let me ask, should their aid not be equally beneficial to agriculture? Until of late years farming operations were guided in a great measure by local experience, acquired by long and expensive courses of practical experiments; and there certainly can be nothing more valuable than the results of experience in farming; but with the aid of science you will be enabled to acquire the same knowledge in less time, and be prevented from taking those false steps which you are apt to do when trusting to experience alone, and refusing the assistance of well ascertained principles. Had Davy or Liebig lived as contemporaries of Tull. to explain the sound principles which he promulgated but could not defend, those great principles (applicable to all soils and in all climates) would not have lain dormant for upwards of a hundred years, only now to be revived by men whose scientific minds have enabled them to penetrate that theory, which ought to have been yielding incalculable wealth to the country a century ago.

Again, take the case of land drainage, and I think your personal experience and observation will bear me out in saying that nine-tenths of all the drainage

done in this country previously to the last fifteen years, or until Parkes elucidated the true scientific principles of draining, has been most imperfectly executed, and that the expenditure was almost entirely thrown away. And here let me remark, incidentally, that though we willingly accord to Mr. Parkes the merit of laying down in his writings the true principles of an efficient land drainage, yet he has unfortunately proved himself to be but an indifferent practical operator when called upon (in consequence of his able writings) to put his principles into practice.

If I may claim your attention for a few minutes longer, I would venture to state a few of the results of chemical investigation. In the first place, it has been shewn by analysis that we can ascertain (with sufficient correctness for practical purposes) what different soils are composed of; as also the elements of plants, and the constituents of manures. We are, therefore, now enabled in our daily practice to supply the soil with those substances in which it is deficient, thus furnishing suitable food to such plants as we may choose to grow upon it. You are all aware that artificial manures are now successfully made through the aid of science, and many of us can adduce cases in which our respected fellow-member, Mr. Proctor, has administered successfully to all varieties of crops on totally different soils. Look to what guano has done, whose value and uses chemists so correctly told before practical trials could be made. As an instance of the value of chemical analysis, take the case of an intelligent and enterprising Lothian farmer, that of Mr. John Dickson, of Saughton, near Edinburgh, who lately purchased from a respectable merchant in Leith several hundred pounds' worth of guano, and had it analyzed by Dr. Anderson, the farmers' agricultural chemist in Scotland, who found it to consist of

Croprolites, worth - - -	£3	0	0	
Gypsum - - - - -	1	5	0	
Genuine guano - - - -	0	15	0	
In all - -	£5	0	0	
And for which Mr. Dickson had paid -	9	10	0	per ton.
Thus showing a loss of - - - -	£4	10	0	per ton,

which he detected by means of this analysis, and recovered from the seller upwards of £100.

The process of dissolving bones with sulphuric acid is also due directly to the inductive principles of chemistry, and was first tried by Liebig, because he knew from scientific principles that this process would produce the desired result of liberating the phosphates in bone and making it fit for the food of plants. Having had much experience in the use of bones, I can confidently assert that for general purposes, either as a top dressing or for underground manure, 5 cwt. of dissolved bones, called "superphosphate of lime," costing (in Bristol) 40s., is to be preferred to a ton of raw bones, costing £6.

Again, chemistry has shown that a small brown stone, called a *coprolite*, which

is found in abundance in several parts of England and in Spain, and also, I believe, in America, and is said by geologists to be the fossil dung of an antediluvian lizard, is a good inorganic manure, and I have seen it used with success at the Cirencester College Farm.

Chemistry also explains the ingredients which both cattle and crops remove from the soil, and what is required to replace them. Thus milch cows, we know, impoverish the land they pasture on, and analysis shows that the milk they yield contains a large quantity of the phosphates, which is the principal food of grasses and clovers; and when the excrements of dairy cows is examined, it is found to be thus much poorer. From this cause the farmers in Cheshire—the greatest dairy county in England—are constantly restoring those phosphates to the soil by top dressing their pastures with bone dust. Young stock, on the contrary, only remove the quantities of phosphates and other ingredients required to form their bones and flesh, and their dung is so much the richer than dairy cows.

It is now also pretty well ascertained what materials particular crops remove from the soil, and one curious fact is, that from an acre of land 10 inches deep and weighing 1,000 tons, 20 crops of wheat, at 35 bushels of grain and 2 tons of straw per acre, only remove of minerals of all sorts 0.248; and it was supposed by Jethro Tull, and now by many even practical men, that nearly all the other elements of wheat may be derived from the atmosphere, by stirring the soil and allowing it to have free access to the plants.

It has now been clearly established by Prof. Liebig, that the heat of the body, both of man and animals, is the same in all climates and temperatures—that the chief source of animal heat is carbon—and that our food is the great source of carbon. In cold weather, therefore, when the body gives off an an increased amount of heat, a proportionate quantity of food will be necessary for our stock, in order to keep up the due temperature of the body. Hence the advantage, nay, necessity, of keeping our feeding animals always moderately warm and beyond the reach of cold currents of air, not merely to save food, which the most of us know it will do, but to conduce to their general health. A beautiful fact in connection with this circumstance is, that the oxygen gas which animals are constantly wasting by respiration is again supplied by what is given off from growing plants, which extract carbonic acid gas from the air, retain the carbon, and set the oxygen free, thus maintaining a beautiful law of compensation.

Again, how marvellous the fact that it is within the individual power of any of us to carry to the field sufficient manure, in the shape of superphosphate of lime or guano, for an acre; but it would require an Atlas to bring back the crop that such manures would produce.

See, then, in these facts, the realization of what science predicted fifty years before such things were thought possible. And had Lord Kames lived in our day, his memorable remark that the time would come when a farmer might carry

as much manure in his hat as would suffice for an acre of land, would not have subjected him to the witty and sarcastic retort, that he would be able to bring home the crop in his waistcoat pocket! For the rapid strides that science has made within the last ten years—the extraordinary discoveries that have taken place—the increasing mastery of mind over matter, making nature reveal, as it were, her inmost secrets—leave no man at liberty to dogmatize of the future. It looks, indeed, as if we had, at last, found a key to unlock the boundless storehouse of nature; and he only, who from time to time heaves the log into the deep, can fully appreciate the strength of that vast intellectual current that is sweeping along with such irresistible power.

I have dwelt so long on chemistry that I will only add that geology indicates the kinds of crops and stocks most suitable to a district; botany—the plants, their sexes and habits. And here let me remark on the beauty and peaceful influence of that science whose votaries are to be found in all parts of the habitable globe, in the deserts of Africa, in the wilds of America, and amongst the distant islands of the Pacific, the pioneers of peace and good will amongst nations, and constantly returning to enrich their native land with their newly discovered treasures.

Meteorology has given us the barometer and thermometer, and taught the signs of the weather, and the effects on climate, of draining, planting, and cultivation.

Physiology teaches us the structure of animals and plants.

Entomology the habits of insects, by which we may sometimes ward off their destructive depredations, or destroy them.

On the continent this subject commands the attention of governments. In France, Germany and Belgium, local laws are from time to time enacted for the destruction of insects; and commissioners are appointed to investigate their economy, and to suggest plans to arrest the evils arising from them, and in many cases efficient means have been devised to stay the mischief. The ready manner in which insects may be imported from foreign countries with our grain, and naturalised here, and the fact that such has been the case in many instances, ought to make us more alive to this subject, and induce us to be more attentive in keeping our barns, storehouses, and granaries clean and well aired.

Natural history enables us to know the habits of the birds and animals that frequent our fields, and their good or evil propensities, and may sometimes induce us to mitigate our unqualified condemnation of the persecuted, but nevertheless useful rook.

Medicine can give us enough skill to enable us, in emergencies, to administer to the ailments of our dependent animals.

And lastly, mechanical science has conferred upon us inestimable boons; for who can reflect on the improved ploughs now in use without thinking on James Small, the working blacksmith? or on the thrashing machine, without a feeling of gratitude to the humble Scotch mechanic, Andrew Meikle? or on the now all

but perfect reaping machine, without esteem for the labours of the Rev. Patrick Bell, and acknowledging that we owe something to mechanical ingenuity and science? So, also, has it given us the steam engine, to thrash and winnow our corn, and then to carry it to market and bring back the master-farmer manure. And its most recent production, Fowler's draining plough, is not unlikely to work a great change in draining, in cultivation, and in climate; for I can confidently say, from a personal knowledge of its construction and practical operation, that it is not a mere rude machine to be dragged along by brute force, but one constructed on strictly scientific principles to reduce the power of draught and resistance, and to produce the desired action on the soil.

A liberal knowledge of science, then, must make a farmer a more unprejudiced man. It will connect the every-day business of life with a higher class of thoughts and feelings; it will enable him more clearly to comprehend the details of his farm, and so bring the whole into that more perfect harmony by which every operation shall conduce to one common end, with the least expenditure of power and the greatest produce of result; and therein, I conceive, consists the the true art of scientific farming.

A discussion followed, in which the chairman, Mr. Schneider, of Slaughterford, Mr. Painter the secretary, Mr. E. Little, and others took part; and we are happy to be able to add, that although those present were unanimous in considering practical experience as the safest guide, they were equally so in showing a due appreciation of the principles of science.

The following was the resolution come to:—

Resolved, That physical and mechanical science have rendered, and continue to render, valuable services to practical farming; and that, though a knowledge of science is not considered indispensable to a farmer, yet such an acquaintance with chemistry, geology, botany, meteorology, and mechanics, as can be acquired by the ordinary habit of reading and observation, is desirable, and would be found a valuable addition to practical experience.

Liquid Manure for Gardens.—Every man who has a sink spout has a fountain of wealth at his back door. You laugh at the idea, for you have never tried it. Make the experiment and you will laugh at your own simplicity for overlooking a stream that abounds with gold dust, as really as Pactolus. The application of liquid manure to meadows. on farms may be at some distance in the future, but for its use in gardens the time has already come.

If you have nothing better, sink a half hogshead a foot or two in your garden, in the most convenient place, and run a leader from your sink spout into it. A watering pot is the best thing to put it on with, but not at all essential. An old pail and dipper, kept for the purpose, will answer. When the plants are well up and begin to grow nicely, apply the liquid two or three times a week, just at night. It is excellent for vegetables and small fruits, and for grapes and pears until they begin to approach maturity. It not only increases their size, but improves their flavor.—*American Agriculturist.*

For the Southern Planter.

The Grasses best adapted to Virginia—The Mode of Culture, and Manner of Curing, &c.

In this day of progress in the science and practice of Agriculture, the future is full of promise to the farmer. With every step of our progress in improvement, in the processes of husbandry, we should see to it that we advance, also, in the great business and chief aim of life, that is, not to add field to field, to pull down barns and build up greater, but to improve our minds, our hearts and our lives, so as thereby to benefit the world in which we live. Keeping this superior object and end distinctly in view, I propose to take the privilege of submitting a few thoughts which have occurred to my mind upon the subject which heads this article.

The ages of Fable, although long since passed away, have been fairly outstripped by these days of *Fact*. The dreams of Poets, and the speculations of Philosophers, are more than realized in the achievements of modern husbandry—and the deed is none the less wonderful because it has not been instantaneously performed. But however satisfactory the practical results already realized, by the application of mind to Agriculture may be, the subject is still open for investigation, and presents the highest encouragement for further research. There are secrets yet locked up in the soil, which, discovered, will enable us to double the certainty, and the measure of reward for labour and every fact carefully noted, tends to open the pathway to their attainment.

The husbandman may never be able, even if he so desired, to "sow Dragon's teeth and see armed men rise up from the soil, to desolate the Earth, but he can do a greater deed, he can stamp on the ground, and see lowing herds, white fleeced flocks, and neighing steeds, rise at his bidding. Animals more perfect in form, more profitable in their yield and labour, than any of the nations of antiquity ever saw."

To fertilize and improve the farm, ought to be the prime *temporal* object of every proprietor. Agriculture may be legitimately considered as not only the stimulus to industry, but also the source of abundance, comfort and health. In perfect harmony with these, it also subserves the higher purposes of promoting good morals and acts beneficially even upon religion itself. All national aggrandizement, power and wealth, may be traced to Agriculture as their ultimate source. The American Farmer, then, equipped for his employment, and tilling his grounds may justly be regarded as belonging to the order of real noblemen.

Without further preliminary remarks, I come directly to my subject, which is, of itself, sufficiently fruitful to occupy the few pages, I propose devoting to this article. The subject is one about which more is said, considerably more done, and doubtless more thought upon, than perhaps any other affecting the interests of the farmer. It is, in truth, a subject of absorbing interest, and of primary importance. Indeed, taking the whole country into the account, the single item of *grass* is far more valuable than any other product of the soil. It far outstrips

corn, cotton and wheat, which generally attract more attention, because they are more generally sold, and therefore affect more sensibly the commercial exchanges of the country.

But the lowly grasses, that our cattle graze during the summer, and which when dried, form their principal food in winter, are of more importance to the prosperity of the country, than any other single crop.

Of the various grasses that have been to a greater or less extent cultivated in Virginia, I will mention only those that by actual experiment and observation, have been found adapted to the soil of the State. These, I think, are sufficient to meet all the wants of Agriculturists, for whatever purpose they may desire to appropriate them. There are others, however, that I might mention, in proof of whose merit, I might give quotation after quotation, from authorities above reproach; still, they have not been sufficiently tested by experiment, and hence, we must, as yet, regard their adoption of doubtful expediency. Those grasses to which I particularly refer, as being of established adaptation to the soil of our State, are orchard grass, blue grass, Herd's grass, timothy and clover.

The orchard grass, sometimes called "Rough Cock's Foot," and known Botanically as "*Dactylis Glomerata*," though regarded by many, as being very valuable, is not so generally popular among cultivators as some of the other grasses. It has in its favour, however, qualities that ought to cause it to rank with the best grasses of our State—such as its rapidity of growth, ability to endure drought, large yield of fodder and seed, and also its permanence. To which we may add, it bears shade well, and is thus adapted to orchards, its popular name being derived from this characteristic. It is a coarser and harsher grass than timothy or herd's grass, is less nourishing, and grows in tufts instead of covering the surface evenly. There is a diversity of opinion, as to the relish with which it is eaten by stock, some affirming that they prefer it to all other grasses, while others say, it is neglected, where other kinds are at hand. All agree, that for *summer* grazing it should be kept cropped short. My own opinion, based upon personal experience, with regard to orchard grass, for grazing purposes, is that for *winter* or early spring, it is preferable to all others, from the fact that it is more hardy, and remains green, rich and juicy through the winter. It is a well known fact, that the quality of all the grasses depends much upon the location, character and management of soils, and to this fact, undoubtedly, is due the difference of opinion respecting the value of orchard grass. Experience has shown, that in many sections, it is inferior to timothy, particularly for meadow. Still, under other circumstances, it may be preferable. When intended for mowing, it should be sown with clover, from the fact, that it blossoms about the same time, and is thus fit to cut before becoming too rank. One bushel of seed to the acre, when sown with clover, or two, when sown alone, is the usual quantity. A very light brushing, to cover it, is sufficient. Experiment has proved, that the greatest number of seed germinate at a depth of from one-fourth of an inch to no covering at all—but merely lying on the surface.

In speaking of blue grass, to which I next call attention, I shall refer to it simply as a *grazing* grass. As to seed, it may be considered prolific; but for *hay*, whilst it may be, perhaps, as nutritious as any, yet it affords a very light swarth. It will grow on almost any soil of ordinary fertility, but succeeds best on limestone lands. Where such soils predominate, it has obtained a world-wide celebrity; but even here, in our free-stone lands, amid the "red hills" of old Virginia, on soils of other character though not indigenous—it succeeds most admirably, and is being extensively cultivated. It sods deeply and heavily, makes an even surface, and grows most luxuriantly to the height of eight or ten inches, scattering stems shooting out, and springing up a few inches above the general height on which the seed is borne. From ten to sixteen pounds should be sown to the acre, on a smoothly harrowed surface and brushed over in the usual way.

Herd's grass is the next variety which presents itself in my catalogue of grasses adapted to the soil of Virginia. It stands among the best variety of grasses according to chemists, and some cultivators contend that it commands the decided preference of cattle, when put in competition with other kinds. Analysis does not always agree with instinct, but when animal tastes verify the decisions of the Laboratory, doubt is no longer admissable. Upon this subject, so far as my individual opinion, based upon personal experience, is concerned, I am very slow to acknowledge any grass as superior to timothy for hay. This much I *do* concede, that there is as much difference in the nutritive properties of the different grasses as there is in grains or fruits. Analysis shows this, and the instinct of cattle indicates as much. Herd's grass is very popular and is destined to become more and more so, as acquaintance with it increases. Indeed, some of its characteristics will ever recommend it above all other kinds, so long as there are worn out lands to reclaim, gullies to fill, or galls to heal. Its adaptedness to these purposes is universally acknowledged. I consider it inferior to blue grass for grazing, but for hay, greatly superior, and scarcely inferior to any other kind. It has a soft delicate stalk, seeds well, and rarely fails to make a crop. It may be sown alone, or with other grasses, either in Spring or Fall. If alone, at the rate of from ten to fifteen quarts per acre. I now call attention to timothy—the fourth variety laid down in my catalogue. This is universally a favorite grass with every modern agriculturist who has the energy and enterprise to fertilize his soil sufficiently for its cultivation. It will not grow to perfection upon poor land, hence the preference over it, given to so many other grasses of far less merit. The prevailing opinion, however, that timothy will only grow upon rich, moist, bottom land is erroneous. It is true that lands naturally moist, such as reclaimed swamps, or that are susceptible of irrigation, are better suited to its cultivation. But I have this year, mowed upon my own farm—on upland—timothy of as good quality and yield as I have ever seen upon *any* land of whatever character. Upon lands of suitable fertility, it sods well, grows luxuriantly and seeds and fodders abundantly. I think it advisable in seeding with timothy, to mix it with clover, from the fact that they are a mutual support to each other, and the clover affords

a handsome swarth, whilst the timothy sod is being formed. It is the usual custom to sow timothy with other crops, either in Winter or Spring, but I have always succeeded better to sow it alone or with clover, from the twentieth of August to the middle of September. From eight to twelve quarts should be sown to the acre.

Of *clover*, and its adaptedness to the soil of Virginia, enough has already been said, written and experienced, and it would seem a work of supererogation to lug into this article, already too long, anything upon the subject, hence, I will only remark, as a vegetable fertilizer, it is without an equal, for grazing purposes very superior, and for hay, when fed from the mow, equal to the best. About ten pounds, or one sixth of a bushel, per acre, is the quantity usually sown. As it regards the quantity of grass seed to be sown to the acre, the question can only be answered approximately. Where, for any reason, it is difficult to make seed *take*, it may require an addition of as much as twenty-five per cent, or one peck to the acre. Again, on very rich land, where seed would *tiller* exuberantly, it is the practice to diminish the amount sown. A table giving a fixed, invariable quantity, would often mislead, for the reason, that quality of soil, method of cultivation, climate and location, all, vary the certainty and manner of growth. In this, as well as in almost every other operation on the farm, individual judgment must be exercised. For the successful cultivation of the grasses, much depends upon the preparation of the land. First, examine the premises in every part to see if draining is needed. If there are any wet, spungy places,—any spots covered with sorrel moss or coarse wiry grasses,—there, of course, ditching is a necessity.

This being done, unless the land has sufficient fertility, give the surface a thorough coat of manure, from the farm-pen or stable—not with a view of making the soil rich only, but of making it warm and porous.

Next in order, comes a thorough breaking up of the soil—by subsoil ploughing, and I wish to be understood when I say, thrust down your plough-point into the yellow soil, with a strong arm, if you would have your meadow luxuriant, and your sward to hold its freshness throughout the heats of Summer. This being accomplished, harrow and *re*-harrow, until it is thoroughly pulverized; then sow down your seed, and run it over with a roller, or brush, the roller is preferable.

When your grass is from two to four inches high, give it a heavy coat of plaster, and in early Spring repeat the application, and my word for it, you will have a meadow that you will look upon with pride and pleasure.

Haying should commence with the proper maturity of the grass, which is about the time the bloom passes away, and the seed begins to form. *After* this, the stalk changes to woody fibre, thereby losing much of its sweet and nutritious properties.

The question of mowing, though not embraced in my subject, yet, in approaching the next proposition, my memory involuntarily runs back into the dim vista of Time, even to the days of "Old Fogyism," where, in imagination, I see the

mower, as he bends to his work, from the early morn to high noon; while I remember there used to be *poetry* in his work, before I knew anything better, and thought him a "fitting type of the Great Destroyer," but the poetry is transferred from the scythe to the "mounted car," and "there is music, too, in the sharp clatter of its triumphant march." I see smooth, evenly spread grass, as it lies in the track of the mower, as I never saw it in the roughly-piled swarth made by the scythe. It suggests no painful posture, no strain of the muscles, no "sweat of the brow." Invention is at length consolidated into an effective machine, that puts the once much-dreaded hay harvest completely under the control of the husbandman. But enough about machinery: The harvest waves impatient for the reaper, and the hay must be secured. Then let us be astir with the earliest light, and lead the mowers to the field, and when the heat becomes oppressive, we will seek the shade until the air is tempered by the evening breeze, when we will at it again with renewed vigor, after the long mid-day rest.

The grass being cut, now for hay-making—one of the most useful and pleasant occupations on the farm. It is a treat to labor among the new-mown grass, whilst the atmosphere is redolent with its grateful perfume. Nothing is more refreshing than the air which the gentle breeze of Summer wafts from the fields and meadows, when the grass is in preparation for its Winter deposit.

