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THE SOUTHERN PLANTER.

DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

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April 1857.—tf

THE SOUTHERN PLANTER.

Devoted to Agriculture, Horticulture, and the Household Arts.

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

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

FRANK. G. RUFFIN, Editor. F. G. RUFFIN & N. AUGUST, Prop'rs.

Vol. XVII. RICHMOND, VA., JUNE, 1857. No. 6.

The Soil.

On examining the various soils in this or any other country, they will be found to consist generally:

1. Of larger or smaller stones, sand, or gravel. 2. Of a more friable, lighter mass, crumbling to powder when squeezed between the fingers, and rendering water muddy. 3. Of vegetable and animal remains (organic matter).

On further examination of the several portions obtained by means of washings, we find,

1. That the sand, gravel, and fragments of stones vary according to the nature of the rocks from which they are derived.—Quartz-sand, in one case, will be observed as the predominating constituent; in another, this portion of the soil consists principally of a calcareous sand; and, in a third, a simple inspection will enable us to recognize fragments of granite, felspar, mica, and other minerals.

2. In the impalpable powder, the chemist will readily distinguish principally fine clay, free silica, free alumina, more or less oxide of iron, lime, magnesia, potash, soda, traces of oxide of manganese, and phosphoric, sulphuric, and carbonic acids, with more or less organic matter.

3. The watery solution of the soil, evaporated to dryness, leaves behind an inconsiderable residue, generally colored brown by organic matters which may be driven off by heat. In the combustible or organic portion of this residue, the presence of ammonia, of humic, ulmic, crenic, and apocrenic acids (substances known under the more familiar name of soluble humus,) and frequently traces of nitric acid, will be readily detected. In the incombustible portion, potash, soda, lime, magnesia, phosphoric, sulphuric, and silicic acid, chlorine, and occasionally oxide of iron and manganese, are present.

All cultivated soils present a great similarity in composition; they all contain the above chemical constituents. This similarity becomes still more apparent after burning, when nearly all soils will assume a red colour, which is due to the presence of oxide of iron. At first sight this might be regarded as opposed to the great diversity of soils; but if we examine the relative proportions in which the several constituents are mixed together, the state of combination in which they occur, and the manner in which the different soils are formed, we shall find that diversity is perfectly compatible with a certain similarity in elementary composition.

In all fertile and arable soils, organic

matters, more or less decomposed, varying in quantity from ½ of a per cent. to 12 per cent. occur; and as in good garden-mould, the proportion of such organic matters frequently amounts to 20-24 per cent. of its own weight, and seldom is less than 10-12 per cent., it was believed that the amount of organic matters in soils determined their relative degree of fertility. This, however, is a great mistake, for there are soils containing only 2 per cent. of organic substances, which are, notwithstanding, greatly superior to others containing 6 or 8 per cent.; and, again, in peaty or boggy soils, belonging to the worst description, 60 to 70 per cent. are by no means uncommon. In soils celebrated as good wheat-soils we have found not more than 3–3½ per cent. of organic matter; whilst in far less productive land we have found as much as 10-12 per cent. That no reliance can be placed on the amount of organic matter in soils, as indicating their productive powers, is also clearly seen in the following determinations made by Dr. Anderson, in some of the best wheat-soils from different parts of Scotland.—(See *Scottish Journal of Agriculture*, for July, 1850.)

	Percentage of organic matter in soil.	Percentage of organic matter in subsoil.
Mid-Lothian wheat-soil	10.1981	4.8358
East-Lothiam "	6.3271	5.8554
Renfrewshire "	7.3625	4.6932
Perthshire "	8.5508	6.8270
Morayshire "	4.5460	3.7660
Morayshire wheat-soil of a different description	3.4760	Not determ'd.
Berwickshire wheat-soil	6.5700	"

The organic matter in the soil is due, for the greater part, to the vegetable remains of former crops, and partly to animal matters, derived from the decay of insects, or the excrementitious substances contained in manure. The vegetable and animal remains, under the influence of water, air and heat, gradually decay, producing a brownish or black powdery substance, or rather a mixture of substances, which is known to practical men under the name of humus, or vegetable mould. There are principally two kinds of humus, brown and black, the former is contained in large quantities in the brown variety of peat; the latter, the result of further decomposition of the brown, is found in black peat. Brown and black humus have a very complex composition, which is changing every day as the decay of the vegetable remains in them proceeds. During this decay a number of peculiar organic acids are formed; as, for instance, ulmic, humic, crenic, apocrenic, and geic acids. These acids resemble each other very much in their general aspect, as well as in their composition.