The horse-rake should follow the reaper or scythe, drawing the hay into wind rows, which should be cocked up, when sufficiently dry not to ferment. Hay, cured in bulk, is much better than when left exposed to the sun until perfectly dry. If possible, no dew should be allowed to fall upon hay in the swarth, except that which is cut late in the day. So soon as the hay is sufficiently seasoned, barns, sheds, and other preparations for its reception being complete, store it away, occasionally sprinkling it with salt. This not only assists in keeping it in good condition, but renders it more palatable, especially if of inferior grass, or not in good order when stored. The common practice of stacking hay in the field is not to be commended, but may be resorted to when impracticable to find shelter, or room to stack it in the farm-yard. The stock must necessarily be exposed while feeding (unless temporary sheds are erected, which is seldom done); much manure is wasted, and an unsightly spot is left in the meadow. Shelter for hay, however rude, is greatly preferable to stacking, and no good manager will attempt to dispense with them.

My argument is before you. I may have been tedious—but I trust my manifest zeal will be a sufficient apology. In conclusion, let me say, to *fertilize* is the Alpha and Omega of all profitable farming. Feed the soil, and the blades of grass will spring up, not only two, five and ten to one, but sixty and an hundred fold.

Respectfully submitted,

ROBERT C. JONES.

Brook Hall, Bedford County, Va.

For the Southern Planter.

Extracts from Sir John Evelyn's Diary and Correspondence.

August 29th, 1668.—"I went to see Sir Elias Leighton's project of a cart with iron axle-trees."

The above is an extract from that very entertaining book, "Diary and Correspondence of John Evelyn, F. R. S." As to the success of Sir Elias, in his project with the iron axle-tree, I know nothing; but as he is described by one authority as "a mad freaking fellow;" and according to another, "for a speech of forty words, the wittiest man he ever knew," and with all, "one of the best companions at a meal in the world," I am inclined to think that so useful and solid a thing as an iron "axle-tree for a cart" would make but little progress towards perfection in the hands of the witty convivialist. But whatever may have been the result attending the project of this "boon companion" two hundred years ago, there can, at this day, scarcely be two opinions in reference to the comparative merits of iron and wood axle-trees. The superiority of the former is so obvious that they are rapidly superceding in this part of the State the old fashioned wooden ones for wagons and carts.

In the same volume, under the date 26th October, 1685, I find the following:

"Sir Richard Bulkley, described to us (Royal Society) a model of a chariot he had invented, which it was not possible to overthrow in whatever uneven way it was drawn, giving us a wonderful relation of what it had performed in that kind, for ease, expedition and safety; there were some inconveniences yet to be remedied—it would not contain more than one person; was ready to take fire every ten miles; and being placed and playing on no fewer than ten rollers, it made a most prodigious noise, almost intolerable. A remedy was to be sought for these inconveniences."

Evelyn does not inform us of the success attending Sir Richard's search after a remedy for the inconsiderable "inconveniences" of his chariot. Some timid persons would, doubtless, be willing to incur the danger of "taking fire every ten miles" in order to be secure against an "overthrow." Were it not, therefore, for the "intolerable noise," the danger of combustion might be borne. The invention of a carriage or wagon that could not be overthrown, might be the means of saving the State some expense in the construction of turnpikes. I commend the subject to our Legislators. Perhaps their wisdom may deem it for the interests of the Commonwealth to offer a State bond, or Treasury note bearing interest, as a reward to the meritorious inventor of such a wagon. The successful inventor of a "*Platform*" that could not be overthrown "in whatever uneven way it was drawn," would soon make his fortune, however great the "noise" or the danger of "taking fire," provided its capacity was a vast multitude "that no man could number."

I will trouble you with but one more extract from Evelyn, it is as follows:

19th May, 1672.—"Went to Margate, and the following day was carried to see a gallant widow, brought up a farmeress, and I think of gigantic race, rich,

comely, and exceedingly industrious. She put me in mind of Deborah and Abegail, her house was so plentifully stored with all manner of country-provisions, all of her own growth, and all her conveniencies so substantial, neat and well understood; she herself so jolly and hospitable, and her land so trim and rarely husbanded, that it struck me with admiration at her economy."

Now, dear Planter, is not this a picture worth contemplating? Does it not make you wish you could travel backwards, along the track of time, for two hundred years? I hope the "jolly" widow soon found herself in the same situation as her land, "rarely husbanded." T.

For the Southern Planter.

Southern Patronage Again.

MESSRS. EDITORS:—I join the Southern Cultivator in regard to an article of the Journal of Commerce, of which you speak in your February number. Here in Virginia, for instance, instead of the Connecticut bell we are aroused by Virginia roosters; our beds are made by Virginia mechanics, the feathers and wool for the same raised on the farm; the family wears homespun and European goods—the latter ought to be, and I trust soon will be, imported by Norfolk. My coffee pays toll in Richmond; heaven gave us clear spring water, and our cows give excellent milk. We buy Southern sugar refined in New York which could be done as well in Richmond, and use some home-made maple sugar also. Very fine pianos can be bought at Baltimore factories. The Massachusetts shoes are not worth having. Phillip K. White in Richmond, and our country shoemakers can beat them; and I would not give one Virginia made saddle for half a dozen Northern. I hope our nurserymen will do all they can to induce us to quit New Jersey. We are also willing to support the Southern manufactories, provided they use all exertion which we can reasonably expect of them—that is to live by industry and a moderate tariff, and not by a high one all together.

The vigor and strength which we have added to the North must be withdrawn from there; and to make a start, our Northern *friends* should be invited to settle in Southern cities, and help to establish a Southern-European trade. It will not do to say that England is as much against us as the North, as we intend to trade with all Europe, and I hope it will not be necessary to prohibit the Northern manufactures.

Whenever we have direct importations, the Southern jobbers can afford to give the country merchant all the facilities which the New York jobber gives now. The high rent for store-room, and high clerk-salary, which the latter pays, and even his extravagance, is no reason why he should undersell the Charleston jobber as you argue on "Southern patronage" in your February number. The New York jobber has to swim with the great mass, and has at present many advantages in buying. He sells to an enormous amount to make his expenses comparatively small, and runs the risk for good or evil.

Our *only remedy* in the South is a direct trade with Europe. This once established, the jobbing trade will follow.

With a distributing Southern city, manufactures to a moderate extent, and our agricultural resources, we cannot fail to be a happy people.

Yours with respect, T. K.

Chesi, March 22, 1861.

For the Southern Planter.

Comments on Articles in the March Number of Southern Planter.

Messrs. Editors.—I was very much pleased with Mr. Ed. Taylor's excellent essay in the last number; it is a useful paper:—perhaps you can make it more so, by supplying a slight omission on his part. In his preparation for the corn crop, he does not say what form of surface he prefers. This is a matter of great importance to most of our farmers. We have a diversity of theory as well as practice, some preferring the old mode of five-feet beds, others fifteen, twenty, and some thirty feet. In all flat countries this is a question of great importance.

Perhaps you may also render your readers service by explaining Mr. Randolph's Farm Accounts.

I observe in some of his accounts, he charges the farm with interest on $40,000 capital invested, and charges also hire of negroes. In others he does not charge negro hire, but charges interest on an increased capital, $45,000. Are we to understand that negroes were included in the first investment? And are we to infer that they increased so as to render hirelings unnecessary? And is the additional $5,000 the increased value of the negroes alone, or of the whole investment—or is it an additional investment of new capital? If the first, or either of the two first, then his account does his farm injustice, if the last, then his dividends decrease as his capital increases. If I purchase a share of R. R. stock for $100, and receive at the end of the year five per cent. dividend, and sell my stock for $120. I have realized 25 per cent.

I knew a gentleman in this county to purchase a servant woman and four boys for $860. In the course of five years the woman, still young, had three more boys, and the eight servants were worth over $6,000.

Several interesting facts are presented in these accounts of Mr. Randolph: —*one*, that wheat is his most valuable crop; *another*, that he lost money by neglecting the corn crop. Had he sold as much corn in 1859 as he did in 1855, it would have amounted to nearly $1,200. *Another*, that his sales of beef and pork never amounted to as much as his corn, 1855, except in 1859, when he must have purchased his beeves, fattened and sold them, but did not charge the cost, while he gives credit for the whole amount of sales. *Another*, that his wool sold for enough, nearly, to purchase his negroes clothing, saving all trouble of spinning, weaving, &c. *Another*, that he made as much when he had no overseer as when he had one.

These exhibits show admirable results, including support of family, (a very legitimate item,) amounting to nearly eight per cent. for five years—and if the $5,000, should be added, a much larger percentage.

I will send you, first opportunity, a sample of corral, of which we have great abundance in the beds of our rivers and creeks. I think Mr. Gilham will concur with me in thinking it equal to any phospho-guano at all.

Very respectfully your ob't serv't, C. C. CURTIS.

Gloucester, March 20th, 1861.

REMARKS.—The authors referred to in the above communication will each take pleasure, we are sure, in answering the enquiries of the writer through our columns. For ourselves, we are glad to find the attention of intelligent farmers drawn to the subjects of the communications of Mr. Taylor and Mr. Randolph, and especially to find so proper an appreciation of "farm accounts" as is evinced by our correspondent. We wish the practice of keeping them might prevail universally among the farmers of Virginia, for, strange as it may seem to the unthinking, it would save hundreds of thousands to the commonwealth in curbing extravagance, and in wisely directing expenditures to subjects demonstrated by the ledger to be profitable, and withdrawing them from such as are found productive only of loss and disappointment.—[ED. SO. PANTER.

Kind---Mankind---Husband---Wife.

Let us a little consider the word "kind." We speak of a "kind" person, and we speak of "mankind," and perhaps, if we think about the matter at all, we seem to ourselves to be using quite different words, or the same word in senses quite unconnected, and having no bond between them. But they are connected, and that most closely; a "kind" person is a "kinned" person, one of kin; one who acknowledges and acts upon his kinship with other men, confesses that he owes to them, as of one blood with himself, the debt of love, and so man*kind* is man*kinned*.* In the word is contained a declaration of the relationship which exists between all the members of the human family, and seeing that this relationship in a race now scattered so widely and divided so far asunder can only be through a common head, we do in fact every time that we use the word "mankind" declare our faith in the one common descent of the whole race of man. And beautiful before, how much more beautiful now do the words "kind" and "kindness" appear, when we perceive the root out of which they grow; that they are the acknowledgment in deeds, of love of our kinship with our brethren, and how profitable to keep in mind the lively recognition of the bonds of blood, whether of those closer ones which unite us to

* Thus it is not a mere play upon words, but something much deeper, which Shakspeare puts into Hamlet's mouth; when speaking of his father's brother who had married his mother, he characterizes him as "A little more than *kin*, and less than *kind*."

that whom, by best right, we term our family, or those wider ones which knit us to the whole human family that this is the true source out of which all genuine love and affection must spring, for so much is affirmed in our daily, hourly use of the word.

And other words there are, having reference to the family and the relations of family life, which are not less full of teaching, which each may serve to remind of some duty. For example, "husband" is properly "houseband," the *band* and *bond* of the house, who shall bind and hold it togther. Thus, old Tusser in his *Points of Husbandry:*

> "The name of the *husband* what is it to say?
> Of wife and of *household* the *band* and the stay;"

so that the very name may put him in mind of his authority, and of that which he ought to be to all the members of the house. And the name "wife" has its lesson, too, although not so deep a one as the equivalent word in some other tongues. It belongs to the same family of words as "weave," "woof," "web," and the German "weben." It is a title given to her who is engaged at the web and woof, these having been the most ordinary branches of female industry, of wifely employment, when the language was forming; so that in the word itself is wrapped up a hint of earnest in-door-stay-at-home occupations, as being the fittest for her who bears this name.—[*Trench on the Study of Words.*

From the Rural American.

Applications of Manures.

A very fundamental principle in the application of manures is, that not only the kind and quantity, but the mode of their application should be adapted to the position, character and condition of the soil. This general principle in relation to the nutritive manures, may be reduced to a number of highly practical rules.

1st. The smaller the quantity of *organic* matter in the soil, the greater should be the quantity of manure applied, and vice versa.

A slight dressing of manure on an exhausted soil, and a heavy one on a soil already stored with nutritive matter, would be alike injurious; the former being insufficient not only to give a permanent fertility to the soil, but even to make the present crop a remunerating one, and the latter having no immediate office to perform, the crop to which it is given being already supplied with appropriate food.

2d. The heavier, damper, and colder the soil, the lighter, drier, and warmer should be the manure applied; as horse and sheep dung in an unfermented state.

"Animal manures develop more or less heat according to their nature and the state of fermentation; those which have been decomposed, excite more heat and maintain it for a longer time than others. The excrements of the sheep and horse are more heating in their action than those of the cow; the black or brown manures warm the soil more than marl or chalk."—CHAPTAL, p. 37.

3d. The lighter, drier, and warmer the soil, the heavier, damper, and less heating may be the manures applied.

The liability of the light soils to suffer from drought, should lead the farmer not only to exercise greater care in selecting the most suitable manures, but to see that they are *thoroughly incorporated* with the soil, and not left in masses, to increase the evil. Moderate quantities of either animal or vegetable matter, if properly blended with the soil, will promote its moisture by increasing its power of absorption; but if applied in excess, or left in considerable masses, the opposite effect will be produced.

The same considerations should have their weight in relation to the kind and quality of manure used, if any, in the hill for hoed crops.

4th. The more porous the soil, having a loose subsoil, the nearer the surface should the manures be deposited, to avoid infiltration. If on the other hand, by placing our manures too deep in the soil, we suffer from infiltrations, so on the other, by leaving them upon the surface, we shall find ourselves losers by evaporation, though, perhaps, to a less extent. The true practice would be to give them just that covering which, while it would protect them from the direct influence of the atmosphere, would not at the same time keep them longer within the reach of the roots of the plants.

5th. The more impervious the soil, having a compact subsoil, the deeper and more intimately *should the manures be incorporated*, to promote the freest action of the sun and air upon the soil, to render it easier of cultivation, to secure a wider range for the roots of the plants, and to prevent excessive moisture in wet, and drought in dry weather.

The common air, which is to a great extent excluded from soils of the kind now under consideration, exerts a most powerful agency in promoting vegetation, and that in various ways. To be convinced of the importance of permeability, and a looseness of texture to the soil, we need but reflect for a moment that plants are not permitted, like animals, to roam about in quest of their food, the invariable limits of their pasturage being the extremities of their roots. How obviously necessary, then, that they should be enabled to extend their roots with the utmost freedom, and thereby derive nourishment, without impediment, from those elements which can yield them sustenance.

"Whenever water is converted into steam, the ascending vapor carries off much of the heat along with it. Let two adjoining fields be wet or moist in different degrees, that which is wettest will almost at all times give off the largest quantity of vapor, and will therefore be the coldest.

"What is the remedy? Effectual drainage. The first effect on the soil is the same as if you were to place it in a warmer climate, and under a milder sky, where it could bring to maturity other fruits and yield more certain crops.—JOHNSTON, p. 74.

"If the water is withdrawn from a marsh, free access is given to the air, and the marsh becomes a fruitful meadow."—LIEBIG, p. 116.

"The solvent power of water over solid substances is increased by an elevation of temperature. To this fact is ascribed, among other causes, the peculiar character of the vegetable productions, as in tropical countries."—JOHNSTON, p. 48.

"Warmth renders the sap fluid, and quickens its circulation; cold thickens it, and renders it stagnant. It is heat alone that, by animating the vegetable organs, enables the plant to elaborate within itself the nourishment it receives."—CHAPTAL, p. 36 and 102. T.

From the American Agriculturist.

Gas-Lime—Experience in its Use—Valuable Information.

[The rapid introduction of gas into cities and villages, and the large amount of lime used in purifying the gas, which is offered to farmers at a cheap rate, makes the subject one of no little importance. The constant inquiries received, we have usually answered by forwarding a copy of the *Agriculturist*, Vol. XVII, No. 1, (Jan., 1858,) in which the subject is ably treated by Prof. Johnson, of the Yale Agricultural School. We can not better meet the demand for present information, than to republish Prof. Johnson's remarks; to which is also appended an account of some recent experiments by a subscriber in Dracut, Mass. —ED.]

LETTER FROM PROF. S. W. JOHNSON.

To the Editor of the American Agriculturist.

The various contradictory opinions held among practical farmers with reference to the value of gas lime, as a manure, are justified by the extreme variableness of its composition. When perfectly fresh from the gas-purifiers, it is in general a rather *dangerous* application to any growing crops, or in contact with seed. Mr. Solomon Mean, of New Haven, Ct., informs me that he once applied it in the hill to potatoes, and they never came up. A gentleman in Wallingford, Ct., applied it to grass land and to the roots of peach trees. The trees were destroyed, and the grass severely scorched, so that it did not fairly recover until the ensuing year.

It may be used in the fresh state upon naked fallows, especially when it is desirable to free the soil from slugs, injurious worms, or couch grass. What its action is upon vermin may be inferred from the fact, that when fresh, it contains a substance (sulphide of calcium) which is the actual ingredient in the depilatories and cosmetics, which are articles employed for removing hair. There is an account of its being thrown into a hog-pen with the intent that the swine should incorporate it with the compost heap. This was effectually accomplished, but at the expense of the bristles and hair of the hogs, which were, in a great measure, removed by the operation.

It is thought, too, that the odor of the coal-tar which is mixed with the gas lime in greater or less quantity, serves to dislodge insects and vermin, and it is sometimes sowed in small quantity over young turnip plants to prevent the at-

tacks of the turnip-fly. In Scotland, it is largely applied to moss-land which it is intended to reclaim.

The quantity of easily soluble matters, (sulphide of calcium, sulphite and hyposulphite of lime,) is so variable, ranging according to analytical data, from 2½ to 15 parts in 100, that we may readily comprehend how some gas limes may be quite harmless if applied in moderate doses even to growing crops, while others, rich in these soluble and deletrious matters, destroy all vegetation.

It has been supposed that fresh gas lime is valuable on account of the *ammonia* it contains. When the gas-lime is emptied from the purifiers in which it has been exposed to the gas, it has quite a pungent odor of ammonia, but the quanty, though enough to affect the nostrils, is, in reality, quite too small to have any great manuring value, and entirely disappears after a few days' exposure to the air. Mr. Twing, of this Laboratory, found in a specimen of perfectly fresh gas-lime from the New Haven gas works, but 8-10ths of *one per cent* of ammonia. In a gas-lime from the gas-works at Waterbury, Ct., which had been exposed to the air for one week, he found but about 4-100 of *one per cent.*

Fresh gas-lime may be advantageously used in composting swamp muck, etc. By full exposure to the atmosphere, as when scattered over fallow-ground, after a time it becomes innocuous. The soluble caustic ingredients are converted into no less valuable a substance than gypsum (plaster), and then, after its odor and bitter burning taste have disappeared, it acts precisely like a mixture of lime and gypsum. How rapidly these changes take place, I have no means of knowing without making actual trial, but should presume that if a dressing of gas-lime be incorporated thoroughly and uniformly with the soil *one week*, before sowing or planting, no harm could result to the crop. [*One month* would be safer.—Ed.]

In conclusion, your correspondent is recommended to use it, if he can get it more cheaply than other lime, at the rate of 50 bushels per acre on heavy soils —or 10 to 20 bushels on light soils—making one application in three or four years. If fresh, it should be put on the bare soil and not on a crop. In case of corn or potatoes, it may be scattered between the rows and worked in at hoeing time. If the gas-lime is white and tasteless after exposure to air for a time, it may be sown like gypsum.

It should be remembered that a wet soil will not be much benefited by lime, nor by any manure, unless in a dry season; and that a light dry soil is soon spoiled by lime unless a good supply of organic matter be maintained in it, by means of stable manure, muck composts, or green manuring. Lime, and plaster too, are, at the best, even when they exhibit their most extraordinary effects, but partial fertilizing agents. S. W. Johnson.

Experience with Gas Lime.

S. A. S., of Dracut, Mass., under date of Jan. 28, 1861, writes to the *American Agriculturist* thus: "....In the Spring of 1859 I bought two barrels of

gas-lime from the Lowell works, and tried a portion upon a row of early potatoes, beside another of the same kind without any gas-lime. One half of each row I set with sprouts. I could perceive no difference at digging, except that the sprouts were a little later than the rest. The gas-lime had no apparent effect. On the 7th of June of the same year, I scattered the remaining 4½ bushels broadcast, before plowing, upon ½ acre of potatoes on rather wet land, by the side of another ½ acre of land, a portion of which was, perhaps, a very little dryer. About a dozen hills came up on the gas-limed part, but these afterwards succumbed. Those without lime came up finely, progressed rapidly, and, with the exception of a few rows, gave a fair return, considering the late planting. The seed was a late variety. You wish us to give failures as well as successes. That was *my failure.*

Last Spring, a neighbor thought *he* would try it, as it only cost two cents a bushel; so he turned over his sod, and put from one to two quarts of the stuff in each hill, covered it slightly with dirt, and planted his potatoes. The corner where the gas-lime was buried could be easily distinguished a quarter of a mile off, it being perfectly bare. The potatoes are yet to appear above ground.

Again, in the Fall of 1859, having suffered some weeds to go to seed by the side of a wall, and seeing the effects of the gas-lime on my potatoes, I applied a barrel of it, fresh from the works upon about 800 square feet, and let it remain on the surface all Winter. Very early in the Spring I harrowed it in, then turned it under, and sowed rye for soiling. The rye appeared earlier, was of a deeper green, headed out five days sooner, and was six inches taller than that by its side not treated in this manner. I afterwards plowed again and put in corn fodder. The fodder was decidedly "yallar," though I was very sure I did *not* sow the yellow kind, and though it appeared earlier than the rest, it grew to *be only eight inches high!* There were but few weeds, however, on that part.

Again, I composted it with muck and horse manure, using lots of muck, and gave a liberal dressing to a plot where I wished to start cabbages for transplanting them, that where there was a lump of gas-lime and muck, the cabbage roots were woven round it, taking it up with them. (By the way, 250 plants which I *puddled* in a liquid of home-made guano never flagged, though the sun came out immediately after setting out; and moreover, they paid me twice over for my extra pains. I begin to see how valuable cabbages are for stock, now that the 2000 heads I raised between my early potatoes and peas are gone, and I only regret that I have not 2000 more.)

My experience with cut worms has not been quite as disastrous as some of your correspondents, thanks to hints from you. I *put in plenty of seed and to spare*, according to the advice of the *Agriculturist*, and at the first hoeing I kept a good watch for the cut worm, both where a spear was wilted, and everywhere else. Scarcely a hill did not have at least one. I searched till I found him if a stem was cut, and taking him on my hoe, with or without dirt, as it happened, and with the sole of my boot made him disgorge forcibly. I thought, as I

crushed each one, that *he*, at least, would neither trouble my corn again, *nor produce progeny for another year's supply*. They disappeared suddenly. Where they went to, or what form they assumed, I can not tell, but would much like to know.

My conclusions upon the subject of gas-lime I give for what they are worth, though being a novice, and my experiments imperfect, I speak with diffidence, yet hoping that my "one item," when taken in connection with others you receive, may be of use to you at some time, and consequently to myself. To cabbages and rye it *did seem* to be a benefit. Applied to corn in any manner, I have been informed, it is injurious, and I think it would be much the safest mode to compost it with a goodly quantity of muck, and perhaps muck and manure. In that manner it gave me the best returns. But whether its value, according to cost, is greater than stone lime, to compost with muck, of which I have an inexhaustible supply, I would much like to know.

REMARKS.—A careful study of what Prof. Johnson says, will, in part, explain the results with J. A. S., and the contrary experiences of many others. The crude or fresh lime from the works is poisonous. After thorough composting with muck, or after sufficient exposure to the air, and especially to frosts, on the surface of fallow or plowed ground, it loses its noxious properties, and is then probably quite as valuable as common lime, owing to the amount of gypsum formed by its decomposition.—ED.

From the American Farmer.

Dr. Baldwin's Shade Theory.

In a late number of the *American Farmer*, Dr. Baldwin has again appeared, and commenced his essay with this important query: "Can the fertility of cultivated land be preserved without the application of manure?" In appearing to discuss this "very interesting question," the Doctor, after stating the fact and producing other evidence to show what we all know as a general thing, that "the longer the soil has been subject to cultivation, the poorer it has become," he asks, "is there no remedy for this alarming and steadily progressing evil?" and then slips in his favorite theory of shade, without giving his own experience to confirm it, by saying, "I have asserted that all soils, no matter how poor or by what process exhausted, may be made exceeding fertile by covering the surface with any substance whatever which will cause a dense and permanent shade, and that the degree of this fertility is totally independent of the quality of the covering substance." Here, then, we have the important fact in full—so how do ye "intelligent farmers," who "do not care to understand the quo modo," and are "perfectly satisfied with the knowledge of the facts," and reverently acknowledge the influence of shade, without presuming to enquire whether the Doctor's practice corresponds with his theory.

But to be serious—does Dr. Baldwin's practice in farming correspond with his theory? Has he made his own farm, situated as it is in that "valley so cele-

brated for the fertility of its soil," "exceedingly fertile"? I have no personal acquaintance with the Doctor, nor his farming operations, but if he is not misrepresented by his neighbors, his farm is not superior to many others in that valley. His plan of shading I understand to be this: he gets as good a stand of clover as he can, then lets it grow until it is as large as it will get that season, then turns not only all his own stock, but all he can get of his neighbors for a while into it, and treads it down as quickly as possible, then lets it lie in this state. Where is the difference, in effect, in this plan, from that practiced in many places where they have depended on "a crop of clover, or peas," as a green crop for improving the soil? The Doctor admits that "the fertility imparted to the earth, by a growth of vegetable substances of various kinds, has been known to observant practical farmers for centuries," and yet he concludes "that the interests of agriculture has not been greatly promoded by the knowledge of facts of such great importance to the farmers." Are we to conclude that the use of green crops and the grasses have been of no "great importance" to our agriculture in the last three-fourths of a century? What would have been the condition of our soil now without their use? The reason why "the interests of agriculture" have not been more "promoted hitherto by the knowledge of facts of such great importance," in his opinion, "admits of no other explanation than that it was impossible to deduce a scientific principle from isolated facts." How did Dr. Baldwin himself come to a knowledge of the "scientific principle" he so much values, but by studying "isolated facts." He has, in former essays, brought forward "isolated facts" to prove his conclusions, and facts, too, that would admit of a much more philosophical interpretation than the one he gave them, and yet he strongly intimates that "scientific agriculturists" of former days could not "deduce a scientific principle from isolated facts." He has denied that science, as has been applied, has benefited agriculture, and yet he considers that his scientific view of the subject is of great importance to the farmer. This scientific view, if I understand it, is that shade causes the earth to putrify, and thus enrich itself. That the organic matters in the soil do putrify, or more properly decompose, has long been acknowledged by agriculturists and scientific men, hence the great value of green crops to the soil; but that the inorganic matters of the soil do purify, has been denied, and is denied, and Dr. Baldwin has never attempted to prove it, as far as I know. That these matters decompose and thus furnish nutrition to vegetables, is evident from the fact of their presence in vegetables, and that this decomposition is provided by the presence of organic matter in the soil, is also evident.

There is another vague idea suggested in this essay, to account for the fertility of soil from shade, and that is "the generation of myriads of invisible animalcalæ." Now, that he could know that they were "animalculæ," if they were "invisible," is a mystery to me; perhaps he can enlighten us, and instruct us how to ascertain the nature of "invisible" things. "Science, I understand," says he, "to be the knowledge of principles derived from facts." True—but it

is not all who observe facts that deduce correct principles from them. How often do we see facts brought forward in support of theories that have no foundation in true science. Very much of this class are the conclusions of the Doctor against the use of barn-yard manure. Because the farmer "has never been able to obtain an adequate supply," he asks, "why should the farmer bestow so much attention and labor upon the collection or materials in his barn-yard," &c. "Why should he purchase it if it be not indispensable? Or why should the slow, laborious, and expensive process of liming be so urgently commended to his attention? I certainly cannot comprehend; if any satisfactory reasons can be assigned, I shall be pleased to learn them." Is it any argument against the use of barn-yard manure that the farmer cannot make as much as he needs? Even the Doctor knows that it is valuable; whether it is more expensive than shade has not been shown, and until that is proven, he must excuse others if they do not agree with him. Now what we ask of the Doctor is, to show from facts—for facts are wanted—that the process of shade is cheaper than other manure, and his brother farmers will have good sense enough to follow him. Let him take his own farm, give the number of fields, the rotation practiced, how long his land was shaded, how much per acre was produced before and how much increase by shade. Let him present this by figures, and give a fair account, charging interest for capital, and see then where his balance would be. It should be remembered that the Doctor has a profession in addition to the profits of his farm, which other farmers have not, and that he might be able to do without any produce from his land for the time necessary to be left shaded, while a man with a small farm and large family, could not so well do so. Until he shows that a man of moderate means and a small farm can improve his land cheaper by shade than in any other way, practical men will not give their assent to his shade theory.

YARDLEY TAYLOR.

From the Farmer and Gardner.

Plain Talk about Draining.

MR. EDITOR:—A word on the subject of underdraining. I am aware that the subject has been presented in a thousand forms, by as many able writers, but still we do not, as a people, appear to have profited by the teachings.

The experience of practical drainers, both in our own and other countries, proves beyond all controversy, the immense advantages which accrue from the thorough draining of *all* soils. Some idea of the estimate of value placed upon it by the Parliament of England, may be found in the fact, that that body set apart two millions of pounds sterling to be loaned out for the encouragement and extension of draining, and the results flowing from this wise legislation, have been of the most gratifying character. It is, I am aware, a difficult matter for the merely practical farmer to understand fully, how, what are known as warm, dry soils, can possibly be benefitted by draining. Many would take the opposite view, and, instead of draining, endeavor to *supply* the supposed needed moisture.

A recent writer says, "they imagine that such soils are deficient in moisture, and cannot comprehend how the moisture which they lack in summer, would flow *up* through the open and friable soils from below, while the surface supply, when superabundant, would rapidly percolate through to the drains, leaving in its passage, certain necessary constituents, and making way for the air, with its oxygen and carbon, and such ammoniacal matters as it may be charged with."

SOME OF ITS EFFECTS.

It is only a few months since I had the pleasure of examining a thoroughly drained farm in an adjoining county. Had I required any evidence to convince me of the immense advantages of draining, I would have found it there. The superior crop of corn, the luxuriant grass, even at that late season, (October,) and the flattering accounts of the gathered crops, all told a tale which carried its own moral. A remarkably handsome meadow was pointed out to me, in which cattle were grazing, and over any portion of which a heavily loaded wagon could pass with entire safety. That meadow only a few years since was little less than an unsightly bog. Its spirited owner had *drained it thoroughly*, and he now regards it as one of the most valuable portions of his beautiful farm.

Nothing short of an investigation of the unmeasured advantages which are certain to follow systematic draining, will enable farmers generally, to appreciate the incalculable advantages which flow from it. Another writer on the subject says, "a superabundance of water on the surface of fens, bogs and marshes, is so obvious a cause of great and manifold evils, as not to require explanation; yet it operates in many respects quite as leniently as *an excess of moisture in the cultivated lands of peopled districts.*

THE EVILS OF UNDRAINED SOILS.

It should, therefore, be a subject of early and thorough investigation with every farmer who seeks to improve his lands, and until it is generally practised in our country, we can never hope to reach an elevated position as an agricultural people. I cannot here forbear quoting from a very able writer on this subject: "The water which is retained under the soil on impervious layers of earth effects incalculable mischief. While hidden water remains, manures, whether putrescent or caustic, can impart no fertility to the soil, the plow, the harrow, and even the roller cannot pulverize it into a fine mould; the grass can contain no nutriment for live stock, as the finer sorts disappear, and their places are usurped by coarse aquatic plants; the stock can never receive a hearty meal of grass or straw from land in such a state; they are always hungry and dissatisfied, and of course, remain in low condition: the trees acquire a hard bark and stiffened branches, and soon become prey to innumerable parasites; the roads in the neighborhood are constantly soft and rutted; the ditches and furrows are either plashy, or like a sponge, full of water, suitable receptacles for toads and frogs. The surrounding air is always damp and chilly, and from early autumn till late spring, the raw hoar frost meets the face like a wet cloth, morning and

evening. In winter the frost incrusts every furrow and plant with ice, not strong enough to bear one's weight, but just weak enough to give way at every step, fit feeding ground for woodcock and snipe, and in summer, musquitoes, green flies, midges, gnats and gad-flies torment the cattle, the laborer and his horses from morning till night, while the sheep get scalded heads and are eaten up by maggots during the hot blinks of sunshine.

This is a horrible picture to be sure. The catalogue of evils presented is a formidable one, and yet not one-half of the calamities which follow the want of draining have been enumerated.

Were it possible, within the narrow limits of a communication, to point out the ill effects of badly drained lands upon crops, I feel satisfied it would be an easy task to convince most of your readers, that very many of our failures to secure remunerative crops, are attributable, not, as is frequently charged, to the weather, or to the poverty of the soil, or to careless tillage, so much as to the want of proper underdraining. Who has not heard of spouty lands? What are they? Simply, lands which, if the superabundant moisture were carried off by properly constructed drains, would become as valuable as any other portion of our soil.

It will, perhaps, be urged that the cost of underdraining is so great, that few farmers have the means or the inclination to undertake it. This is precisely the failing which pervaded the English landholders, when the conviction was forced home upon them, that thorough, systematic and scientific underdraining was the only remedy for the difficulties under which they labored. A few strong hearted, determined men, resolved to test the experiment fully, and when they demonstrated not only the entire success of the experiment, but also that large profits attended it, others were soon found who followed their example, and to-day the benefits are seen in the luxuriant crops of that country.

HOW IT PAYS.

I have never known a single instance of proper draining which has not paid well. It is only the first outlay which frightens. The increased crops, the greater ease with which well drained lands are cultivated, the decidedly greater certainty of good crops one year with another, all pay so large a dividend upon the capital invested, that in a few years the entire cost of the draining is met in this way. Suppose it does cost seventy dollars to properly underdrain an acre of land! The interest of that sum is four dollars and twenty cents. Now, I contend that if underdraining is worth anything at all, it ought to produce a greater increase of crop, than would amount to four dollars and twenty cents per acre. But this is an extreme sum. The majority of our lands could be drained for half that sum, and even less, and all will admit that it is far better to have an investment of this kind, than in the uncertainties of bank and railroad stock, with defaulting cashiers and treasurers, and who, with almost every depression of business, make an excuse for not paying their honest dues.

HOW IT IMPROVES THE MARKET VALUE.

But it is not an investment depending upon the increased crops as the only

remuneration. Let us take any farm in Montgomery county, which to day is worth $100 per acre, and which *undrained* will yield an average of twenty bushels of wheat to the acre. Drain that same farm thoroughly, so that its average yield with the same cultivation will be thirty, instead of twenty. It does not require a great deal of figuring to tell how much more the well drained farm would have done, had it been offered for sale before being underdrained. It is in this light we must examine this great question of drainage. I say *great* question, Mr. Editor, because I consider the subject one of the most vital importance; one which sooner or later *must and will* be the leading one with the farmers of the United States.

WHAT ARE ITS GREAT RESULTS.

When thorough drainage shall have assumed its proper position, we may then look forward to the following results with entire confidence. *First*, we shall be relieved of all excess of moisture from heavy rains; *Second*, the ascent of water from beneath, whether by capillary attraction or by the force of springs, will be arrested. *Third*, the water from heavy rains, which on undrained lands either saturates the soil, and is retained by it, or passes over it, conveying with it many of the fertilizing constituents of that soil is, on drained land, filtered through it, imparting to the soil those substances useful to vegetation, which rain-water is known to possess. *Fourth*, the constant or even periodical descent of rain-water through drained soil, carries with it a supply of fresh air which displaces the air in the pores of the soil. As the water gradually sinks, leaving the pores of the soil open, the fresh air follows and supplies the place of the less pure air which was expelled by the water. This fresh air has been shown by the most ample experience, to be immensely valuable in promoting the healthy growth of all cultivated crops. *Fifth*, the temperature of the soil is considerably raised by it; in fact the change in this respect which thorough drainage effects, is almost equivalent to a change of climate. Consequently, crops arrive at maturity much earlier than without, a subject of the highest importance as every farmer knows. *Sixth*, being forced from the constant presence of undue quantities of water, the soil becomes drier, sweeter, more easily, and consequently, more economically worked; and *lastly*, the superabundant water being rapidly carried off by efficient drainage, the putting in of crops, (particularly of winter grains,) is not retarded until, as is so frequently the case on undrained lands, the seeding time is protracted to so late a day as to render ripening also late, thus subjecting the farmer to the risk, loss from mildew, waste, &c.

These, Mr. Editor, are some of the advantages which men, who have given the subject of thorough drainage their closest attention, claim for it, and they are sanctioned by all experience and sustained by every principal of science.

Montgomery Co., Pa. DRAIN TILE.

STOMACH BITTERS.—Infusion of columbo, infusion of cascarilla, of each four ounces; carbonate of potash, one and a half drachm.

Professor Campbell's Address.

[At a regular monthly meeting of the Rockbridge Agricultural and Mechanical Society, held at the office of the Treasurer, on the 16th of March, 1861, Professor J. L. Campbell, in fulfilment of a previous appointment, delivered an address, of which we find in the Lexington Gazette the following:]

Outline of Prof. Campbell's Remarks.

By previous appointment, Prof. Campbell addressed the meeting, in substance as follows:

He said he had not come prepared to make a set speech or a formal lecture; but simply to give an off-hand talk, on the first topic selected for the present discussion. He had proposed the topic himself, and had intentionally placed plowing before manuring corn land, because he believed that plowing ought always to precede manuring, in the preparation of ground for a corn crop; the reasons for which opinion would appear in a subsequent part of his remarks.

As to the condition of lands best fitting them for the successful cultivation of corn in this limestone Valley, there could be but little difference of opinion. It was not worth while to tell a company of intelligent practical farmers, that a grass or clover sod turned down presented the surest chance for a fair crop. On such lands, he contended, that manuring might precede plowing; but not as a direct application just previous to planting. He favored the plan of applying manure to the grass or clover crop of the previous season, on the ground that the fertilizing properties of the manure would be transferred to the clover; and besides this, the clover crop, during its growth, would collect from the air and soil large quantities of organic and mineral matter, which, together with what had been obtained from the manure, would make a mass of fertilizing substances in the soil, greater than the clover could have given without the manure, and even greater than the manure and clover both would have given if they had been applied separately—the manure having increased the value of the clover crop to an amount, even exceeding its own original value.

The question of *the importance of deep plowing* for corn, (he remarked,) is fully settled, to the entire satisfaction of every well-informed farmer. That is no longer a point to be discussed. The questions now are, *first*, how to induce farmers to put their own faith into successful practice; and, *secondly*, how this practice can be conducted most economically and successfully in our stiff limestone clays. On the first of these questions practical men can be induced to act, when they are convinced that they can cultivate a smaller quantity of land more thoroughly, and make it yield as much as the larger quantities, which they now cultivate only superficially. This can be most effectually done by actual experiments, some of which will be given presently.

As to the best means of getting our soils broken to a sufficient depth, there may be differences of opinion; and as to what is a sufficient depth, men may not agree; but no one ought to be satisfied until he has gotten at least 15 inches of his land well pulverized. This cannot easily be done with the ordinary mould-

board plow, nor would it be desirable to have it thus accomplished—at least in a single plowing; for too much of the stiff clay would thus be brought to the surface, and form a tenacious mass, which would be converted in a hard, unyielding crust by every heavy rain. The *temporary* injury done to crops, by thus turning up the sub-soil, has stood in the way of deep culture, more than any one thing else.

The objection just mentioned may be most successfully obviated by the use of the *sub-soil plow*. Following in the furrow of the ordinary plow, it breaks up the clayey sub-soil, pulverizing it with the coulter and share, but leaves it in the bottom of the furrow, to be covered again at the next round of the other plow. This process will bring a field into the condition of having a deeply broken surface, with the top-soil still uppermost.

The advantages of having land treated in this way, may be briefly detailed.

1. It ultimately results in the formation of a deeper soil. The sub-soil always contains, in such lands as we have to deal with, a good supply of mineral fertilizers, and all it wants to make it as good, and often better than the surface soil, is a supply of decayed vegetable matter. When it has been thoroughly broken, it will soon be penetrated by the roots of crops, (especially clover); these by their decay, gradually fill the lower stratum of soil, to which they have been admitted, with humus or vegetable mould, and thus fit it for being brought to the surface when wanted there.

2. A larger space is given to the growing crop, from which to collect its necessary nourishment. The roots of corn penetrate to a depth, limited only by the depth to which the plow has run. [To illustrate this point, the speaker mentioned a case in which he had traced corn roots to the depth of five feet, in a porous and very fertile piece of ground, on the margin of a stream. He also stated that he had found clover roots in similar situations, penetrating to a perpendicular depth of more than three feet.] In such case, the top of the plant was found to correspond, in the luxuriance of its growth, to the length of the root.

3d. Sub-soiling is an *antidote to drought*. A deeply broken soil is capable of absorbing an amount of moisture proportioned to its depth. Every one knows that most of the rain which falls upon a beaten road runs off, and the surface becomes dry and hard in a very short time in Summer. Water cannot easily penetrate firm clay, and the little that gets into it is soon sent to the surface, and evaporated. So the unbroken sub-soil of a field cannot at any time contain a large quantity of moisture. But if it is well pulverized, it receives and retains water in abundance, and as the surface-soil becomes dry, this water rises, by what is called "capillary attraction," and thus supplies the higher, as well as the lower roots, with whatever fertilizing substances it holds in solution.

4. A deep mass of broken soil is not so liable to be washed into gullys as one which is more shallow. The rain, instead of running off and carrying off the

soil with it, is absorbed and retained, unless it is very heavy and long continued. Thus sub-soiling tends to prevent washing.

After giving this out-line of the general principles involved in deep plowing, the speaker remarked, that he believed the result of actual experiment would have far more weight with the minds of practical men, than all the theoretical considerations that could be presented. He would, therefore, venture to give one or two experiments of his own, conducted on a limited scale, but not the less truly illustrating the principles he had just been discussing.