It is not our intention to enter into any lengthened discussion of the various theories which have been advanced in regard to the action of humus on vegetation. It certainly plays an important part in the processes of nutrition of plants, but its functions cannot be explained by one action only, for it is evidently subservient to the luxuriant growth of plants in more than one way. Thus it exercises a beneficial action in condensing ammonia, as well as moisture from the atmosphere, and likewise by furnishing a continual source of carbonic acid, arising from its decomposition. Again, the vegetable remains in humus always contain a certain amount of inorganic matters, but the latter are not soluble in the fresh roots, stems, and other parts of plants, and only become available to vegetation during their gradual decay and conversion into humus.

Notwithstanding a general similarity in the composition of arable soils, the appearance and general characters of many soils, in every country, present striking differences which cannot fail to attract the attention of even a superficial observer.—The forms and proportions in which the chemical elements usually constituting soils are mixed together, in different localities, explain, in some measure, though by no means fully, the various appearances and agricultural capabilities which they possess. These forms and proportions themselves depend on the causes and circumstances under which they originated.

The manner in which some soils are formed will not be long doubted by any one who has observed the appearance of large rocky masses, the clefts and crevices they present, the bare surface of their smoother and harder parts; the growth of mosses and smaller plants on the more softened portions; the accumulations of gravel, smaller fragments of minerals, and

fine mud, with their luxuriant vegetation at the foot of these rocks, and in the valleys of mountainous districts. These soils evidently have originated in the degradation and decomposition of the solid rocks in their immediate neighbourhood, especially of those which occupy the surrounding eminences. But as rocks differ much in composition, the soils which are formed on their decomposition must necessarily present, in many cases, great differences equally with the rocks themselves; and the study of the latter will therefore be of considerable interest to the cultivator of the soil. In other instances, however, the nature of the soils, in a given locality, partakes nothing of the characters of the rocks in the immediate neighbourhood, nor even of those on which they rest. The causes which are instrumental in the formation of soils fully explain this apparent anomaly; and we shall, for this reason, draw attention to the various causes which give rise to the formation of arable soils. In some instances we can trace the changes rocks undergo in the course of time, step by step, and refer them to their true causes; in others, only the ultimate products of decomposition are well described, and their primary causes less clearly understood. This much is quite sure, that the causes which operate in the formation of soils are various, and often complicated. Some of them may be referred to chemical forces and agencies—we call them "chemical causes;" others, which are based on purely mechanical principles, we shall distinguish as "mechanical causes;" and a few partake of the nature of both—they act partly chemically, partly mechanically.

I.—*Chemical causes of the degradation and disintegration of rocks.*

1. One of the principal agencies in effecting a gradual disintegration of solid rocks, is the atmospheric oxygen. Oxygen possesses a great affinity for many mineral substances, and has, consequently, a powerful tendency to form new compounds. These compounds, or oxides, being always more voluminous, looser, and less compact, are the primary cause of the bursting of many rocks, particularly of those containing much iron. In the course of the formation of these oxides, the compact texture of the rock is broken up, and the whole mass of the rock gradually crumbles down. In basaltic rocks this process of disintegration can be well observed. Those sides of such rocks which are most exposed to the atmospheric influences, will invariably be found on the surface softer and less compact than in the interior, whilst, at the same time, the brown coating of oxide of iron, which in the course of time grows deeper and deeper towards the interior, illustrates the action of the atmospheric oxygen to which we have just alluded.

2. A second, and no less powerful chemical agency, in the formation of soils, is the carbonic acid of the atmosphere, carried down by the rain. The affinity of carbonic acid for different mineral compounds varies greatly; the action which carbonic acid exercises on limestone and dolomitic rocks, on sandstones, clay, basalt, or other rocks, is not therefore the same in every case. Limestones, for instance, are easily attacked by rain water, as the carbonic acid which the water contains dissolves the carbonate of lime, whilst pure sandstones and quartz-rocks are scarcely acted upon by rain water. In the formation of stalactites, which are generally found in caverns occurring in limestone-rocks, a familiar example of the dissolving action of rain water is presented.