The first was a trial of sub-soil plow on corn stubble, broken up in the Spring, to be again planted in corn. The land lay upon the shaly limestones of the Poplar Hills. In consequence of lying idle for several years, the field had become foul with briars and locust sprouts, and required two years tillage in corn to subdue it entirely. In preparing the ground the second year, he sub-soiled a portion of it to a depth of 10 or 12 inches; the remainder was plowed in the ordinary way. The soil on the sub-soiled portion was in no respect superior to that of the other part. The stalks of corn grew well on both, and in that respect no very marked difference was perceptible. But the earing season was dry; and whilst the blades were quite green and fresh where the sub-soil plow had been used, they were considerably fired on the other portion of the field, as well as on neighboring fields. The most marked difference, however, was developed when the crop was gathered. The sub-soiling gave a difference of fully *seven bushels* per acre in its favor. When gathered, a part of the crop was sold immediately at 62½ cents per bushel. This would make $4.37½ per acre for the extra plowing, while the actual cost was not more than $2.50.

Another experiment, conducted somewhat differently, was made upon a part of the grounds of Washington College. The old commons, which had been in pasture probably 40 years or more, had been recently put under cultivation. On that portion referred to by the speaker, a blue-grass sod was turned down during the Winter, and a heavy harrow passed over it, so as to press it down, and conceal the grass as far as possible. Thus it lay, exposed to frosts and rains, until the last week of April. Just before planting, a sub-soil plow consisting of a very sharp coulter about fifteen inches long, armed with a share at the bottom, was run diagonally across the lot, so as to cut the original furrow neither longitudinally, nor at right angles, but obliquely. In this way the sod was cut into fragments, without being torn up from its inverted position. The plow went to the depth of about 12 inches, (when not prevented by rock,) giving a fine pulverized condition on the surface, and breaking, at the same time, at least 4 or 5 inches of sub-soil, which the plowing had not touched.

Besides the usual benefits of sub-soiling, this plan had the additional advantage of loosing the sub-soil, just before planting time, at the same time having all the benefit of frost upon the sod inverted in water. The grass was then well rotted, before the corn had made much progress in its growth.

The whole lot was treated alike, and hence no decided comparison could be

instituted, so as to draw a definite conclusion as to the benefit derived from the extra treatment of the land; but during the month of August, when neighboring lots were suffering greatly from drought, the corn on this one retained all its freshness and vigor. The crop yielded between 44 and 45 bushels per acre, while a large part of the soil is not remarkably fertile, a considerable part is rocky, and no part very favorable for bearing a severe drought.

After answering a number of questions, asked by gentlemen present, on the subject of plowing, the speaker took up the subject of manuring land for corn.

Both experiments and scientific investigations concur in condemning the old method of spreading manure upon unbroken land, and then turning it down with the plow. The idea that manure loses much of its virtue by evaporation, when exposed upon the surface of the soil, is an exploded fallacy. Ammonia is the only very valuable ingredient of manure which is volatile. This is only liberated, or rather, generated during the fermentation or decay of organic manures. The fermentation can take place rapidly, only when the material is thrown into heaps. Then, if a sufficient quantity of moisture is present, nearly all the ammonia will be retained, either by the water or by vegetable acids formed in the manure heaps, at the same time with the ammonia. The case is different, if the mass is sufficiently dry to form a white mould within. To this process the term "fire-fang" has been applied. It results in serious injury to manure heaps, and is more frequently seen in the cleanings of stables than elsewhere.

More serious loss is sustained from the drenching of manures by rain than from all other causes combined. This is especially true in farm yards. Hence the importance of getting the material spread upon the land as soon as possible. Then the soluble matter, which is always the most valuable, is carried at once into the soil where it will be ready for the succeeding crop.

To the question: "Is it not best to have manure well rotted before it is applied?" he replied, that this was best; provided the rotting process could be conducted without the loss resulting from exposure to rains. Vegetable and animal substances are not in a condition to nourish until they have undergone decay. If this necessary process has been conducted in tanks and cellars, properly constructed, the manure will act more promptly than it would if allowed to go through the process of more slow decay upon the surface of the land.

He advocated the plan of spreading manure upon grass or clover, or upon freshly broken corn lands, as soon as possible, after it accumulates about stables and barn-yards. This was regarded as the most economical way of securing it against loss. The reasons in favor of this method have been given in part. In addition to what has been already stated, it will be readily seen, that whilst manure applied as a top-dressing loses but little of its fertilizing value, its soluble portions will be carried down by the rains that fall upon it, and be more completely mingled with the soil than could be done by any mechanical means. If spread upon grasses and clover, it would find its way at once at the roots of these crops; if applied to a field broken up for corn, it would be diffused through the

soil, where it would be formed by the corn roots at every stage of their growth. The insoluble portions are gradually incorporated with the soil in working the crop. The tendeney of the manure in a soluble condition, is generally *downward*, and if already turned down to the bottom of the furrow, it can produce but little influence upon the crop, until the roots have penetrated to a depth of several inehes.

The question was asked, "whether any thing but water is evaporated from manure spread upon the surface, and exposed to the hot sun?" To this the reply was made, that minute portions of carbonate of ammonia might escape at first, if the manure were spread out in a fermenting condition; but the loss thus sustained would be far less than would have resulted from the continued fermentation in the heap. So far as the mere dying of the manure is concerned, it amounts to nothing more than the evaporation of *water*, and results in no appreciable injury to its value.

"How would you apply *plaster and ashes* to corn?" was a question propounded. The general principle stated in reply was, that all kinds of fertilizers should be brought within reach of the corn roots as soon as possible. Hence he preferred applying these substances in the hill, and covering them with the corn.

In conclusion, the great error into which our farmers fall, is that of attempting to cultivate *too much land*. They have a certain amount of capital invested in their farms, and in their eagerness to make it all productive, with limited force, they diffuse their labor and manure over too many acres—more than they can till thoroughly—more than they can manure sufficiently to secure what may be regarded as a liberal crop. If the farmer has not force sufficient to cultivate all his arable land *thoroughly*, he had better put all his surplus acres under grass, else sell a part of his farm and invest the proceeds in some form which will be safe and productive, while he concentrates his energies within a more limited area.

From the Gazette.

ROCK RETREAT, March 16th, 1861.

To the President of the Rockbridge Agri'l and Mechanical Society:

DEAR SIR—I see by a notice in the Lexington Gazette, my name associated with other gentlemen as a co-editor of the Agricultural Department of the Gazette. I see by the same notice it will be my duty as well as privilege to attend the monthly meetings of the Board. I hope I shall be able generally to attend these meetings and contribute my mite to the furtherance of the noble cause of Agriculture. To-day, however, I am compelled by important business to be absent from your meeting. In tendering this excuse for absence, I deem it not inappropriate, by way of showing my appreciation of the object you have in view, to give you a few hints upon one of the topics proposed for discussion at this meeting—viz: the best time for turning stock on grass in the spring.

As the time is now approaching when this question will be of practical im-

portance, I will give a brief chapter of my own experience, confining my remarks to clover pasture. And, first, as to the interest of the clover itself. Stock ought never to be turned on a clover field, until the clover begins to bloom, which in ordinary seasons is from the 5th to the 10th of May. If clover is pastured sooner than this, it prevents it from making a luxuriant growth, and it is so soft and watery, it does stock but little good—on the contrary, it is liable to give them the scours; and if you take them off for a few hours, they will look as flat-sided as shad; showing that there is but little real substance in it at this stage of its growth. It is much better every way to feed stock a few days later in the spring than to turn them on clover before it begins to bloom. It is not necessary to wait till it blooms out fully or even generally, but only till it *begins to bloom.*

Now, as regards the safety of the stock, every farmer knows that *many* cattle are lost every spring by improper management in turning them on clover. They ought not to be turned on with an entirely empty stomach, or if they are, it should be but for a very short time at first, say 15 or 20 minutes, if the clover is rank, and then they ought to have plenty of salt.

Cattle ought never to be turned on clover, at first, in the morning, while the dew is on. The dew, combined with the sap of the clover, form a gas in the stomach of the animal, that swells it to such a degree as to cause his death very soon. In former years I lost one or more every year or two, and they invariably died in the forenoon. I never had one to die from this cause after 12 o'clock; they were always dead by 9 or 10, A. M., and swelled almost to the bursting point. My plan of management is this: I turn on the first time in the evening, and let them get a moderate mess. After a day or two I turn in twice a day, but not till the dew is off, and each time let them stay a little longer, and at night I turn into the barn-yard and give them some hay or straw, or something of the kind. This, I find is of great benefit to them at this time. This plan of turning on for a short time should be kept up from 4 to 8 days, according to circumstances.

The above is at your service. If you think it worthy of being read before the meeting to-night, read it; if not, just cast it aside,

And oblige yours, very respectfully, &c.,

Robert Morrison.

"Nothing to Live for."

Say you so, young man? Shame on your manhood for uttering such a sentiment! You have been disappointed, perhaps, in the attachment of an object on which you have foolishly set your heart—some "wee bit lassie," as Burns has it, whom you would clasp in your arms, were it not for fear of "mussing the dry goods up," has led you a willing captive to the charms of her beauty, and because she wearied of too easy conquest, and broke the chain that bound her to you that she might go forth, like Alexander, to subdue other kingdoms, you set tamely down and bemoan your hard fate as if you were the greatest martyr since

Nero's time! "Nothing to live for!" I blush for your willfull blindness. Arise and use the eyes that God has given for some useful purpose, and you will see misery enough in the world—real, genuine misery—to make you ashamed of the selfish Byronic sentiment which now unmans you. "Rouse to some work of high and holy love;" take your handkerchief down from your eyes, and use it to wipe away the tears of those who have some cause to be unhappy, and you will be surprised to find that your heart is still worth two or three broken ones. "Nothing to live for!" why, man, has all generous feeling left you, that you can look unmoved on the thousands of suffering ones needing your help, and go on your own lonely way, murmuring fretfully about the "desert sands," while you systematically avoid every oasis to which you might guide the bleeding feet of many a wayworn traveler?

There is work enough in life to awaken your greatest endeavor—work, too, so high and holy that it would not disgrace the highest archangel in the courts of heaven. Work valiantly, then, with tongue and pen, in the cause of human freedom; be ready and willing to give up everything—wealth, and honor, and good report, and life itself, if need be—for the good of your fellow-man groaning under the burden of oppression. Intemperance is slaying its tens of thousands on every hand; try what your arm can do to stay its ravages. Don't be content with saying, "God help the poor!" do it yourself. Some of your dainty, refined sentimentalism would be shocked out of you, if you could hear the plain, unvarnished tale of privation and sorrow which many a poor laborer could relate to you—a tale, perchance, of the gradual fading away of a beloved wife or daughter, till the cheek and lip which once rivaled the June rosebud are pale as the last autumn flowers, and hope and strength die out of the heart. Yet, without even asking if these things are so, you are doing nothing—absolutely nothing—except to breathe your life away in sighs and lamentations over disappointments, under which it is not the part of true manliness to falter for a moment.—*Life Illustrated.*

Soluble Phosphated Peruvian Guano.

ALEXANDRIA, VA., Feb. 15, 1861.

To the Editors of the Southern Planter:

MESSRS. EDITORS:—The December (1860) number of the American Farmer contained an able and interesting communication, from Prof. Campbell Morfit, of New York, on the subject of "Sombrero Guano and other commercial varieties of Phosphate of Lime, and in reference to their capacity for manipulating and superphosphating." In that communication Prof. Morfit exhibited two tables, Nos. 3 and 4, the former giving the results of his analysis of three "representative samples of certain manipulated Guanos, containing *Navaza Guano* as their phosphatic material in chief," and the latter, (table No. 4), showing "the analytical results from two fertilizers, made with care in the selection of all the materials, the phosphatic element being Sombrero Guano."

Prof. Morfit designates these two fertilizers as "A and B," with the explanation that "A" is a "*soluble* Phospho-Peruvian fertilizer," while "B" is a "manipulated Guano." After giving the respective analysis of "A and B," side by side, he proceeds to state that—"The poverty and objectionable features of the Navaza mixtures are seen in 1, 2 and 3, of table No. 3, as compared with the results in *A* and *B*, of table 4, from Sombrero Guano. No other phosphatic material than the Sombrero could be made to yield a fertilizer like *A* of table 4, *so affluent and yet so well adjusted in all the elements for profitable fertilization:* while, the employment of Sombrero in *B* gives also as rich a "*Manipulated Guano*" as can be probably made at the price charged for it by the vender."

Whilst we prefer to see the reputation of our "Soluble Phosphated Peruvian Guano" established, rather by the successful results *of its application to the soil* —this being in our opinion the surest *practical* evidence of its value—than any analysis whatever, we nevertheless frankly acknowledge feeling a proper degree of pleasure and satisfaction at the high estimate placed upon our fertilizer, by a gentleman so reliable and of such eminence in his profession as Dr. Morfit.

Although we have privately informed some of our friends of the value placed upon our fertilizer, (as compared with other manipulations) by Prof. Morfit, it was not our intention at this time, and *in this manner*, to remove the veil of secrecy, which he had with so much delicacy and propriety of feeling, dropped between the public and the proprietors of the different manipulations exhibited by him. Preferring rather that *practical results* should first prove the truth of his remarks, before connecting them publicly with our fertilizer. But we are reluctantly forced to do so, in consequence of a *change of title* in one of the manipulations *made since the publication of Dr. Morfit's* article, which is calculated to deceive (unintentionally no doubt) the public.

We beg therefore to state that *analysis "A" of "table No. 4" corresponds exactly with Prof. Morfit's analysis of our "Soluble Phosphated Peruvian Guano,"* and that analysis "*B*" of said table also corresponds with his analysis of Messrs. John S. Reese & Co.'s "Phospho-Peruvian (or Manipulated) Guano," as published by themselves.

We are with great respect, your friends and servants, FOWLE & CO.

Increase of Southern Productions.

A New York contemporary speaks of the rapid strides which the Southern States have made in Agricultural progress during the last ten years, as the next census will undoubtedly show. In support of this view, it says:

In the article of Cotton alone they produced, during the past year, over three million seven hundred and fifty thousand bales, which, at an average of fifty dollars per bale, amounts to the sum of one hundred and eighty-seven million, five hundred thousand dollars. Of this the American manufacturers have taken over seven hundred and fifty thousand bales, of the value of about thirty-seven

million, five hundred thousand dollars, and Europe has taken three million bales, valued at one hundred and fifty million dollars. If to this export of one hundred and fifty million dollars in Cotton, we add the exports of the fiscal year ending June 30, 1849, at the same figures they stood at in the official report made up to the same time last year, though they probably have been nearly twenty-five per cent. larger, we shall find that the exportable value of Southern products will stand as follows:

	Quantity.	*Value.*
Cotton, bales, to Sept. 1, 1859,	3,000,000	$150,000,000
Tobacco, hhds., to June 30, '58,	137,670	16,500,000
Rice, tierces, " "	64,015	1,870,578
" barrels, " "	49,263	
Naval stores, rosin and tur., bbls.	578,573	1,564,578
" tar and pich, "	42,475	
Total,		$169,935,156

Seed Corn.

HOW TO PRODUCE EARLY GERMINATION.

If you did not, as you have so often been advised to do, save your seed corn by selecting the best ears in the field, don't lose another day, but go at once to your corn-cribs and pick out the handsomest ears that you can find, and store them up in some dry loft—no matter if it is a very smoky one, and as hot as a July sun; it won't hurt the vitality of the seed.

It is of the highest importance that your seed should germinate immediately after you plant it. That is of more importance than early planting. Germination can undoubtedly be hastened by artificial means. Dr. Chamberlin, of Bureau county, Ill., has made some important discoveries in this direction. The Republican says:

"Last year, Dr. Chamberlin, of this place, made some practical experiments, and demonstrated that nearly half the time may be saved in germinating the seed by the use of chloride of lime. Not satisfied with the success of last year, he is again experimenting. In his office he has four boxes; in the first is corn planted without soaking, and the seed not germinated; in the second, the seed was soaked in warm water, which has just commenced to germinate; in the third is seed soaked in a solution of lime, and green blades are just peeping from the ground; in the fourth is seed soaked in a solution of chloride of lime and copperas, in equal parts, and the blades are now nearly three inches above the ground. All the seeds were planted at the same time, in the same quality of soil, and taken from the same ear. The boxes have all had an equal share of heat and light, neither allowed advantage over the other.

"This experiment should attract the attention of farmers. We conclude from four to six weeks may be saved by the use of chloride of lime and copperas, which is a matter of no ordinary moment, when we reflect that a delay of germination of the seed of two weeks frequently places the crop within the

reach of the frost in the fall. Another fact of some importance may also be mentioned: The copperas used in soaking will pevent the birds, squirrels, worms, &c., from eating the seed.

"Dr. Chamberlin assures us that one pound of chloride of lime and one pound of copperas, in water, will soak enough seed for twenty acres. The cost will not be over twentyfive cents. Every farmer could afford to make the experiment, even if he should fail to derive any benefit from it.—*N. Y. Tribune.*

Sleeping Rooms.

The air which passes out of the lungs is wholly innutritious. If re-breathed without any admixture of other air, it would induce instant suffocation. It contains a large amount of carbonic acid gas. This gas is condensed by cold, and falls to the floor; heat carries it to the ceiling; hence the practical fact, that in warm weather, those who sleep on the floor, breathe the purest air; while in very cold weather the higher one sleeps above the floor, the better is the atmosphere. Hence in a warm room, sleep as near the floor as possible; in a cold room, the higher the bed is, the better. A striking illustration of one branch of the statement is found in Dr. Hall's new book on Sleep. When the jail-fever was raging in England, it was the custom to hand the food and water through a hole in the floor above them. A case is mentioned where the jailor and his wife died in one night, in consequence of the effluvia of the prisoner's cells below; while the prisoners themselves continued to live, showing conclusively the concentrated malignity of the air at the ceiling, as compared with that on the floor.

The same principle has an illustration in the narration in the same pages, of the terrible incidents in connection with the "Black Hole of Calcutta," where it was speedily noticed that relief was given by sitting down on the floor. From these statements, it is clear that it is better to have a fire in the fire-place in a close room in winter, than to have no fire; and for two philosophical reasons—the fire rarifies the carbonic acid gas, and compels it to seek the ceiling; besides, it creates a draft up the chimney, thus causing cold air to come in more copiously through the crevices of the room; the inevitable effect of which is, a more copious supply of fresh air, and a more rapid change of air.

Another incidental benefit from having a fire in the fire-place of a close room in winter is, that less bed-clothing is needed; hence, the body is less smothered and sweltered; less oppressed by its own emanations, which are necessarily kept in more or less immediate contact with it, as the bed-clothing is heavier. When it is not convenient to build a fire in the fire-place, a good substitute is had in a large lamp, or jet of burning gas, brought into the fire-place by a flexible tube. These suggestions merit special reflection, as there seems to be a very prevalent opinion that cold air is necessarily pure, and that warm is a synonym of impurity.—*Hall's Journal of Health.*

From Miner's Rural American.

Notice to the Readers of the Rural American.—A Sad Disaster—its Discontinuance, &c.

It becomes my painful duty to announce to my subscribers, that misfortune has come upon me, and the consequence is, that the *Rural American* ceases to exist with this week's issue!

That all persons who are interested in this matter may understand the causes which have led to this great calamity to me, I will give as brief a relation of the facts as I can, and do justice to the subject.

In the fall of 1859, when the John Brown invasion of Virginia took place, I denounced his act severely, and stated, that in my opinion "he ought to be hung." I also commented strongly on Brown's proceedings in Missouri, the running off of slaves, taking horses belonging to their masters, and selling them at auction in Kansas, as he himself admitted. These comments, with other *conservative* sentiments which I then published—and which at *this* time, nine out of ten of the people of the North endorse—greatly offended many of my subscribers, and the result was, that in 1860 I found my paper with a subscription list considerably diminished, and in order to reinstate it, I concluded to make important improvements in it, and to make a vigorous effort to give it an extensive circulation in 1861.

I reasoned in this wise, that as the country was very prosperous up to Nov. last, before which time my arrangements were mostly perfected, and after the political campaign was over, a very favourable opportunity would be before me to place my paper upon a more prosperous basis than it had ever occupied before. In order to effect this object, I was aware that my credit would have to be used to some extent. I needed a new press, my old one being incapable of doing good work, and was, moreover, too slow. Having procured every thing essential to carrying out my plans, I found myself, in December last, more in debt than I had apprehended, yet the very extensive notoriety which I had given to my paper, by advertising, and circulating sample copies, led me to suppose that it was almost morally impossible to fail to receive less than *ten* thousand more subscribers than I had in 1860, while *five* thousand, would, I think, be sufficient to place my paper on a solid foundation. Full 20,000 *sample* copies of the paper were called for by persons who mostly had never before seen it; and notwithstanding the scarcity of money, and the existing "panic," I felt no uneasiness as to the result, till early in January, when the cry came to me from all quarters, that owing to the "hard times," but very few subscribers could be obtained. The first two weeks in January produced only about the same receipts that I used to receive previous to 1860; and in a few days they dwindled down to an alarmingly small sum weekly, and the result is, that I find it *utterly impossible* to proceed, owing to the fact, that I have not received money enough to liquidate my liabilities, and at the same time, publish the paper.

This is a terribly disastrous affair to me, and one that will produce much

astonishment, regret, ill-feeling; and probably, *abuse* of me, on the part of my subscribers; but to save my *life*, I could not avert the disaster in any *possible* shape or manner, as every dollar's worth of property that I possess, would not, at *this time*, sell for enough to carry the paper through the year, if I did not owe a cent.

Probably no one can *fully* understand the case, form this explanation; but I will say, that the receipts, thus far, have been expended in paying up matured obligations, and the current expenses of the business, which are very heavy, and I now find my receipts so greatly diminished, that a continuance of the paper, in any shape, is *utterly hopeless*. Nor was I without hope of a better state of things taking place up to the very day that this paper went to press.

In this catastrophe, I lose the accumulated savings of a life of over thirty years of the most unremitted toil! Yes, reader, *all* is lost, and nothing will, according to present appearances, be saved from the wreck! It is a case for your pity—not for your *curses*, which latter, I well know, will be bestowed upon me by unfeeling subscribers.

To cap the climax of my misfortune, a disease, which has been fastening its subtle coils around me for ten years, now threatens to deny me the ability to earn a living in any manner, and what is to become of me and my family hereafter God only knows.

It is torturing to the sensibilities of my mind, to make such a development; but *truth* demands it, that my subscribers may know my real condition, and inability to pay them their dues. I am too far advanced in years, and unmanned by disease, ever to recover from the calamity, and my career, as a publisher, is now ended. I have striven hard to sustain my paper, but the "times" have been too crushing, and I am compelled to yield.

To my club agents and all friends, who have done their best to aid the circulation of the "*Rural*," allow me to say, that my heart is pierced with the deepest anguish, that I should be the means of bringing upon them the contumely, and hard thoughts of those whom they have persuaded to subscribe for it. It is crushing to my spirit, and will sting me till the grave shall cover me from the face of man, while I have done all, as I verily believe, for the best, and with reasonable prospects, as I supposed, of success.

It may be considered unmanly in me to thus enter into the details of my business, feelings, position and future prospects, but so great a calamity, and especially one so soon after commencing a new year, requires a more than ordinary exposition; and when I look back and reflect on the nine years of very hard mental labor that I have endured in Clinton, in order to save a small pittance against the day of age and infirmity, and now find all swept away, health gone, and poverty my future inheritance, my breast is filled with the deepest anguish, and I feel, at times, that life is almost insupportable.

All my readers, I think, will admit that the *Rural American* is deserving of a better fate. Owing to illness, I have been unable to give it much attention

during the last few numbers, but my son, with some help, I think, has shown quite good judgement in his selections, and has got up a very fair paper.

In conclusion, allow me to say, that at present I see no possible way of refunding dues even to subsribers in this immediate vicinity, as all that I possess must go to satisfy my more heavy creditors, as the case now appears; but should I ever have it in my power to repay them, they may rest assured that I shall do it.

I am thus particular, so that I may not, in my illness and broken spirit, be harrassed with importunities, enquiries, and demands that will be *utterly out of my power to attend to.* I, therefore, here give notice that all letters that shall remain *unanswered*, may be considered in this way, that *it is out of my power* to comply with requests made, or that my answers would *not benefit them.* I am not only too ill to sit down and answer a dozen or two letters a day, but what is to become of me and my family, must be the first object to which I can now give my attention.

To show the effects of the "hard times" more clearly, I will say, that in all probability, if this paper could be continued, I should have no more subscribers than I had in 1860, although about $500 were spent in Nov. and Dec. in advertising, postage, showbills, specimens, &c., in order to give it a wide notoriety; and, as already stated, full 20,000 sample copies were distributed all over the country. I now print but about the same number of copies that I did last fall, and with the greatly increased expenses of the enlarged paper, under any circumstances it would be a loosing business with simply my old number of subscribers. A paper of this size and character can be afforded at *one dollar* a year in clubs, with a circulation of moderate extent, but not on the support that it is now receiving.

I have done all that lay in my power to ensure success, and believed that I should succeed; but the fates are against me, and I must yield. God knows that my *intentions*, designs, anticipations,—all have been right. Errors I may have committed, but they were all of judgment, with a veil covering the future, through which my vision could not penetrate. I have done no act, entered into no contract that now embarrasses me, which at the time effected, I did not fully believe was for the best, although *now*, when my receipts are cut off by the money pressure of the country, I see my mistakes. My case is a hard one,—yes, terribly severe, because the savings of a life are lost, and with them health also. Let the judgment of the public be tempered by charity, because if all the facts pertaining to my business were fully understood, no man could in reason condemn me.

With this truthful exposition of my affairs, I bid my subscribers farewell.

T. B. Miner.

Clinton, Feb. 23, 1861.

P. S.—Exchanges will please discontinue.

☞ No blame should be attached to any traveling agent of this paper, who, of course, could not be expected to know what could happen to the prosperity of it.

Bone Manure.

Bone manure is universally considered one of the very best kinds that can be applied to the land, whether for corn, grass, or root crops, and its extensive and increasing use is a proof of the estimation in which it is held. Not only are the bones of those animals slaughtered in this country employed as manure, but nearly 80,000 tons per annum are imported from foreign countries, chiefly for the same purpose, and yet the supply is by no means equal to the demand. Had not the importation of guano commenced about the year 1840, it is probable that bones would have risen to £10 or £12 per ton.

"That bones must be beneficial as manure," says Mr. Nesbit, in his pamphlet on Agricultural Chemistry, "will appear from a very simple consideration. Animals are fed upon vegetables, and the whole of their bodily structure grows out of the food, or is eliminated and formed from it. If the food did not contain phosphate of lime, the bony structure of the body could not be built up. If the soil in which vegetables grow did not contain phosphate of lime, the seeds of vegetables could not be matured. Supposing the arable land of this country to have been robbed for a thousand years of phosphate of lime, and never to have received any back again; assuming this ingredient to have been continually exported in the shape of milk, cheese, sheep and oxen, it is clear that unless the land had an unlimited amount of phosphate, which we know is not the case, there must have been a proportionate diminution in the quantity of such materials. Hence it is that when certain substances which have been taken out for a long period have been again suddenly applied, land worth hardly 5s. per acre has sprung up to the value of 15s., and there has been an enormous increase of crops."

One of the most valuable qualities of bones is the slowness with which they decompose, and the length of time during which they continue to give out the phosphates. It is found upon analysis that one pound of bones contain as much phosphoric acid as 28 pounds of wheat or 250 pounds of potatoes. Now, a crop of wheat of four quarters per acre, and reckoning it at 60 pounds per bushel, weighs, in round numbers, 2,000 pounds, which contains only as much phosphate as is found in 71 pounds of bones. It is clear, therefore, that if the bones are put on at the rate of 3½ cwt. per acre, supposing them to decompose rapidly and give out the phosphates in proportion, a large proportion would be wasted. But this is not the case, as the following circumstances prove. A gentleman, who occupied a large farm in Norfolk, finding, towards the close of his wheat-sowing, that he was likely to have a considerable quantity of bone-dust left, if he continued distributing it at the ordinary rate, directed his foreman to increase the quantity. On going to the field the following day he found the man had *doubled* the allowance, and that instead of having any to spare, he would not, at that rate, have enough to finish manuring the remaining seeding land. He therefore told him to go back to the usual quantity of about 4 cwt. per acre, at which rate the field was finished. The crop of wheat proved a very heavy one, as well

as the succeeding crop of turnips, on that part of the land which was doubly dosed with bone dust. Now mark what follows. *Eleven years after*, the farmer, on riding with a friend over his land, came to this field, which was again, for the third time after the above occurrence, under wheat. On entering it, he requested his friend, if he should, in riding down the furrow, find any difference in the growth of the wheat, to point it out. After riding a few yards into the wheat he suddenly stopped. "What in all the world have you been after here?" he exclaimed. "This wheat is six inches higher, and as stout again as the rest; how came this to pass?" The farmer then explained to him the occurrence we have related, and which proves not only the value of bones as a manure for a single crop, but that by the deliberate manner in which they give out the phosphates in decomposition, they possess a more permanent value than any other kind of manure.

But bones are not only valuable on account of the phosphoric acid they contain; they also contain nitrogen in the proportion, according to some chemists, of six, and of others, of four per cent. As the bones decompose, this becomes ammonia, the value of which in manure is now well understood by almost all agriculturalists. The conversion of bones into superphosphate of lime by the addition of sulphuric acid, by precipitating the decomposition, probably alters the conditions, by causing the immediate distribution of the phosphoric acid in the sod; and thence it requires a less quantity to be applied to the land to produce a crop.

The Americans have adopted a new method of dissolving bones, which may probably be employed to advantage in this country, as the bones will not require to be ground. A ley is made with lime, in the proportion of one bushel of lime to sixty gallons of water. To 200 pounds of bones put 60 gallons of ley, and boil them for a few hours until the bones are dissolved, when they may be reduced to a dry powder, and applied in the same way as guano, or any other artificial manure. This mode of application has been found to produce very satisfactory results. The lime used was made of oyster-shells, as the best for the purpose. "It has been repeatedly demonstrated," says an American writer, "that one bushel of dissolved bones, *for immediate effect*, is equal to five times as much ground bones; in other words, that one pound of *nascent*, or soluble phosphate of lime, is worth more than five pounds of *normal*, or natural phosphate of lime, or bone earth."

This economic application of bones is becoming more and more common, being cheaper, and involving less labour, and the result is quite as certain and as good. The only difficulty in the purchase of bones, in whatever form, is that of getting them genuine, on account of the adulteration with *scutch*, or the refuse of the tanpits, oyster-shells, and other cheap ingredients, the proportion of which in bones is regulated, with some dealers, by the price paid per ton. We have known as much as fifty per cent. of scutch mixed with bones, as agreed on between the merchant and his customer, a country bone-crusher.—*Lon. Far. Mag.*

For the Southern Planter.

The Concord Grape.

This grape is becoming more popular as it becomes more known. It is a seedling of the Isabella, and originated in Concord, Mass., some ten years ago. It is a very thrifty grower, like the Isabella, but yields more profusely and regularly than the parent vine, while it ripens from ten days to two weeks earlier than that variety.

The color of the fruit is black—berries considerable larger than the Isabella—flavor delicious, and the grapes ripen much more evenly on the bunches than that variety.

The Concord is much more hardy than the Isabella, Delaware, Diana, Rebecca, &c., and requires no winter protection South of the State of New York. In that, and all other States of the same climate, it is better to lay down the vines in the fall, and cover them slightly with earth, rather than to run any risks of the severe cold weather. Indeed, it is now recommended by our best grape growers, to lay down all varieties, and cover in the fall, whether hardy or not, on account of the better condition of the vines in the spring. There appears to be less drain of sap from the roots, when vines are thus protected, and the consequence is, that the buds break more freely and evenly, and the crop of fruit is larger, and better secured from all contingencies pertaining to the power of vines to yield fruit.

I am of the opinion that grape-vines should be thus protected, even in the "Old Dominion"—not that the frosts of winter would injure the hardy varieties, but that the crop of fruit would be enough more to pay the expense, which is not a half a cent a vine in vineyards.

By the way, can some friend of the vine inform me, what the prospects would be, in Virginia, or Maryland, to plant a vineyard of Concord grape-vines, of ten, fifteen, twenty, or more acres, for wine-making, or for selling the fruit in the New York, or other markets? I presume that I could supply 20,000 vines next fall for such a purpose, and I would be willing to enter into an arrangement with any gentleman to supply the vines, that might be mutually advantageous.

The fruit of the Concord vines is worth in the New York market, at wholesale, 10 cents per pound. An acre will produce from 10,000 to 12,000 pounds when in full bearing. As a wine grape, it excels all other kinds. I have averaged a barrel of wine from only *six bushels* of grapes! The Concord contains more alcohol than any other grape known, even 25 per cent. more than any European variety.

This grape has, as yet, no disease—perfectly free from rot, mildew, and all defections that blight the hopes of the Ohio grape growers. And it greatly improves in the latitude of Maryland and Virginia—not only in quantity of fruit, but also in flavor. Moreover, it flourishes in a *poor soil;* and there are but few fields in Virginia, where this grape would not grow luxuriantly, with seasons of the usual rains.

I am growing the Delaware and other popular varieties, but the Concord, as a *vineyard* grape, is superior to them all. The Delaware requires quite too much *nursing*, and it grows entirely too slow. It makes no difference what dealers in that variety may say in regard to this fruit, it is an undeniable *fact*, that the Delaware is a slow grower, and a "shy" bearer, until it has attained considerable age.

T. B. MINER.

Clinton, Oneida Co., N. Y.

For the Southern Planter.

Hungarian Grass.

During the last few years much has been written and published in regard to Hungarian grass. It has been claimed that it is an old variety of *millet* under a new name—that it is not profitable to grow, &c.

I have grown this grass and fed it to stock—am now feeding no other kind of hay. It has been grown extensively in central New York, and it now bears a good reputation—one that is not a *humbug*.

It requires about a half a bushel of seed to the acre. That quantity is what I have sown; but at the West some farmers sow only ten or twelve quarts to the acre. It should be sown as soon as the weather becomes settled down to a summer heat, perhaps, in Virginia, early in May, while here, we wait till the first of June, and sometimes later. If sown earlier, the weeds and wild grasses are apt to get the start of it, and injure its growth.

It produces, generally, in moderately good soil, from three to four tons of hay to the acre, and from twenty to thirty bushels of seed, worth as much to feed to any kind of stock, as so many bushels of oats.

When the grass is left, in order to ripen the seed, it is not destroyed for feeding to stock. Indeed, I do not think it is injured at all. It is a little more colored—a yellowish hue, but horses and cattle eat it with great avidity.

When the seed is not desired to be threshed out, the grass is cut about a week earlier, and the hay thus made is of a very nutritious character, and horses fed on it, should have but little grain of any kind. Some complaints have been made, that this hay injured horses; but the cause has been traced to feeding too much grain in connection with it. The seed of this hay contain a great deal of oil; and, therefore, horses may be injured by over-feeding on it and grain at the same time.

The Hungarian grass, or millet, is an annual plant, requiring to be sowed every season. On poor lands, I presume that it will produce a poor crop, like all other vegetation. On rich soils, the crops will be heavy and luxuriant.

Some of my farmer neighbors have thought that this grass impoverished their soil more than ordinary crops; and I am not sure that they are incorrect in that opinion. I sowed a field to this grass in 1859, which was planted to corn last year, and the crop was very small, owing to the grass crop having, apparently, drawn the most of the fertility from the soil. I have not, however, seen or

heard of any bad effects of this grass crop on soils in other places, and I am inclined to believe, that it is no more injurious to soils than oats or corn.

The present price of Hungarian grass seed, in Chicago, is about one dollar per bushel, and ought to be sold in the South at $1 50 to $2 00 per bushel.

I think that Virginia farmers, who have but little good grass land, would do well to sow a few acres of Hungarian, as an experiment.

T. B. Miner.

Clinton, Oneida Co., N. Y.

From the Farmer and Gardener.

Mast as Food for Swine.

Mr. Editor: Last Fall we had in this section of country a very abundant crop of acorns and chestnuts. In a thirty acre lot, on my farm, the ground was literally covered with them, particularly of the former. My hogs were turned into the enclosure about the first of October, and improved rapidly for a short time. I observed, however, after some weeks, that they began to lose their plump appearance, and that several of them had a wheezing cough, and difficulty of breathing. A few of them became quite sick; and a fine sow, near the time of farrowing, cast her litter. A neighbor, whose hogs were enclosed like my own, said that his appeared "like a set of drunkards just emerging from a spree."

I hear the same complaints from all around me; and the general opinion amongst them is, that the animals suffer from the shells of the mast lodging in the stomach, where they remain undigested, and produce irritation and inflammation of that organ. I think this opinion is in some degree well-founded, for I notice the shells in the excrement, apparently unaffected by the powerful gastric action to which they have been subjected. The difficulty of breathing, I suppose, can be accounted for by presuming that small portions of the shells may have lodged in the pharynx. But how are we to account for the *narcosis*, which was palpable and unmistakeable? Some sorts of acorns, especially those of the red oak, (*Quercus rubra*,) of the black oak, (*Q. nigra, vel tinctoria*,) and others, contain considerable quantities of Prussic as well as Tannic acids; but hogs will not eat these as long as the others are abundant. It is true, those of the white oak (*Q. alba*,) contain more or less of these acids, (the Tannic predominating,) but I think the quantity too inconsiderable to produce the results which I have witnessed. If the effects which we observe now are attributable to them, why did they not have the same effect on our hogs before? Only a few years ago, our porkers were occasionally fattened upon the acorns alone. Can anybody explain?

It may become an interesting subject of inquiry whether the fruits of our forest trees, like those we cultivate for the sake of their edible pulp, are deteriorating. Does anybody know?

There was a tradition amongst the Greeks, that the oak was the first created

tree; and it is known that the fruit of them constituted, at one period of time, an important portion of their food. Virgil tells us to

> ———"Thrash the woods,
> For mast of oak, your father's homely food.

And Ovid corroborates their use,

> "Content with food which nature freely bred,
> On wildings and on strawberries they fed.
> Cornels and bramble berries gave the rest,
> And fallen *acorns* furnished out a feast."

Those familiar with our early struggles for independence of the mother country, will remember how the Continental soldiery ate them for lack of more sumptuous viands. But Turner, who was probably the earliest English writer who wrote upon the subject, does not appear to have had a very favorable opinion of them as human food; for, he says, in the quaint language of that day, "Oke, whose fruit we call *acorn*, or *eykorn*, (that is the corn or fruit of an eyke,) are hard of digestion, and nourish very much, but they make raw humores, wherefore we forbid the use of them for meates." Yet the early Britons certainly ate them. The Druidical priests taught them, that everything that was produced upon the oak, even to the parasitical mistletoe, was of heavenly origin; a superstition which was common also among the Persians. They are, to this day, the food of the lower orders of Spaniards; but then it must be remembered, that the acorns of Spain are much more nutritious and sweet, than those of England or the United States.

Acorns are said to have been the primitive food of mankind. We have no means of knowing whether they have undergone an unfavorable change in the land first peopled by the human race. That human tastes *do* undergo very great changes admits hardly of a doubt. At any rate, modern epicures would not, I fancy, esteem the acorn much of a feast.

Thomas Tusser, and old English agricultural writer, who had a sort of innate proclivity for versification, said many truths in his "Boke," "*A Hundreth Good Points of Husbandrie*," published in 1557. Speaking of acorns, he says:

> "Some left among bushes shall pleasure thy swine,
> For fear of mischief, keep *acorns* from kine."

They are injurious to all ruminating animals, particularly to sheep. Whether it is owing to the Tannic and Prussic acids that they contain, or whether it is because ruminants cannot belch them up to undergo a second mastication, remains to be decided. Their effects upon cows are a drying up of the milk, constipation, wasting of flesh, and general debility.

But, friend Spangler, when I commenced, I only intended to speak of them in reference to their misjudged value as food for swine, and to solicit from your numerous able correspondents such information as will be useful for farmers generally. A few words more and I shall conclude for the present.

After putting up my hogs, they fattened very slowly. Indeed with all the careful and liberal feeding that I gave them, I did not succeed in making them anything near as fat as I wished them to be. An old and experienced hog-dealer, to whom I spoke upon the subject, told me that I would find it impossible to fatten them thoroughly. He further stated, that he could always tell when a lot of hogs had eaten largely of acorns. They never endured traveling without becoming lean, and they could not be made fat for the same season. What is the reason? F. J. Cope.

Hemphill, Feb. 5, 1861.

For the Southern Planter.

Roup in Chickens.

Messrs. Editors.—I have seen several inquiries in agricultural papers of late, from persons who are anxious to learn some cure for chicken distemper or roup. And as I have found out a remedy, after trying every thing I thought would do any good, I send it to you to publish, that all may know it and profit by it.

I have been raising from several varieties of English game for many years, and never until 1859 knew what the roup among chickens was. I purchased several varieties during 1859–60, in Pennsylvania, and when I got them home I found they had a disease that effected them in three different ways. Sore throat one; another, one or both eyes would be diseased, and the third, the head-comb, &c., generally would have ulcers. I tried caustic washes and various other things, and after great care and labour I cured the most of them. At this time my other fowls had taken the distemper, and as I thought of the many things used, not one could I rely upon as a certain cure, and my patience nearly worn out, I concluded to try, as an experiment, some Cod Liver Oil, and picked out a chicken that had his throat and mouth nearly one solid ulcer. To this chicken I gave a teaspoonful of the oil morning and night, and rubbed his head well with the same. For three days I kept up this practice, and at that time I found out the oil purged too much, so I lessened the dose and gave half a teaspoonful night and morning, and continued to rub the head and throat well with the oil; and to my surprise and gratification the chicken got well. I then tried it on several, and cured all. And now, with one year's experience, I can say that every chicken, if taken before the disease runs too long, can be cured. Now this is a simple remedy, and I know it to be a certain cure.

It may be asked if I have not lost some fowls since I found out this remedy. I will say yes, and it was because the disease was too far advanced and the chicken too weak. Yours, respectfully,

Caroline.

Biscuit.—Two quarts of flour, one tablespoonful lard, one teaspoonful soda, half teaspoonful salt; mix with cold water, and beat well.

From the Farmer and Gardener.

How we Waste Manures.

The collection, management and application of manures, is perhaps, the most important branch of farm practice. And what is equally true, it is one which is in greater need of improvement, than almost any other. For a number of years past, agricultural chemisty has explained the proper method of managing manures, but thus far, its teachings have had but a partial effect. The fact is, if there were no other cause for the deterioration of our soils, and consequent annual diminution of our crops, the waste of manures would sufficiently account for it. No one at all, familiar with the subject, will, we presume, pretend to dispute the assertion that in this direction at least, we are more wasteful than any other nation in the world. Were the same unthriftiness practised by the Chinese, with their dense population, or even by the German States of Europe, the result would be actual starvation, if as at present the people were dependant upon the products of their own soil for support. It is almost impossible for an American farmer, who has not had the opportunities for personal observation, to form anything like a correct idea of the jealous care with which the smallest particle or shred of every manurial substance is collected and husbanded by European nations generally. It is asserted on good authority, that at least one-third of the nutritious value of food used by the people of the United States, is lost either in its preparation, or, by actual waste; and it may be as safely asserted that fully one-third, (we were about to say one-half,) of our available fertilizing material is also wasted and lost. Unlike as this may at first glance appear, we have abundant evidence to sustain it, and did space permit, it would not be a difficult matter to satisfy every reader, that we annually waste nearly as much manure as we use. Our limits will only permit a brief reference to one or two of the principal sources of waste.