On felspar, granite, and other minerals consisting of silicate, carbonic acid and water exercise a highly important action. Under their influence these minerals are decomposed into alkaline silicates, which in their turn give rise to silica and carbonate of potash or soda, and into silicate of alumina, or pure clay.

3. In the formation of soils from solid rocks, the lower order of plants and animals take an active share. The seeds of lichens and mosses floating in the air attach themselves to the roughened and partially decomposed surfaces of rocks, and finding here sufficient food, germinate and throw out roots, which penetrate the little crevices in the rocks like wedges. These widening and multiplying the crevices, hasten the final disintegration of the rock. Mosses and lichens likewise retain the atmospheric water, and keep the surface of the rock moist for a longer time, giving in this manner rain water a better chance of exercising its dissolving powers on the

constituents of the rocks. Insects and other animals of the lower orders collect and feed on the lichens and mosses, and both insects and plants in due time die, decay, and leave all the mineral matter which they have originally obtained from the rock behind, mixed with vegetable and animal remains, or humus. A thin layer of a more fertile soil is thus formed, on which plants of a higher order may spring up; in the course of time these die, and enrich and increase the soil in the same manner as the mosses.

II.—*Mechanical causes active in the formation of soils.*

Generally the first stage in the disintegration of rocks can be referred to a chemical force. The described chemical agencies, however, are often associated with mechanical ones, or followed by purely mechanical causes, which produce great changes in the appearance of rocks, and contribute much to the rapid formation and the peculiarity of some soils.

1. One purely mechanical agency in the formation of soils is the force of gravitation. In the case of overhanging or steep precipitous rocks, when one or all of the chemical causes already mentioned have acted long enough to weaken the cohesive force which keeps the rock together, so that the force of gravity preponderates over cohesion, the rock so influenced tumbles down, in obedience to the law of gravitation, and contributes to fill up the valley below with the disintegrated fragments. According to the nature of the rock, vegetation springs up on these debris more or less luxuriantly, often very rapidly.

2. The finer portions of the disintegrated rocks are easily moved by heavy winds when they are found covering the ground in unsheltered places. Heavy winds, indeed, contribute much to change the aspect of some localities, particularly those near the sea-coasts. On the shores of the Baltic, large tracts of arable land are annually covered with drift sand. On the south-west coast of France the dunes increase every year about seventy feet in breadth.

3. Water, which acts, as we have seen, chemically in dissolving some of the constituents of rocks more readily than others, exercises likewise a most powerful influence in changing the nature of rocks in a purely mechanical way. The rain water absorbed by different rocks freezes in winter, and expanding in becoming ice, bursts the rock into many fragments.—Again, the rains continually wash off the fine particles from the decomposed higher rocks, and carry them down to lower levels; and, in flood-time, not only the finer particles, but gravel, larger fragments of minerals, and even heavy stones, are transported to great distances, and distributed, often in large quantities, over extensive tracts of a country. Brooks and rivers carry along with them marks of the country through which they flow. In the stages of their movement the coarser materials are first deposited, the finer mud moves along with the stream, and is finally deposited, more or less completely, at the mouths of the rivers, where the flow of the waters gradually becomes slower, at periods of comparative rest. These deposits form the alluvial soils of our river banks. The vast mass of materials deposited at the mouth of large rivers, such as the Mississippi, the Indus, the Amazon, and the Rhine, alters the condition of the soils along the banks of the deltas of these rivers from a naturally sterile into a most rich and fertile one.

4. The sea likewise plays an active part in changing the characters of the land near the shore, and in giving rise to new soils. Whilst, on the one hand, the constant motion of the waters is continually encroaching on the land in one place, washing away and carrying along with its waters the sands of the shore and the debris of the rocks at the sea coasts, it deposits them partly again in other places on more sheltered shores.

From some of the materials which the sea water contains in solution, many animals of the lower orders build up their skeletons and shells. Oyster banks and coral-reefs are thus produced below the surface of the sea-level; gradually they rise above the water, forming often an extensive island, on which at first but few plants spring up. These die and manure the soil with their remains; a thin layer of a more fertile soil is thus produced, on which a greater variety and number of plants may vegetate. In the course of time, the decay of every succeeding generation adds to the mass of the soil, and

the originally sterile coral-reef gradually becomes more and more capable of supporting a healthy vegetation.

5. Vegetable remains, to which we have already alluded, and especially animal remains, contribute more to the formation of some soils than might probably be expected. The waters of the river, and especially those of the sea, are animated by vast numbers of minute microscopic animals, called infusoriæ, each class of which is so organized as to live in its own special elements only. Near the mouth of rivers, where salt and fresh waters mingle, myriads die daily, mix with the mud of the river, and are deposited with it along the banks, contributing much to the fertility of the alluvial deposits in these localities.—The skeletons, or envelopes of these infusorial animals, consisting chiefly of silica, after the death of the animalcules appear as a whitish slime, which, notwithstanding the fact that many billions of these little creatures are required to fill the space of one cubic inch, nevertheless increase considerably the fine mud which the river deposits along its course near the sea shore. Thus, the mud which subsides on the shores of Northern Germany, and in the harbours along the coast, consists, for the greater part, of such organic remains.—Higher up the rivers their number decreases, and in places beyond the reach of the tide none of them are found. In the Elbe, these animalcules have been observed as far as eighty miles above its mouth. In all tidal rivers—for instance, the Rhine, the Thames, the Wash, the Forth, and the Humber—the mechanical debris brought down by these rivers, on being deposited, are intimately mixed with these more fertilizing animal remains, and thus alluvial soils of the utmost degree of fertility are formed.

Soils derived wholly from the rock immediately below them are confined to particular situations, such as steep escarpments and high level grounds, whereas the class of soils which do not partake of the general character of the subjacent rocks are by far the most numerous. The above observations on the formation of soils afford a ready explanation of this apparent geological anomaly; for when the chemical causes have prepared the ingredients of the rock for constituting a soil, other causes—for instance, the mechanical influence of running water—may interfere to transport them to a distant bed of very different composition.

On the Classification and Analysis of Soils.

The arrangement of the various soils into a limited number of classes is attended with great difficulty, arising from the circumstances, that in nature distinct lines of demarcation can nowhere be traced; and yet the arrangement of soils into classes is of practical utility, inasmuch as it enables us in a great measure to dispense with local and general terms, such as hazel-loam, fat soil, brown loam, clayey loam, humus soil, garden mould, and other terms, to which different meanings are attached in different parts of the country, and to substitute for them terms admitting of distinct definition. It is owing to an indefiniteness of this kind, as is well known, that a great deal of our local agricultural literature is utterly useless to the general reader. The terms used to describe the circumstance of soil, &c., under which any agricultural experience arose, must be understood, or the record of that experience is utterly useless, whether for guidance or for warning.

Of all the different systems of classification, that which arranges soils according to the preponderance of one of its chief constituents, appears the most simple and practically useful.

Soils in general consist of a mechanical mixture of the following four ingredients:

1. Silica, silicious sand, and gravel.
2. Clay.
3. Lime.
4. Animal and vegetable remains (humus).

There are few soils which consists of only one or two of these four substances; most contain them all, but the relative proportion of each in different soils varies considerably. A natural division of soils, accordingly, may be founded on the preponderance of one of these four chief constituents.

Upon this principle, soils may be conveniently classified as follows:

1. *Sandy soils*, containing above 80 per cent. of silicious sand.

2. *Calcareous soils*, containing above 20 per cent. of lime.

3. *Clay soils*, containing above 50 per cent. of clay.

4. *Vegetable moulds* (humus soils), containing more than 6 per cent. of organic matters or humus.

5. *Marly soils*, or soils in which the proportion of lime is more than 5, but does not exceed 20 per cent. of the whole weight of the dry soil, and that of clay is more than 20, but less than 50 per cent.

6. *Loamy soils*, or soils in which the proportion of clay likewise varies from 20 to 50 per cent., but which at the same time contain less than 5 per cent. of lime.

Agricultural writers sometimes adopt a greater number of classes of soils, by distinguishing, for instance, sandy soils containing much lime as calcareous sands; soils between clay and sandy soils, as sandy loams, &c.; but as the classification of soils is thereby complicated, without offering any practical advantage, in describing them, we shall confine ourselves to these six classes; and we proceed by giving a short characteristic of each class. The results of chemical analyses which will be found following each description of soil, may be taken as examples illustrating the different proportions in which the different chief constituents are usually associated together in each of the six classes into which we have divided soils.