First, we have the *drainage of our cities and towns.* This is composed mainly of the rich dirt from the streets, the wash-waters from the kitchens, the refuse of manufactories, the cleaning of water-closets, together with a variety of other substances, rich in manurial ingredients.

The following statistical fact in relation to the sewerage of London, will convey a better idea of the immense waste of valuable fertilizing material, than anything we could say upon the subject.

"By carefully conducted experiments, and very accurate guagings, it has been found that the chief London sewers convey daily to the river Thames, about 115,000 tons of mixed drainage, consisting, on an average computation of one part solid and 25 parts absolutely fluid matters; but if we allow one part in 30 of this immense mass, to be composed of solid substances, then we have the large quantity of more than 3,800 tons of solid manure, daily poured into the river from the city of London alone. Allowing twenty tons of this manure as a dressing to the acre, the annual waste equal to the full fertilization of 50,000 *acres* of the poorest land. This, with a fair average yield, would maintain at

least 150,000 persons. And this enormous waste flows from one city only, and refers only to the solid matter. The fluid portion is also rich in fertilizing matter, salts, &c., combined with the water."

Now the same estimates may be made with reference to all our American cities and towns, with this difference in favour of our superior prodigality, that our people being better fed than the majority of the people of London, or of England generally, and permitting more of our food to go to waste, either before or after preparation for the table, our sewerage is consequently richer in fertilizing ingredients, and the waste of course greater.

Is it not a striking comment upon our farming economy, that while we are sending our ships to the remotest parts of the world for guano, with which to maintain the fertility of our soils, we are permitting millions upon millions of dollars' worth of equally valuable material to flow past our very doors, and pour itself into the sea? Nay, we do more, we puzzle our brains to devise the most effectual method of getting rid of it, with the least possible expense and trouble. The Agricultural Chemists and Engineers of London, have given the subject their attention, and a movement is now on foot to arrest the further progress of this enormous and heedless waste of manure, so far as that great city is concerned.

A celebrated English writer, in answering to the inquiry, *What is sewerage?* says, "In it the chemist recognizes rounds of beef and basins of turtle, cargoes of sugar, coffee and port wine, millions of four pound loaves, and thousands of tons of cheese and butter. Therein are not only all the alimentary productions of our own country, but also our enormous alimentary imports, altered in form it is true, but scarcely altered in utility or value. It is truly a well known, but unworked, mine of gold, equal in value to one-half the interest of our national debt. We might call it a stream of liquid guano. It exists in a form of peculiar availability and almost self-portability; its fertilizing powers are enormous. We may estimate its value by the sums expended to compensate for its loss. We pay for our guano, two million of dollars annually. For unprofitable oil cake and corn to feed our manure-making animals, many millions, and vast sums are annually abstracted from the agricultural pocket for phosphates and other artificial manures."

It is not for us to point out in what manner this unpardonable extravagance is to be checked. "Necessity is said to be the mother of invention," and when we have exhausted all our other manurial resources, then, perhaps, some plan will be devised for bringing into profitable use this immensely valuable material.

But let us turn our attention nearer home for a few moments, and see whether we are as economical of the manures of the farm as we should be. It is to be feared that a strict investigation in this direction would develop little, if any, less prodigality than in the sewerage of our cities and towns.

We have already adverted to the unceasing attention given by the Chinese

to the collection and careful preservation of every substance however trifling, which will in any degree serve to enrich the soil and increase their crops. We might profitably imitate the example of "John Chinaman" in this particular, for certainly, no department of farm practice has been as grossly neglected. Many of our farmers absolutely waste as much manure as they apply beneficially, or, in other words, permit one-half of it to go to loss through downright neglect or misapplication.

This neglect is shown in a variety of ways. We see it in the location and construction of our barn-yards. Were it a special object with the farmer to expose his manure heap to the fullest action of the sun, wind, and rain, and to afford the most complete outlets for all the liquids, he could not accomplish it more effectually than by following the plans of tens of thousands of farmers, in our own and adjoining States. The barn-yards, as a general thing, slope from the barn or stables, and as a consequence the liquid manure soon accumulates at the lowest point. The first rain causes it to overflow the trifling barrier sometimes raised to prevent its escape, and away it goes to the nearest rivulet, to the horse-pond, or in the public highway, to be lost to its owner forever. Few who have not studied this subject, are aware of the immense quantity of fertilizing material, that accompanies the little black stream that oozes so quietly and steadily from the majority of our barn-yards. If such careless farmers were to behold gold dollars rolling from their pockets as rapidly as gold dollars worth of liquid manure flows from their manure-heaps, what immense activity would immediately be manifested, and how energetically would they go to work to stop the drain. Its apparent insignificance is the reason why it is permitted, for if farmers understood as they undoubtedly should, the actual dollar and cent value of the material they are thus permitting to escape them, this, another one of the every day errors of farming, would be speedily corrected.

The fact is, true economy points to a complete reformation in the management of our manures, and more particularly the manures of the farm-yard. How many farmers are there who give a single thought to the importance of protecting their manure heaps from the injurious effects of exposure to the sun, wind, and rain. True economy points to the covered barn-yard; to the properly prepared manure pit; to the indispensable tank for the surplus liquid manure; to the protection of the manure-heap from the deluges of rain-water, which are poured upon it from unspouted barn-roofs, and other buildings, every time a rain falls. Agricultural chemisty has conclusively demonstrated the absolute necessity that exists for attention to these points, if the farmer desires to save from total loss, a very large proportion of his manure. It teaches him that a loss of manure, is equivalent to a diminution of his farm prodnets. If permitted to continue, it can result only in either gradually impoverishing the farm itself, or what is equally unfortunate, the pockets of the farmer himself.

It should be a cardinal principle with every farmer, to allow no portion of fertilizing material, however minute, to go to waste. The scrapings of the road-

side, old shoes, woollen rags, hair, bones, the wash-water of the kitchen, soap-suds, the contents of the water-closets, unripe weeds, in fact, a thousand little matters which are not only permitted to go to waste, but are in many cases regarded as nuisances, and the disposition of which is often times a source of annoyance and inconvenience to the farmer, all possess a high manurial value, and one of the most common of our every day farming errors, is to permit them to be lost, instead of adding them to the compost or manure heap. If neglect to preserve and apply these valuable materials is the result of indifference, it properly belongs to the class of every day errors. If, on the other hand, it proceeds from ignorance of their value, the sooner this want of information is supplied by the teachings of Agricultural Chemistry, the better it will be for the interests of the country at large.

Horticulture in California.

We have received the report of the third annual fair of the California Horticultural Society, held at San Francisco in September last. It gives a lively idea of the horticultural resources of our great western state. At this exhibition of the products of California were seen the lemon, the orange, the fig and the pomegranate, with the luscious peach, the more hardy pear and apple, and flowers of rare hue and fragrance.

Among the vegetable monstrosities was a huge red beet, weighing one hundred and fifteen pounds. When it weighed forty-two pounds it was exhibited and then again stuck into the ground to produce seed, and in twelve months it gained 175 per cent in weight. If the owner should pursue the same policy for several years more, and it should grow in the same proportion, it would weigh 315 pounds in September, 1860, 855, in 1861, 2,300, in 1862, and so on. It is now about four feet long and nearly a foot through.

One grape-grower sent from San Jose no less than 80 varieties of grapes. The president of the Society exhibited 57 varieties pears, 40 of apples, 16 of peaches, 10 of plums, and four of nectarines. Of flowers several gentlemen contributed each collections of cut roses, embracing some one hundred varieties. A gardener sent a cabbage three feet seven and a half inches in circumference.

There were also exhibited several specimens of the Chinese tea plant; they were a part of a lot of twenty-four which were brought last summer from Canton, in their native earth. The transplanting process retarded their growth, but they thrive successfully in their California home, leaving no reason for doubt as to the suitability of the climate for tea culture.—*Post.*

Lemon Custard.—Three lemons grated, one pound sugar, eight eggs, a piece of butter size of a walnut. Beat the yolks, sugar, lemons and butter together, the whites to a froth, which are not to be added until ready for the oven. Bake on pie-crusts.

Editor's Department.

Green Crops for Cattle Food.

We would earnestly advise all of our farmers to devote a few acres to the purpose of raising green crops, to feed away to horses, cows, and other farm stock, during the summer.

If they will pursue this plan, they can lay by a much larger supply of hay for use next winter, and by preparing for a large stock of cattle to be fed during winter, they may have for them, when that time arrives, the most ample abundance of food—the cattle can be wintered at a very inconsiderable expense, and a large stock of the most valuable kind of manure be on hand in time for the next corn crop. This system has proved profitable wherever it has been adopted, and we are sorry to say, has very few followers in this country. Some farmers, who practice it regularly every year, have made fortunes in agricultural pursuits, and are proofs that farming, when well managed, "will pay."

Corn, when sowed broadcast, at the rate of *three bushels to the acre*, will furnish an almost incredible amount of provender for stock. Milch cows can be brought up to their maximum yield of milk, by its use as food: nor is it at all objectionable as provender for horses. It is necessary to give animals a plenty of salt, air-slacked lime, and ashes, while they are fed principally upon it, since the amount of sap contained in it is so great, that fermentation in the stomach, at any time when that organ may be even slightly disordered, will be sure to produce colic, or scours.

Sow three bushels of corn upon one acre of good land, and harrow it in. If the land is not already sufficiently rich, apply one hundred pounds of guano, mixed with two bushels of plaster, to it.

Chinese sugar cane should form part of this "Truck Patch," since it is an article of excellent food for stock of all kinds, and generally yields a luxuriant crop. So many experiments have been tried with it, that its excellence is fully established, and nobody has a right to call it a "humbug" any longer. The same precautions are necessary to guard against colic and indigestion among the animals fed on it, as we mentioned with regard to green corn.

Hungarian grass, and *millet*, are very highly spoken of by many persons who have tried them. We have raised one small lot of the former, and were highly pleased with it as hay. Cattle are very fond of it, and on rich ground, more than one cutting may be had. When it is allowed to ripen, we think the seed should be threshed out before its used as hay, since they are very hard, and so rich in oleaginous matter, that we think there is some danger of *over-feeding*

stock with it—horses fed on the hay containing the seed, being peculiarly apt to founder

From a peck to a half bushel of seed (according to the quality of the land upon which they are sowed) is required to the acre. Sow the seed on fallow, and harrow them in.

Oats are much used in England and Scotland, for soiling purposes. We do not know how they will succeed here, since our climate is so much less humid than that of these countries. We have met with one gentleman, of our own vicinity, who has tried the experiment. He says, that one acre sowed down in oats, at the rate of three bushels per acre, made him an amount of green food, which, at our city market rates, would have cost him rather more than one hundred and fifty dollars. We are trying the experiment for ourselves, and hope many of our friends will do the same, although we do not suppose that we can gain so large a product as they do in Europe, on account of the difference in climates.

Peas. The black-eye, or cow-pea, will either one make good hay, but we suppose the latter would afford a more luxuriant vine, and consequently more hay to the acre.

If these crops are sowed, and judiciously substituted for the ripe oats and grain usually fed during the summer months, they must prove of great advantage to the farmer who will have the energy to try them before he condemns the plan. There is certainly economy in using them. We have seen this proved, and if all of our Eastern Virginia farmers, who are short of grass, will carry out the plan, and follow it by a large crop of turnips for next winter's use, we guarantee them better cattle, more manure than they have hitherto raised, and an increase of the corn crop every year. We commend the subject to their careful consideration.

Miner's Rural American.

PUBLISHED IN UTICA, NEW YORK.

We have received a note from Mr. T. B. Miner, the Editor of this paper, informing us of its discontinuance. We regarded it as *one of the very best Agricultural Journals in the United States.* The candid, dignified, honest tone of its editorials, we thought, should have entitled it to the confidence of all the farmers who were in reach of it, while the variety and excellence of its subjects, and the neatness with which it was illustrated and "gotten up," should have made it a welcome visitor wherever intelligence and an appreciative taste prevail. We are sincerely sorry that Mr. M. should have to give it up, and we think it is a shame to the farmers of his section, that such a paper should die out for the want of a support which they might give it, with benefit to themselves.

But it seems that no man or paper in that vicinity, can be supported or allowed to flourish, which had the unpardonable wickedness! of conceiving and expressing the idea that "John Brown was a traitor and *ought to be hung.*"

This has been the cause of offence given by Mr. M., the punishment of which is the determination, on the part of the offended party, that his paper shall die by the hands of those benevolent and patriotic citizens, who, in view of the results of their own handiwork, will tell us after the example of their leader, who glories in being no better than a negro, "nobody is hurt."

Evan's Rural Economist.

We have received the first number of this new paper, published by Dr. Edmund C. Evans at West Chester, Pa. Price of subscription $1, per annum.

Chester County, Pa., is well known as one of the richest and best farming districts in this whole country. A paper published in such a locality should, and doubtless will have the most abundant supply of material afforded for the support of a good Agricultural Journal, from the experience and skill of its own citizens. We wish this, and every other paper devoted to the interests of agriculture, the most unbounded success.

POTATO CUSTARD.—Ten potatoes boiled soft, six or eight eggs, sugar to your taste, one cup milk, quarter-pound butter, nutmeg, essence of lemon, brandy and wine to your taste. Mash the potatoes very fine.

Dipping up the Water.

Kneeling by the stream, I saw
Kate, the farmer's daughter,
Drinking—in her rosy palm,
Dipping up the water.

She had thrown her hat aside,
Bare were arm and shoulder;
Each unconscious charm displayed,
Made my love the bolder.

So I slowly, tenderly,
Went and knelt beside her,
Drank with her from out the stream—
Blushing Kitty Ryder.

And I said, "The poets tell us
Life is like a river;
Shall we not its waters sweet,
Always drink together?"

Many years have passed us by,
Like the flowing water;
But I drink life's stream to-day,
With Kate, the farmer's daughter.

CONTENTS.

THE SOUTHERN PLANTER

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ADVERTISING SHEET.

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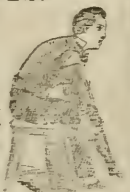

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July 59—1y

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July 59—1y

HOSPITAL FOR SLAVES.

This Hospital is situated near the corner of Main and 26th streets, and is admirably adapted in airness, privacy and healthfulness of position, to the purposes for which it has been instituted, namely: For MEDICAL, SURGICAL and OBSTETRICAL treatment of SLAVES. The rules and regulations governing this institution have already been published. A circular containing full particulars will be furnished those who may desire further information.

TERMS.—Patients per week, $5; less than a week, $1 per diem; *but the aggregate shall not exceed the charge for a full week.* Patients attending the daily examinations, (not fit subjects for HOSPITAL CONFINEMENT,) charged the regular fee adopted by the profession at large. The above charges include board medicine, medical attendance and nursing. Surgical operations charged according to rules of other Hospitals of the city. For further information apply to the Physician resident at the Hospital, or to either of the undersigned Physicians and Proprietors.

FRS. W. HANCOCK, M. D.,
Main st., bet. 3d and 4th, or No. 130 Main st.

ST. GEO. PEACHY, M. D.,
Exchange Hotel, or Grace st., bet. 5th and 6th.

R. S. VEST, M. D.,
Franklin Street, below Ballard House.

PHILIP S. HANCOCK, M. D.,
Resident Physician.

CYRUS BROOKS,
Resident Assistants.

July 60—1y

RHODES' SUPER-PHOSPHATE.

The Standard Manure.

FOR TOBACCO, COTTON, CORN AND WHEAT CULTURE, ROOT CROPS, &c.

Manufactured under the supervision of Eminent Manufacturing Chemists, and warranted "*pure and free from all adulteration.*"

B. M. RHODES & CO.,
Office 82 South Street, Bowly's Wharf, Baltimore, Md.

AGENTS IN VIRGINIA.

Richmond—SCHAER, KOHLER & CO,
Petersburg—VENABLE & MORTON.
" THOS. BRANCH & SONS.
Lynchburg—M. HOLLINS & CO.
Norfolk—B. T. BOCKOVER.
Alexandria—WM. H. MAY.
Fredericksburg—HUGH SCOTT.
Farmville—HOWELL E. WARREN.
Blacks & Whites—JEFFERSON & WILLIAMSON.
Clarksville—JAMES E. HASKINS.
Jan. 60—tf

FOR SALE.

I have for sale two YOUNG JACKS, one 5 and one 4 years old, trained to serve mares, and proved as foal-getters. For terms, visit or address

SHARPE CARTER,
Jeffress' Store, Nottoway County, Va.

Feb 61—4t

The former Firm of

GEO. WATT & CO.,

having been this, 22d day of December, 1858, dissolved, we have associated ourselves in business, under the firm of GEO. WATT & CO., for the purpose of making and selling the WATT

CUFF-BRACE PLOW,

With the

BREAST IMPROVEMENT

thereon, and the

HANOVER PLOW,

And shall keep constantly on hand a large assortment of these Plows, and Castings of these and other popular kinds, with Cultivators, Harrows, Corn or Tobacco Weeders, Hillside and Subsoil Plows, new ground Coulters, &c

All of which are made in our own Factory.

Also, Straw Cutters, Grain Cradles, Corn Shellers, Corn Planters, (Caldwell's make,) and a variety of other useful implements in our line, which we warrant to give satisfaction, or be returned. We solicit a call from the Agricultural Community, assuring them that our best efforts shall be used to give them superior aritcles.

GEO. WATT,
HUGH A. WATT.

Richmond, December 23, 1858.

Grateful for the patronage given me heretofore, I solicit a continuance of the same to the above firm; and will only add that having spent the better part of the last 16 years in making my Plow what it is, I pledge my best efforts still to improve it—having PATENT RIGHTS for the BREAST IMPROVEMENT and the HANOVER PLOW, secured November 1856 and February 1858. I will sell Rights to both in remote sections of this and other States on reasonable terms. The public are cautioned against infringements on these Patent Rights.

GEO. WATT, PATENTEE.

Richmond, January 1859.

SOUTH DOWN LAMBS
FOR SALE.

I have for sale several South Down Buck Lambs. My flock is now the finest in Tide Water Virginia. The Lambs are one-half, three fourths, seven eighths, fifteen-sixteenths, and thorough bred, and I sell them at ten, fifteen, and twenty dollars, according to purity of blood. I shall have not more than eight or ten for sale.

FRANK. G. RUFFIN.

April 60—tf

J. R. KEININGHAM,

DEALER IN

BOOKS AND STATIONERY,

211 Broad Street, between 4th and 5th,

RICHMOND, VIRGINIA.

March, 1859.

R. O. HASKINS,

Ship Chandler, Grocer and Commission Merchant,

In his large new building, in front of the Steamboat Wharf, ROCKETTS, RICHMOND, VA.

Sept 1859—1y

MITCHELL & TYLER,

DEALERS IN

Watches, Clocks, Jewelry, Silver and Plated Ware, Military and Fancy Goods.

RICHMOND, VA.

Cephalic Pills
CURE
Sick Headache
CURE
Nervous Headache
CURE
All kinds of
Headache.

By the use of these Pills the periodic attacks of *Nervous or Sick Headache* may be prevented; and if taken at the commencement of an attack immediate relief from pain and sickness will be obtained.

They seldom fail in removing the *Nausea* and *Headache* to which females are so subject.

They act gently upon the bowels,—removing *Costiveness.*

For *Literary Men*, *Students*, Delicate Females, and all persons of *sedentary habits* they are valuable as a *Laxative*, improving the *appetite*, giving *tone* and *vigor* to the digestive organs, and restoring the natural elasticity and strength of the whole system.

The CEPHALIC PILLS are the result of long investigation and carefully conducted experiments, having been in use many years, during which time they have prevented and relieved a vast amount of pain and suffering from Headache, whether originating in the *nervous* system or from a deranged state of the *stomach.*

They are entirely vegetable in their composition, and may be taken at all times with perfect safety without making any change of diet, *and the absence of any disagreeable taste renders it easy to administer them to children.*

BEWARE OF COUNTERFEITS!

The genuine have five signatures of Henry C. Spalding on each Box.

Sold by Druggists and all other Dealers in Medicines.

A Box will be sent by mail prepaid on receipt of the

PRICE 25 CENTS.

All orders should be addressed to

HENRY C. SPALDING,

48 Cedar Street, New-York.

April, 1861.

☞ A single bottle of "SPALDING'S PREPARED GLUE," for repairing Furniture, Toys, Crockery, &c., will save ten times its cost annually.

Dec. 60—ch2

RUFFIN'S

PHOSPHOR-PERUVIAN GUANO,

TOBACCO MANURE,

AGRICULTURAL SALT AND GROUND BONE ASH.

F. G. RUFFIN,

CORNER ELEVENTH AND CARY STREETS, ON THE BASIN,

RICHMOND, VA.,

Offers to the farmers the following MANURES, all of his own manufacture, viz:

RUFFIN'S PHOSPHOR-PERUVIAN GUANO,

Containing 8 per cent Ammonia, and 40 to 50 per cent Bone Phosphate Lime, per ton of 2,000 pounds, $50.