1. *Sandy Soils.*—They are generally of a loose, friable, open, dry character, and for that reason are more easily and less expensively cultivated than any other description of soils.

Many consist almost entirely of silicious sand and gravel, with but little alumina and calcareous matters. Such soils are almost absolutely barren, and in general termed *hungry* soils, from their tendency to absorb manures without any corresponding benefit to the land. Others contain a larger proportion of alumina and lime, which render them more compact and always more fertile. On these richer kinds of sandy soils, beans, pease, and spring-wheat succeed well; and as turnips are frequently grown with advantage on them, they are called occasionally turnip soils. Sandy soils are capable of improvement, which in many cases repays well the expenditure for labour and material.

Clay, marl, chalk, and any other substance which has a tendency to counteract the loose texture and porous character of sandy soils, may with advantage be applied to them.

In England examples of sandy soils are found in soils resting on the old red sandstone, the granite formation, the millstone grit, the sand of the coal formation, &c.

Analyses of Sandy Soils, by Dr. Sprengel.

	No. I.	No. II.	No. III.	No IV.	No. V.	No VI.
Silicia and quartz-sand,	96.000	92.014	90.221	98.8	96.7	94.7
Alumina,	.500	2.652	2.106	.6	.4	1.6
Oxide of iron,	2.000	3.192	3.951	.3	.5	2.0
Oxide of manganese,	trace.	.480	.960			
Lime,	.001	.243	.539	.1	trace.	1.0
Magnesia,	trace.	.700	.730	.1	.1	trace.
Potash,	"	.125	.066		trace.	.1
Soda,	"	.026	.010		do	.1
Phosphoric acid,	"	.078	.367		do	trace.
Sulphuric acid,	"	trace.	trace.		do	
Chlorine,	—	"	.010		.1	
Organic matter (humus),	1.499	.490	1.040		2.2	.5
	100.000	100.000	100.000	99.9	100.0	100.0

No. I.—Barren sandy soil, near Wattingen, in Luneburg.

No. II.—Sandy soil, near Drakenburg, on the Weser, producing very bad red clover.

No. III.—Near Gandersheim, in Brunswick, growing luxuriant crops of pulse.

No. IV.—Very barren drift-sand, near Meppen.

No. V.—Barren sandy soil, near Aurich, East Friesland.

No. VI.—Fertile Sandy loam, near Brunswick, producing luxuriant crops of lucerne, sainfoin, lupins, poppies, &c.

2. *Calcareous Soils.*—As the physical characters of calcareous soils depend chiefly on the relative proportions of lime and the other constituents which enter

into the composition of this class of soils, it is impossible to give a short general characteristic.

Whilst some are deep, dry, loose, and friable in their nature, and on the whole, as productive as some soils resting on the lower chalk formation, others are stony, poor, thin soils, producing but a scanty vegetation. Leguminous plants, as beans and pease, sainfoin and clover, are grown with advantage on this class of soils. According to the proportion of pure clay and silicia which are present in calcareous soils, they are called calcareous clays, loams, calcareous sands.

Analyses of a Calcareous Soil from Southrop, Gloucestershire, (Dr. A. Voelcker.)

Lime,	52.33
Magnesia,	.31
Oxide of iron and alumina,	2.86
Phosphoric acid,	traces.
Sulphuric acid,	do.
Silicia,	.26
Carbonic acid,	44.70
	100.46

3. *Clay Soils.*—The properties of clay-soils are diametrically opposed to those of sandy soils. Stiffness, impenetrability, great power of absorbing and retaining moisture, and great adhesiveness characterize this class of soils. They are consequently cold, stiff soils, which are expensive and difficult to cultivate. When properly cultivated, some are turned into highly fertile soils. Their faults arise out of their mechanical structure, not out of their chemical composition, which latter alone is represented in the following analyses. The former may be corrected by drainage, burning, the use of bulky manures, and the addition of lime, ashes, &c.

Analyses of Clay Soils, near Cirencester, by Dr. Voelcker.

	No. I.	No. II.	No. III.
Water, driven off at 212° Fah.,	5.539		
Organic mater and water of combination,	3.621	3.38	6.11
Oxides of iron,	3.070	8.82	8.34
Alumina,		6.67	
Carbonate of lime,	.740		
Lime,		1.44	.41
Magnesia,	.605	.92	1.49
Potash,	.269	1.48	.65
Soda,	.220	1.08	
Phosphoric acid,	.386	.51	.04
Soluble silicia,	1.450	72.83	80.69
Insoluble silicates (fine clay),	84.100		
Chlorine and sulphuric acid,	traces	traces.	traces.
Carbonic acid and loss,		2.87	2.27
	100.000	100.00	100.00

4. *Vegetable Moulds.*—Any soil containing more than 6 per cent. of organic matter, whatever else its composition may be, is called a vegetable mould. Soils of the most opposite physical characters are thus grouped together in the class of vegetable moulds. These soils are clayey, loamey, or sandy, according to the predominant character of the earthy admixtures. Many are highly fertile; others are more or less unproductive, but capable of improvement; and others again contain so large a preponderance of organic matter, that they are called *peaty* or *boggy*.

Analyses of Fertile and Infertile Vegetable Moulds.

	Mulder.		Dr. Sprengel.			
	No. I.	No. II.	No. III.	No. IV.	No. V.	No. VI.
Organic matter and combined water (humus),	12.000	12.502	10.90	16.70	37.00	90.44
Potash,	1.026	1.430	.01	.06	trace	.01
Soda,	1.972	2.069				
Ammonia,	.060	.078			do	trace
Lime,	4.092	5.096	1.00	.13	.32	.55
Magnesia,	.130	.140	.20	.03	.31	.08
Peroxide of iron,	9.039	10.305	6.30	.64	.52	.12
Protoxide of iron,	.350	.563				
Protoxide of manganese,	.288	.354				
Alumina,	1.364	2.576	9.30	.78	.45	.63
Phosphoric acid,	.466	.324	.13	.11	trace	.02
Sulphuric acid,	.896	1.104	.17	.02	do	.19
Carbonic acid,	6.085	6.940				
Chlorine,	1.240	1.382	trace.	.01	trace	trace
Soluble silica,	2.340	2.496	71.80	81.50	61.57	7.96
Insoluble silicates (clay)	57.646	51.706				
Loss,	1.006	.935	.19	.02		
	100.000	100.000	100.00	100.00	100.17	100.00

Nos. I. and II.—Fertile soils of a tract of land in North Holland (between Nieuve-sluis and Aerts-Woude), gained by embankment from the sea.

No. III.—Rich vegetable mould, near Wayer, on the Weser, in Germany, flooded by the river.

No. IV.—Poor sandy mould, near Brunswick.

No. V.—Very infertile peaty soil, near Aurich, in East Friesland.

No. VI.—Boggy, very sterile land, near Giffhorn, in Germany.

5. *Marly Soils*.—Marly soils resemble more or less in their characters calcareous and clay soils. They are always less retentive, less impervious than clay-soils,—but generally not so open and porous as many calcareous soils. On the whole, marly soils belong to the better, more productive, and generous soils.

A sandy marl is a marly soil, in which a large proportion of clay is replaced by silicious sand.

Clay-marl, on the contrary, is a marly soil, in which clay preponderates.

Analysis of a marly soil, from the neighborhood of Cirencester, by Dr. A. Voelcker.

Organic matter and water of combination,	10.50
Oxide of iron and alumina,	11.92
Carbonate of lime,	19.92
Carbonate of magnesia,	.25
Potash,	.62
Soda,	.09
Phosphoric acid,	.38
Sulphuric acid,	.04
Soluble silica,	13.45
Insoluble silicates and sand,	42.07
Loss,	.75
	100.00

6. *Loamy Soils*.—The term loam is reserved to all soils which contain the four chief constituents—silicious sand, clay, lime, and vegetable and animal remains, in a fine state of division, intimate mixture, and in such relative proportions that the quantity of lime does not exceed 5 per cent., nor that of clay 50 per cent.

Loamy soils, next to the richer garden-moulds, belong to the very best soils.—They are easily cultivated, and yield abundant crops of almost any kind. Many alluvial deposits, celebrated for fertility, belong to this class.