RUFFIN'S BONE ASH GUANO,

Containing 5 per cent Ammonia, and about 70 per cent Bone Phosphate Lime, per ton of 2,000 pounds, $50.

RUFFIN'S TOBACCO MANURE.

Containing 5 per cent Ammonia, 34 per cent Bone Phosphate Lime, 22 Chloride of Sodium, and 17 per cent Sulphate Lime, per ton o 2,000 pounds, $45.

RUFFIN'S GROUND BONE ASH,

Containing about 80 per cent Bone Phosphate Lime, dry and pure. per ton of 2,000 pounds, $35.

AGRICULTURAL SALT,

Loose in bags, per ton of 2,000 pounds, $11.

AGRICULTURAL SALT,

In bags, per to of 2,000 pounds, $13.

THE ABOVE MANURES are put up in strong bags, containing 167 pounds each, twelve bags of which make a fraction over a ton, and can be had of F. G. RUFFIN, at his mill, of any Commission Merchant in Richmond; of THOMAS BRANCH & SONS, Petersburg; M. HOLLINS & CO., Lynchburg; LEIGH & BROTHER, Norfolk; MASON, MARTIN & CO., Scottsville; JOHNSON, CLARKE & CO., Danville.

April 60—tf

SOMBRERO GUANO,

SOMBRERO GUANO AGENCY, 73 SMITH'S WHARF,
BALTIMORE, 8th October, 1860.

To Messrs. August & Williams:

I have just returned from Sombrero Island, and beg leave to say a few words in reference to the series of strictures upon Sombrero Guano, which have been published in your journal and in the "*Farmer*" during my five months absence. So long as honorable means are used to promote any opposing enterprise, I have not a word of complaint to utter; but when the proprietor of Navassa or other Guano, puts himself in opposition to our business upon premises which he has invented, and well knows to be utterly groundless, it becomes me to speak out and expose the fraud which is thus designed upon me and the public.

Sombrero Guano is not known for the first time to-day; for it was inaugurated in 1856, as an institution upon a solid basis. Then it was analyzed, and repeatedly since it has been analyzed by all the competent chemists in the United States, and by many abroad. In each instance, the result attested its pre-eminent richness in available phosphate. Years of practical experince in its use by planters, have further strengthened and established its claims to be "the" standard bone phosphate; and now at this day, it is well known, that those soluble or manipulated fertilizers, such as made by Fowle, Reese, and the Petersburg Company, into which it enters as material, enjoy a reputation, and exert an efficiency, which no competing compound has been able to accomplish without it. Thus it is that the real excellence, and high repute of our Guano, have provoked the jealousy of the proprietor of the Navassa, who seeks to divert attention from the intrinsic worthlessness of his own article, by decrying the Sombrero, with the hope of making a ruin of us upon which to build a success for himself. Thus it is too, that he has deemed it necessary to tip an inspiration to a collegiate chair to plead for Navassa, and against Sombrero Guano, so that by the prestige of such accidental position the words of the "*Professor*" may strike the unthinking and unsuspecting with a force of authority which is not justified by either their substance or their truth.

Now, with a profound reverence for science and its true followers, but contemptuous in my regard of those unscrupulous ones, who affect its accomplishments when they are ignorant of even its simplest rudiments, I protest indignantly against the unfairness of the publications in point.

But that the author may have the opportunity of vindicating himself before his profession and the public, if he can do so, I propose that his statements shall be submitted to a scientific tribunal of three persons, two of whom may be chosen by Mr. Cooper, the proprietor of the Navassa, leaving only one of the Chemists to be selected by our house. Premising that the whole expense of this commission shall be jointly incurred by Mr. Cooper and ourselves, I propose to prove before it in the most unqualified manner, upon a penalty of two hundred dollars, payable on default, to the Orphan Asylum of the City of Richmond.

AS TO NAVASSA GUANO,

1st. That Navassa Guano is nearly "dirt poor" as a fertilizer.

2d. That apart from its poverty in Bone Phosphate it is inferior in other respects.

3d. That Navassa Guano is inferior to "COPROLITES" for any and all of the purposes of a Phosphatic material.

4th. That the solubility of Navassa Guano under atmospheric influences is barely appreciable compared with that of Sombrero Guano.

5th. That Navassa Guano will not make either a Commercial or Agricultural Super-phosphate of Lime.

6th. That on account of the large proportion of Iron and Alumina which it contains, the Navassa might almost be considered a raw material for the manufacture of Copperas and Alum.

AS TO SOMBRERO GUANO,

1st. That Sembrero Guano is the most efficient and economical of the Phosphate Guanos.

2d. That it contains nearly twice the amount of actual Bone Phosphate that Navassa Guano does.

3d. That Sombrero Guano is not "*Coprolite*" nor of that species.

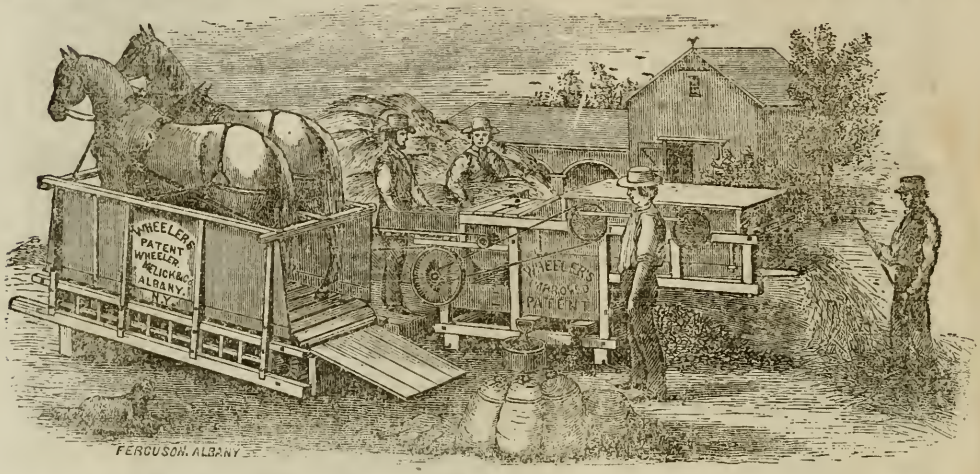
4th. That Sombrero Guano is a most serviceable material for Super-phosphate and Manipulating purposes.

5th. That Dr. Stewart's published statements in depreciation of Sombrero, compared with Navassa Guano, are incorrect in nearly every particular.

Believing that this is the fairest method of coming to the right of the contest imposed upon us, and in the hope that Mr. Cooper may respond manfully to this call, I ask that you will insert this paper as a communication, and oblige

Dec. '60—6mo Your obedient servant, **ANDREW C. ELLIOTT.**

NEW YORK STATE
AGRICULTURAL WORKS,



WHEELER, MELICK & CO.,
PROPRIETORS, ALBANY,

MANUFACTURE WHEELER'S PATENT RAILWAY CHAIN

HORSE POWERS,

(FOR 1 OR 2 HORSES.)

PLANTATION HORSE POWERS,

(4 HORSE, OR 6 MULE, LEVER,)

WHEELER'S (IMPROVED) PATENT COMBINED THRESHER AND WINNOWER

(No. 1, 30 INCH, and No. 2, 26 INCH CYLINDERS,)

OVERSHOT THRESHER AND SEPARATOR, and other Farming Machines for Horse Power Use.

The subscribers are inventors of all the above Machines, and give their entire attention to the manufacture of them; and having had the longest and largest experience of any firm in this business, feel warranted in saying that their MACHINES ARE UNEQUALLED. They call especial attention to their **IMPROVED THRESHER AND WINNOWER**, of which over 400 were sold in 1860, satisfying all purchasers of their superiority and economy, for THRESHING, SEPARATING AND WINNOWING, AT ONE OPERATION.

CIRCULARS, containing list of PRICES, and FULL DESCRIPTION and CUTS of each MACHINE with statements of their capacities for work, will, on application, be sent by mail, postage free.

☞ Liberal discounts are made to dealers.

RESPONSIBLE AGENTS are wanted in sections where we have none. Address

WHEELER, MELICK & CO.,

May, 1861. ALBANY, N. Y.

DRAINING TILE.

"MARYLAND TILE AND FIRE-BRICK WORKS,"

SOUTH SIDE OF BASIN,

Office Corner of Pine and Lexington Sts., Baltimore, Md.

The subscribers have constantly on hand any quantity of DRAINING TILE, of the most improved patterns, which they will dispose of at low rates.

HORSE SHOE TILE.		SOLE TILE.	
1½ inch bore,	2½ inch bore,	1½ inch bore,	2½ inch bore,
3 " "	4 " "	3 " "	4 " "

July 60—tf

LINTON, RITTENHOUSE & CRAWFORD.

MANIPULATED GUANO! MANIPULATED GUANO!

We offer to the Planters of Virginia a Guano prepared by us as follows:

1000 lbs. of the best Peruvian Guano that can be procured;

800 lbs. of the best Sombrero Guano, containing *full* 80 ℔ cent of the Phosphate of Lime.

200 lbs. of the best Ground Plaster, for which we pay $2 ℔ ton extra.

Planters and others are invited to examine the article. From the best information we can obtain, we believe the mixture is one of the best that can be prepared for the Virginia lands.

Price to Planters, $48 ℔ ton, or $2 ℔ ton less, where they furnish bags.

For sale by EDMOND DAVENPORT & CO.

Also for sale by Commission and Grocery Merchants in this City.

We refer to Planters who have used the Sombrero and the Manipulated Guano—among them James Galt, Esq., A. Warwick, Esq., Joseph Allen, Esq., R. H. Styll. Esq., and others.

Below we give D. K. Tuttle's (Chemist at University of Virginia) report of the same, samples from 72 bags, *and it shall be kept to that standard.*

"I am now able to give you the results of analysis. They show the Mixture to be what you stated in a former letter, and I judge that you are very fortunate in the selection of materials, especially of Peruvian Guano. The per centage of Ammonia shows the pure Peruvian to contain 12·4 per cent., which is more than the average. The Analysis is as follows:

Moisture (given off at boiling point of water,)	10.05
Phosphate of Lime,	48·26
Sulphuric Acid, 5.45 } Lime, 3.64, }	9.09
Ammonia,	6.20
Insoluble Matter,	1.55
A small quantity of Alkali—undetermined. } Water in combination and *Organic Matter*, }	24.85
	100.00

Hoping that your Fertilizer may meet with the success which it deserves,

I remain, very respect yours,

Jan—tf D. K. TUTTLE."

CO-PARTNERSHIP NOTICE.

I have this day admitted as a partner, Mr. JOHN N. JENNINGS. The business will in future be conducted at my old stand, No. 118 Main Street, under the firm and style of SAMUEL S. COTTRELL & CO., where we have on hand a fine assortment of Saddles, Bridles, Whips, Carriage, Cart and Wagon Harness, of every description and quality, and will continue to manufacture to order and for sale, every class of goods in our line.

There was awarded me at the United States Fair last Fall, three silver Medals for SUPERIOR SPECIMENS OF WORKMANSHIP; since which time our facilities have greatly increased, and we now flatter ourselves that we can furnish every article in our line, not to be surpassed in quality, and at as low prices as any other establishment in this country.

I beg leave to return my sincere thanks to my old friends and the public generally for the liberal patronage heretofore bestowed upon me, and respectfully solicit a continuance of the same to the new concern, pledging ourselves to use our utmost endeavors to please our friends and patrons.

Feb 1859- ly SAMUEL S. COTTRELL.

BUCKEYE MOWER AND REAPER.

BUCKEYE MOWER AND REAPER.

(SEE PRECEDING PAGE.)

We would respectfully call the attention of the farming community to the above named Machine, as one superior, in every respect, to any machine in use.

We are largely engaged in the manufacture of them for the coming harvest, and would recommend all in want of a *Mower* or *Reaper*, or a *Combined Machine*, to give the BUCKEYE a trial.

It has many advantages over any other machine, among which are *Two Driving Wheels*, *Double Hinge Finger Bar*, which also, in the Mower, is a *Folding Bar*, and has a lever attached to it by which the driver can, with one hand, while on his seat, raise both ends of the Bar from the ground to the height of 12 to 18 inches.

The Reaping attachment is made perfect in itself, cutting a swath of six feet, and does not have the platform attached to a Mower Bar as is the case with other combined Machines. It is made side or rear delivery, can be worked with or without the Reel, and the platform can be turned up to pass through gates or bars.

The BUCKEYE, during the few years it has been in existance, has received more premiums than any other Machine. It can be worked, with a single pair of horses, through the harvest.

The BUCKEYE is entirely free from *Side Draft*, and has no weight on the *tongue or the horse's neck*. The Draft is lighter than ordinary plowing.

Please call or send for a Circular containing full particulars, testimonials, price, terms, &c.

We also manufacture the celebrated *Geiser Threshing, Cleaning and Bagging Machine*, *Plain Threshing Drums*, *Horse Powers*, *Iron Beam Plows*, and other agricultural implements.

JOHN W. CARDWELL & CO.,

March 61—4t Cary Street, Richmond, Va.

ROUTT'S SOUTHERN CORN PLANTER,

WITH GUANO ATTACHMENT.

ROUTT'S IRON DOUBLE SHOVEL AND COULTER PLOW.—
ROUTT'S PREMIUM PATENT DRAIN PLOW.—
ROUTT'S TOBACCO CULTIVATOR.

I desire to call the attention of Farmers to the above Implements, which I am manufacturing with the utmost care, both as regards material and workmanship, and I can confidently recommend them, backed by the most reliable farmers of the State, as being all they are represented.

My Southern Corn Planter with Guano Attachment is the only reliable implement of the kind offered to the public, and gives entire satisfaction. My Iron Double Shovel Plow has two points, and they may be substituted with Coulters. It runs more beautifully than any other Shovel Plow, and has given more universal satisfaction than any Plow I have ever sold.

My Patent Drain Plow has no rival for making Surface Drains and Water Furrows. It makes at once running a complete furrow, not liable to fill by frost. It is a great labor-saving machine.

For premiums on all the above see Agricultural Society Reports for the last five years.

All kinds of Agricultural Implements made and supplied on short notice.

Thanking the public for past liberal patronage, I solicit a continuance of the same.

☞ Orders promptly attended to.

March 61—3t **A. P. ROUTT,** Somerset, Orange Co., Va., Jan. 10, 1861.

THE SOUTHERN PLANTER,

OFFICE---NO. 148 MAIN STREET.

A FEW DOORS BELOW THE EXCHANGE BANK,

RICHMOND, VIRGINIA.

PAINTS. PAINTS. PAINTS.

PURCELL, LADD & CO.,

DRUGGISTS,

No. 122 Main Street, corner 13th, **RICHMOND, VIRGINIA,**

Offer at low prices, a large and well assorted stock of articles in their line—embracing

PAINTS, COLORS, VARNISHES, OILS, &C.

LEWIS' WHITE LEAD,
NEW J. WHITE ZINC, Horsehead brand,
CHROME GREEN,
VERDIGRIS,
TERRA DI SIENNA,
LINSEED OIL,
MACHINE OIL,
PARIS GREEN,
CHROME YELLOW,
TURKEY UMBRE,
LAMP OILS,
SPTS. TURPENTINE.

All Colors for Painters, Coach Makers, and others, Dry and in Oil, Paint Brushes, Sand Paper, and a very large stock of best

WINDOW GLASS,

Comprising nearly every size made. We are also prepared to take orders for Imported

Polished Plate, Sky Light and Ornamental Glass.

☞ Particular attention to packing and forwarding all goods—and the quality warranted.

PURCELL, LADD & CO, *Druggists*,
June 1858. 122 Main Street, Richmond.

WM. L. HILL, N. M. NORFLEET.

HILL & NORFLEET,

GENERAL COMMISSION AND FORWARDING

MERCHANTS,

OFFICE---SHOCKOE SLIP,
RICHMOND, VIRGINIA.

AGENTS FOR

FOWLE & CO.'S

SOLUBLE PHOSPHATED PERUVIAN GUANO.

Oct 60—1y

1853. GEORGE STARRETT 1860.

Has in store his Fall Stock, comprising 284 varieties and sizes of STOVES, RANGES and FURNACES, many of them new and desirable articles, of his own make. He is also prepared to supply Northern Stoves at Wholesale or Retail, having contracted early in the season for two entire cargoes of the very best made in this country, at lower prices than the same goods can now be obtained. Also, Pumps and Pipe of all kinds, Plumbing, Gas Fitting and Tin work done in the best manner and cheap. Extra castings always on hand.

GEORGE STARRETT, Belvin's Row,
Oct 60—1y Governor Street, Richmond, Va.

HIGHLY IMPROVED BREEDING STOCK.

After a long and extensive acquaintance with the relative advantages of various breeds of horses for general purposes, I have no hesitation in breeding altogether of the Morgan stock, and have owned Black Hawk and his son Post Boy for eighteen months. The first was sired by the famous Black Hawk, the best grand-son of Justin Morgan. They will stand at my stable, or I would sell Post Boy, having use myself for but one.

I am breeding Short Horn Cattle, and have now and usually have, young bulls and bull calves for sale, and calves of both sexes, nearly thorough bred, which I will only recommend where suited to go and worthy. Also a well-bred Devon Cow, and her Heifer, nearly two years old. I will sell low.

I raise only the Chester County Hogs, (white,) and sell the best pigs at weaning time or older. They are unquestionably the best hogs I am acquainted with, and their cross for pork or native sows is probably equal to full bred.

They, as well as my cattle and horses, have rarely failed to take first premiums in their classes at our Fairs. For particulars address me.

April 61—6mos. **S. W. FICKLIN,** Belmont, near Charlottesville, Va.

GUANO!

We would call the attention of Guano Dealers, Planters, and Farmers, to the article which we have on hand and for sale at

40 PER CENT LESS THAN PERUVIAN GUANO,

which we claim to be superior to any Guano or Fertilizer ever imported or manufactured in this country.

THIS GUANO IS IMPORTED BY

WM. H. WEBB, OF NEW YORK,

FROM

BAKER'S AND JARVIS' ISLANDS, IN THE SOUTH PACIFIC OCEAN.

Sold genuine and pure as imported by the Cargo, or at retail, by

JOHN B. SARDY, General Agent,
No. 58 South Street, Corner of Wall Street, New York.

It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent and popular Agricultural Chemists, including Professor Liebig of Germany, extracts of whose report and analysis are to be seen below, and found to contain (as will be seen by our circular) over 80 per centage of

PHOSPHATE OF LIME,

and other animal organic matter, yielding ammonia sufficient to produce immediate abundant crops, besides substantially enriching the soil. It can be freely used without danger of burning the seed or plant, by coming in contact with it, as is the case with some other Fertilizers; retaining a great degree of moisture, it causes the plant to grow in a healthy condition, and as experience has proved, **FREE OF INSECTS.**

For orders in any quantity, (which will be promptly attended to,) or pamphlets containing full particulars of analyses and tests of Farmers, apply as above.

Prof. Liebig says, under date—July 1860—The Baker's Island Guano contains more *Phosphoric Acid* than any other known fertilizer * * * * I regard the discovery of these Guano deposits as a most fortunate event for agriculture * * * * The Phosphate of Lime in the Baker's Island Guano is far more easily dissolved than that of bones * * * * *Agriculturists would be benefitted as much by using* 70 *pounds of Baker's Island Guano as by* 100 *lbs. of Bone Dust* * * * * The Jarvis Island Guano would seem to be an excellent means of restoring cotton or sugar plantations, whose soil has been worn out by long continued cultivation. *I think it is preferable to Peruvian Guano,* which being rich in Ammonia, tends rather to great development of leaves and stems.

Oct 60—1y

FOWLE & CO.'S

SOLUBLE PHOSPHATED

PERUVIAN GUANO.

MADE OF GUANOS OF

DIRECT IMPORTATION,

Under the personal supervision and direction of Dr. R. H. STABLER, Chemist, of this City.

THIS FERTILIZER we confidently recommend, as the most permanent and cheapest yet offered to the public. Being composed of

NO. 1 PERUVIAN AND SOMBRERO GUANOS

OF OUR OWN

DIRECT IMPORTATION,

FROM THE

CHINCHA AND SOMBRERO ISLANDS,

WE WARRANT IT IN EVERY RESPECT.

THE SOMBRERO GUANO

Before being mixed, is rendered *immediately soluble*, by the addition of Sulphuric Acid. This treatment is universally recommended by the most eminent Agricultural Chemists. Without it, the action of the two Guanos, when mixed, is not simultaneous, and consequently comparatively inefficient.

This is the ONLY mixture of the Ammoniated and Phosphatic GUANOS we know of, yet offered to the Agricultural Community, in a REALLY SOLUBLE form.

Price, $50 per Ton of 2.000 lbs.

Our reports from those who applied the above FERTILIZER to their crops last fall, are *highly satisfactory*—so much so, indeed, as to convince us that our *Soluble Phosphated Peruvian Guano* will ere long be altogether used in this section, as a substitute for the Peruvian Guano, which, *without the addition of Phosphates*, tends rather to exhaust than permanently improve the soil.

FOWLE & CO.,

ALEXANDRIA, VA

May 60—tf.

SULTAN.

THIS BEAUTIFUL THOROUGH BRED YOUNG STALLION AND SURE FOAL GETTER, Now seven years old, will stand this, his third season, at Hanover C. H. and at Dr. John G. Lumpkin's, head of Mechanicsville Turnpike, and will be let to mares at $20 the season, discharged by the payment of $18 before the first day of July; $10 cash the single leap, and $30 insurance, and $1.00 to the groom; parting with the mare forfeits the insurance. Season commencing the 1st day of March, and ending 30th of June.

DESCRIPTION.

SULTAN is a dark brown, having no white about him; he is a horse of fine size, fully 5 feet 3 inches high, with great power and substance: his shoulder, the most material part of the horse, is strikingly distinguished, being very deep, fairly mounting to the top of the withers, and obliquely inclined to the hips; his girth is full and deep, back short and strong, thighs and arms long and muscular, his bone good, his head and neck well formed, the latter rising well out of his withers. Take him as a whole, he is a horse of more power and substance than is usually found in a thorough-bred. He was trained when two years old, and was thought to be very fast, but received an injury a few days before he was to have run

PEDIGREE.

SULTAN was bred by James Lyons, Esq., of Richmond, and was gotten by the celebrated Race Horse and Stallion, Revenue; his dam by imported Trustee; his grand dam by Timolean; his great grand by Tom Tough, and was the full sister to the dam of Tally Ho. BILLEY W. TALLEY.

April 61—2t.

THE GREAT SOUTHERN

Hat and Cap Manufactory and Depot.

JOHN DOOLEY,

No. 81, *Main Street, Richmond Va.*

MANUFACTURER of HATS and CAPS on the largest scale, and in every possible variety, and Importer of North American and European FURS, HATS, CAPS, PLUSHES, TRIMMINGS, and all other articles belonging to the Trade, is always supplied with a splendid stock of Goods, for Wholesale and Retail, which in quality and quantity cannot be excelled by any other house in the South. His manufacturing arrangements are of the completest kind, and his facilities for supplying country merchants a the shortest notice cannot be surpassed.

July 1858—1y

THE

SOUTHERN PLANTER,

OFFICE

NO. 148 MAIN STREET,

A few Doors below the Exchange Bank,

RICHMOND, VA.

ALEXANDER GARRETT,

Cary Street, second door below 13th street, Adjoining the Old Columbian Hotel,

RICHMOND, VA.,

GENERAL COMMISSION MERCHANT,

AND DEALER IN

GROCERIES,

PERUVIAN, ELIDE ISLAND, AND RUFFIN'S PHOSPHO GUANO, PLASTER, &C.

Particular attention paid to the sale of all kinds of country produce:

Wheat, Corn, Flour, Tobacco, Oats, &c.

I have made arrangements with Mr. JNO. M. SHEPPARD, Jr, one of the best judges and salesmen of TOBACCO in this city, to attend to the sale of all tobacco consigned to me. July 59—1y

PURE BRED STOCK FOR SALE.

Pure Bred Durham Cattle, from $50 to $200.
Spanish Merino Sheep, and French Merino Sheep, at $10 to $30
Madagascar Rabbits at $10 per pair.
Improved White Pigs, at $8 each.
Brood Mares, served by "Bush Messenger," Morgan, Messenger and Basham, at $125 $300.
Stallions from colts to well broke and trained animals, from $75 to $600

All animals sold will be carefully boxed or haltered, and placed at the Express office.

My residence is 4½ miles east of Brownsville, Fayette County, Pa.

POST OFFICE BOX No. 6.

JOHN S. GOE.

Feb 60—1f

WM. P. LADD,

No. 319, head Broad Street, Shockoe Hill,

RICHMOND, VA.

Wholesale and Retail Detail Dealer in English, French and American

DRUGS, MEDICINES, CHEMICALS,

Paints, Oils, Varnishes and Dye-Stuffs; Window Glass Putty, Glue and Sand Paper; Paint, Camel's Hair and Whitewash Brushes; Cloth Hair, Flesh, Nail and Tooth Brushes.

Fine and Choice Perfumery, Fancy Goods,

PURE LIQUORS AND WINES,

For Medicinal and Sacramental Purposes.

Surgical Instruments, Trusses, Shoulder Braces, Supporters, &c.

Landreth's Celebrated Garden Seeds,

In great variety. Also,

DRS. JAYNES' AND ROSE'S

FAMILY MEDICINES,

MEXICAN MUSTANG LINIMENT.

Together with all the most popular PATENT AND BOTANICAL MEDICINES, direct from the Proprietors.

Orders from Country Merchants and Physicians thankfully received and promptly attended to.

☞ All articles from this Establishment are warranted pure, fresh and genuine. dec 58—1y

SOMBRERO GUANO.

OCTOBER, 1860.

Attempts having been made, recently, to depreciate the enviable character of SOMBRERO GUANO as a fertilizer, by partisan and untruthful publications, the Proprietors beg leave to submit to the Agricultural community, the annexed portion of a letter from the most authentic chemical source in the United States, setting forth the REAL facts of the case upon the only reliable basis, that of an analytical examination of the several Phosphatic Guanos in Commerce. The data obtained by Dr. Morfit are incontrovertible, and not only attest the superiority of SOMBRERO GUANO, as the richest and most efficient Phosphatic Manure, but are suggestive also of the futility of any attempt to bring the Navassa or other similar Guano into successful competition with it. Orders received by ROSS W. WOOD & SON, New York,

Or, ANDREW C. ELLIOTT & CO., Baltimore.

EDMOND, DAVENPORT & CO., AGENTS, Richmond, Va.

CHEMICAL LABORATORY, No. 19 East 12th Street,
NEW YORK, 21st March, 1860.

Messrs. Patten & Miller, and
E. C. Wade & Co., Savannah, Georgia:

Gentlemen—In reply to your joint letter of 9th February, requesting my professional opinion upon certain points of Agricultural interest, and which more immediately concern you as honorable dealers in Fertilizers, I have given the subject its due consideration, and now submit my report.

1. Your first question, as to the rank which belongs, properly, to SOMBRERO GUANO, compared with the Phosphatic Guanos from Navaza, Jarvis and Baker's Islands, will be best answered by the annexed table, which shows their relative composition. Baker's Island Guano is omitted, however, from the comparison, for the just reason, that no cargo has been imported, it being known here, at this time, only by sample.

CONSTITUENTS.	Sombrero.	Navaza.	Jarvis Island.
Water	3.52	2.20	8.17
Sand and Silica,	.68	5 60	.16
Organic matter, insoluble,	....	1.48	.81
Organic matter, soluble,	5 36	10.20	5,77
Fluorid Calcium,	....	Traces.	Traces.
Sulphate Lime,	.86	2.49	44.81
Lime, (with Organic Acids,)	6.97	12 47	....
Carbonate Lime	5.34	2.00	....
Bone Phosphate Lime	64.67	37.72	13.33
Common Phosphate Lime,	....	....	25.94
Phosphates Magnesia,	2.39	2.70	.84
Phosphate Alumina,	3.62	10.56	....
Phosphate Iron,	1.95	2.20	....
Chlorid Sodium,	....	Traces.	.19
Chlorid Potassium,	.09	....	....
Silicate Potassa and Lime,	.76	....	....
Oxide Iron,	1.10	3.50	Traces.
Alumina,	3.13	7.04	.63
Total	100.44	100.06	100.65

COMMERCIAL AND AGRICULTURAL EXPRESSION.

Actual Bone Phosphate,	67.96	40.44	44.73
Or,			
Calculated Bone Phosphate,	73 78	50.76	44.73

All the analyses were conducted with the rigid care of a scientific investigation. The samples employed were also of assured integrity. *The Navaza was obtained directly from the State Inspector of Maryland, as an average of six ca goes imported in* 1859*; consequently, the eighty and odd per cent of Bone Phosphate claimed for it in circulars and advertisements are a fabulous estimate, or else were deduced from extraordinary samples.* Jarvis Island Guano is represented by an average of the "Henry Brigham's" cargo, which is the best of the kind that has come under my observation. The Sombrero sample was also a fair average of several cargoes, and from a reliable source.

In the Commercial and Agricultural expression for the several Guanos, as above noted, I have distinguished the Phosphoric Acid, which exists in combination with Lime and Magnesia, as ACTUAL Bone Phosphate, while I give the title of CALCULATED Bone Phosphate to the actual phosphate, conjointly with that portion of Phosphoric Acid present in the Guanos as Phosphate of Alumina and Phosphate of Iron, because the equivalent of the latter in Bone Phosphate Lime is determined by calculation. The Alumina and Iron Phosphates, it may be proper to add, though of value in the fertilization of soils, are, in degree, inferior, for that purpose, to actual Bone Phosphate Lime. With this explanation, it will be evident, then, from the Table, that *precedence belongs to Sombrero Guano,* not only because of its *very much greater richness in Phosphoric Acid,* but also for the reason that nearly the whole of that constituent occurs in the Guano as ACTUAL Bone Phosphate of Lime. Moreover, Sombrero Guano is characterized by much uniformity of dryness and composition, as well as *by a very limited amount of matters which would be valueless to crops.*

2. The presence of oxide of Iron is detrimental to a fertilizer, when the proportion may be excessive and in indissoluble combination. But these conditions do not pertain to *Sombrero Guano;* for it holds only a small quantity of iron, and will yield with sufficient readiness to the solvent power of atmospheric agencies in the soil. I base my judgment upon a large, Laboratory experience with this Guano.

And I may remark, further, that the idea of its being deficient in capacity for making Superphosphate, as pronounced by others, is founded in ignorance of the true nature of the Guano. Indeed, with the proper knowledge, a Super-phosphate of the highest fertilizing efficiency can be made from it at a reasonable economy of cost. * * * * * *

Respectfully yours,

Oct 60—tf CAMPBELL MORFIT.

SOMBRERO GUANO.

OCTOBER, 1860.

The proprietors of Sombrero Island fully confident that this locality is the richest known source of Phosphatic Guano, have established a Laboratory on the spot, and appointed a resident chemist, with strict instructions to select all cargoes by preliminary assays prior to their shipment from the Island, so that all Guano exported from the Island shall be of the standard of 70 to 80 per cent bone phosphate of lime. Cargoes of late importation have been, and those to arrive hereafter will be of that standard, and in order to give the consumers of Sombrero Guano the best advantages of the deposit a higher grade will be fixed as soon as arrangements can be completed for developing its still richer portions. It is the determination of the proprietors not only to maintain the present superior character of their Guano, but to increase its value by sending it ere long into market with a per centage of Bone Phosphate of Lime, even greater than that by which it now excels every other phosphatic material.

The following analysis by Drs. Piggot and Pitt represent several cargoes of late importation:

1860.							
June 22nd,	cargo	Champion,	by Dr. Piggot,	70.00	Bone	Posphate	of Lime.
June 28th,	do	do	by Dr. Pitt,	72.67	do	do	do
June 25th,	do	Golden Rod,	by Dr. Piggot,	73.02	do	do	do
June 28th,	do	do	by Dr. Pitt	70.20	do	do	do
July 25th,	do	St. Mary,	by Dr. Piggot,	74.62	do	do	do
June 28th,	do	do	by Dr. Pitt,	70.96	do	do	do
July 25th,	do	D. H. Baldwin,	by Dr. Piggot,	71.61	do	do	do
Aug. 22nd,	do	Sequine,	by Dr. Pitt,	74.64	do	do	do
Aug. 22nd,	do	do	by Dr. Piggot,	79.06	do	do	do
Aug. 22nd,	do	Ianthe,	by Dr. Pitt,	74.88	do	do	do
Aug. 22nd,	do	do	by Dr. Piggot,	78.72	do	do	do

Orders received by **ROSS W. WOOD & SON, 90 Front Street, New York.**

Or, **ANDREW C. ELLIOTT & CO., 73 Smith's Wharf, Baltimore.**

EDMOND, DAVENPORT & CO., AGENTS, Richmond, Va.

Oct 60—tf

CITY SAVINGS BANK OF RICHMOND.

Chartered in 1839.

Capital, - - - $100,000.

HORACE L. KENT, PRESIDENT.

N. AUGUST, *Cashier.*

W. GODDIN, *Secretary.*

This *old*, *well-known*, and *prompt-paying* Institution continues to receive deposites, on which interest is paid (semi-annually if desired,) at the rate of 6 per cent. per annum on sums remaining on deposite six months or longer, and at the rate of 5 per cent. for shorter periods.

OFFICE, No. 148, *Main Street.* Jan 61—tf

BLACK HAWK,

THE PROPERTY OF R. H. DULANY,

Will stand at Webourne, near Upperville, Loudoun County, Virginia, at thirty dollars the season, fifty dollars to insure and fifty cents to the groom. Pasturage, &c., at usual prices. Every care taken of mares sent from a distance, but no responsibility for accidents. All bills due at the close of the season

BLACK HAWK is a beautiful black, stands fifteen hands three inches high, has fine muscle, strong bone, good action, great endurance, and is perfectly docile.

Black Hawk is out of a well bred English mare and by Sherman Black Hawk, sometimes called the Morick Horse. Sherman Black Hawk by Hill's old original Black Hawk.

BLACK HAWK'S Colts are very large for the breed, many of them being sixteen hands high. They have been shown at the "Upperville Club for the improvement of horses" at the Leesburg Fair and the last Fair of the State of Virginia and Central Societies, and have *never been beaten.*

Two of BLACK HAWK'S Colts, Walter Morgan and Lady May, took both the purses for colts at the last State Fair, Lady May trotting her mile very easily in 2m. 54½s. Fifteen hundred dollars was offered and refused for each of these colts.

Feb 61—3t

SEPTEMBER 1st, 1860.

I have a large number of Farms for Sale in different parts of Virginia. With some of these Farms the negroes, stock, &c., will be sold. Those wishing to purchase in any portion of Virginia will be furnished descriptive letters, by enclosing me a stamp. When negroes are sold one per cent will be charged the purchaser. I. I. HITE, Land Agent.

I solicit business in any capacity an agent may be wanted. I refer to Messrs. Williams & August, Richmond, Va. Other references given if desired. I. I. H.

ARRINGTON DEPOT, NELSON COUNTY, VA. Oct 60—tf

IMPROVED STOCK FOR SALE.

South Down Bucks, 2 years and 1 year old. Devon Bulls, 4 years old, and Bull calves. Colts by Kossuth, 4 years and 3 years old, *unaltered.* A Morgan, 3 years old, *unaltered* Morgan, Voltaire, and John Henry colts, 3 years old geldings. Morgan fillies, 4 years old and 2 years old.

I will sell any of the above stock at moderate prices, deliverable at Gordonsville, Orange County.

The colts and fillies are out of fine mares.

April 61—4t R. BARTON HAXALL, Richmond, Va.

RICHMOND FERTILIZER MANUFACTURING MILLS!

ROCKETTS, RICHMOND, VA.

S. HARTMAN, GENERAL AGENT,

OFFERS FOR SALE

EXTRA FINE BONE DUST,

HARTMAN'S AMMONIATED SUPER PHOSPHATE OF LIME,

HARTMAN'S IMPROVED MANIPULATED GUANO,

Adapted to WHEAT, CORN, OATS, TOBACCO, COTTON, and all Vegetables and Grasses.

☞ **THESE MANURES ARE WARRANTED GENUINE.** ☜

The BONE DUST is made of Bones in their Natural State, with all their organic matter.

SUPER PHOSPHATE OF LIME is manufactured from Crushed Bones, which also have all their organic matter.

IMPROVED MANIPULATED GUANO is composed of one half Best Phosphatic Guano, decomposed by Sulphuric Acid, the balance of the Best Peruvian.

To be had at the MILLS, or of Messrs. WOMBLE & CLAIBORNE, BLAIR & CHAMBERLAYNE, ALEX. GARRETT, Richmond; D. GRIGG, Esq., Petersburg, and Messrs. GUY & WADDELL, Staunton. April 60—tf

Seeds! Seeds! Seeds!

GARDEN, VEGETABLE, GRASS AND FLOWER SEEDS, OF EVERY DESIRABLE VARIETY.

PRICED CATALOGUES SENT FREE BY POST, ON APPLICATION.

No. 1.—Descriptive List of Flower Seeds, Horticultural Implements, etc.,
No. 2.—Vegetable, Grass, Herb and Miscellaneous Seeds.
No. 3.—Wholesale price list of Vegetable Seeds, &c., for Dealer's use.

ALFRED BRIDGEMAN,

March 61—3t No. 876 BROADWAY, NEW YORK CITY.

CONCORD GRAPE VINES.

The subscriber has a choice stock of Concord Grape Vines, from one to four years old, at very low prices, all grown from Vines obtained from the originator of that variety in 1854, and are warranted genuine. For the table, wine and market, no other grape can be compared to the Concord. It ripens in any latitude South of Montreal, Canada, improves as it goes South, and is ranked far superior to the Delaware, and other popular varieties, as a *market* and *wine* grape, by those who fully understand its good qualities.

Circulars giving full details of juices, proofs of the great value of this grape, &c., will be sent to all applicants who enclose a postage stamp. Address

April 60—tf. T. B. MINER, Clinton, Oneida county, N. Y.

FOR SALE.

A Slendid young thoroughbred STALLION, three years old, 15¾ hands high, well made, with good bone and muscle, fine carriage, and promises to trot well; has taken several *first premiums*, at the Valley Agricultural Fair, at Winchester. His colour is a beautiful bay, with black legs, mane and tail, and star in his forehead.

Enquire at the Southern Planter Office for Pedigree and full particulars. April, 1861—3t

HOMES FOR THE INDUSTRIOUS,

IN THE

GARDEN STATE OF THE WEST.

THE ILLINOIS CENTRAL RAILROAD CO., HAVE FOR SALE

1,200,000 ACRES OF RICH FARMING LANDS,

IN TRACTS OF FORTY ACRES AND UPWARD,

ON LONG CREDIT AND AT LOW PRICES.

THE attention of the enterprising and industrious portion of the community is directed to the following statements and liberal inducements offered them by the

ILLINOIS CENTRAL RAILROAD COMPANY,

which, as they will perceive, will enable them, by proper energy, perseverance and industry, to provide comfortable homes for themselves and families, with, comparatively speaking, very little capital.

LANDS OF ILLINOIS.

No State in the Valley of the Mississippi offers so great an inducement to the settler as the State of Illinois. There is no portion of the world where all the conditions of climate and soil so admirably combine to produce those two great staples CORN and WHEAT, as the Prairies of Illinois.

EASTERN AND SOUTHERN MARKETS.

These lands are contiguous to a railroad 700 miles in length, which connects with other roads and navigable lakes and rivers, thus affording an unbroken communication with the Eastern and Southern markets.

RAILROAD SYSTEM OF ILLINOIS.

Over $100,000,000 of private capital have been expended on the railroad system of Illinois. In such a part of the income from several of these works, with a view to the public funds in lands, go to diminish the State expenses; THE TAXES ARE LIGHT, and must consequently very long remain so.

THE STATE DEBT.

The State debt is only $10,106,308 14, *and within the last three years has been reduced* $2,959,748 80, *and we may reasonably expect that in ten years it will become extinct.*

PRESENT POPULATION.

The State is rapidly filling up with population; 868,025 persons having been added since 1850, making the present population 1,723,665, a ratio of 102 per cent. in ten years.

AGRICULTURAL PRODUCTS.

The Agricultural Products of Illinois are greater than those of any other State. The products shipped during the past year exceeded 1,500,000 tons. The wheat crop of 1860 approaches 35,000,000 bushels, while the corn crop yields not less than 140,000,000 bushels.

FERTILITY OF THE SOIL.

Nowhere can the industrious farmer secure such immediate results for his labor as upon these fertile soils, the whole being composed of a deep rich loam, the fertility of which is unsurpassed by any on the globe.

TO ACTUAL CULTIVATORS.

Since 1854 *the Company have sold* 1,3[illegible],000 *acres. They sell only to actual cultivators, and every contract contains an agreement to cultivate. The road has been instrumental in settling these lands at an expense of* $[illegible],000. *In* 1853 *the population of forty-nine counties, through which it passes, was* 851,[illegible], *since which* 479,246 *have been added; making the present population* 814,811, *a gain of* 143 *per cent.*

EVIDENCES OF PROSPERITY.

As an evidence of the thrift of the people, it may be stated that 600,000 tons of freight including [illegible] of grain, and 250,000 barrels of flour were forwarded over the road last year.

PRICES AND TERMS OF PAYMENT.

The prices of these lands vary from $[illegible] to $[illegible] per acre, according to location, quality, &c. First class farming lands are sold for about $[illegible] per acre, and the great majority of the offerings are within the reach of the means of the farmer. The terms of sale for the bulk of these lands will be

ONE YEAR'S INTEREST IN ADVANCE.

at six per cent. per annum, and six annual payments of one-sixth each, payable respectively in one, two, three, four, five and six years from date of sale; and four notes for the deferred payments, payable in four, five, six and seven years from date of sale, shall be executed and delivered at the time of each purchase. Contracts stipulating that a certain number of acres shall be fenced and cultivated every year, for four years from date of sale, so that at the end of that time one-half shall be fenced and under cultivation,

TWENTY PER CENT. WILL BE DEDUCTED

from the value for cash, [illegible] per cent. when the [illegible] hours per acre, when the [illegible]

Pamphlets descriptive of the lands, soil, climate, productions, prices, and terms of payment, and maps showing location to

J. W. FOSTER,

Land Commissioner, Illinois Central Railroad,

CHICAGO, ILLINOIS.

For the name of the Towns, Villages and Cities situated upon the Illinois Central Railroad, see page [illegible] of the Appleton's Railway Guide.

Gaylord
PAMPHLET BINDER
Syracuse, N. Y.
Stockton, Calif.