Sandy loams, *clay loams*, *marly loams*, &c., are terms applied to particular kinds of loamy soils, in which the physical properties of silicious sand, clay, or lime, appear more prominently than in others.

Analyses of Loamy Soils.

	DR. ANDERSON.				DR. PLAYFAIR
	No. I.		No. II.		No. III.
	Soil.	Subsoil.	Soil.	Subsoil.	
Silicia,	63.1954	61.6358	74.3927	73.6416	81.26
Peroxide of iron,	4.8700	6.2303	4.7130	4.9230	3.41
Alumina,	14.0400	14.2470	5.5440	9.3830	3.58
Lime,	.8300	1.2756	1.3913	.7189	1.28
Magnesia,	1.0200	1.3938	.7468	.8489	1.12
Potash,	2.8001	2.1761	1.7142	.1540	.80
Soda,	1.4392	1.0450	.6788	.0367	1.50
Sulphuric acid,	.0911	.0396	.1006	.2060	.09
Phosphoric acid,	.2400	.2680	.1460	.1640	.38
Carbonic acid,	.0500				.92
Chlorine,	.0098	.0200	.0068	.0060	trace
Organic matter,	8.5508	6.8270	6.3271	5.8554	2.43
Water,	2.7000	4.5750	4.4260	4.2510	2.60
Loss,					.63
	99.8364	99.8621	100.2423	100.2185	100.00

The chemical analysis of all fertile soils we have seen, has established the presence in them of the substances enumerated above; and it is therefore a natural inference to expect in unproductive or barren soils a deficiency or total absence of one or more of those constituents which are highly conducive to the luxuriant growth of plants. A chemical examination in such cases must prove of considerable utility to the practical man, inasmuch as it not only is calculated to point out the cause of infertility, but also to suggest an efficient means to raise its productive powers. In numerous other cases, indeed in the majority of instances, the low state of fertility or barrenness of soils cannot be traced to the deficiency or total absence of an important soil-constituent, nor to the existence in the soil of a substance injurious to vegetation. The fault may be one, not of the existence, but of the accessibility, of the requisite ingredients for the crop. All the substances needed by the plant may be present, and in sufficient quantity; the soil, considered as a storehouse, may be full; and the infertility complained of may simply be the want of the key. This is the case of a soil locked up in stagnant water, which only needs drainage to prove the fertility which one would expect from its analysis. But independently of this, we frankly confess, that as a general rule, even a minute chemical analysis, in which only the proportions of the several constituents are indicated, is of comparatively little, and often of no practical utility to the individual who has had an unproductive soil analyzed, with the view to have a remedy suggested by the analytical data for bringing it into a better state of cultivation. In the first instance, we would observe that those substances, whose presence in the soil is of the greatest importance to the growing plant, are often found in it in quantities too minute to allow them being estimated by means of the balance. And yet these small traces may be quite sufficient to meet all the wants for a succession of crops; and provided the general condition of the soil is such as to be conducive to the health of the crop, it will grow and come to perfection, though the chemical analysis exhibits a decided deficiency in an important fertilizing material. The truth of this will appear by a glance at the subjoined table, in which Professor Way has calculated the amount of mineral substances which a crop of wheat removes

from the soil. In the first column are stated the quantities in pounds of the different mineral substances required by a crop of wheat of thirty-five bushels of grain, and two tons of straw and chaff; in the second is shown the amount removed by twenty such crops; and in the third is given the percentage of each which a soil must contain to furnish this last quantity:

	One Crop.	Twenty Crops.	Percentage of the soil remov'd by 20 crops.
	lbs.	lbs.	
Silica, -	170	3400	.152
Phosphoric acid,	30	600	.027
Sulpuric acid,	8	160	.007
Lime, -	16	320	.014
Magnesia, -	10	200	.009
Potash, -	40	800	.036
Soda, -	3	60	.003
	277	5540	.248

It thus appears that the small percentage of 0.027 of phosphoric acid, and 0.036 of potash, in addition to the other constituents mentioned in this table, are sufficient to meet the requirements of twenty crops of wheat; and, as we cannot determine with precision such minute quantities, it follows that an analysis, in which even a much smaller amount of potash or phosphoric acid has been found, cannot entitle us to pronounce absolutely a soil of that description to be unfit for the cultivation of wheat. On the other hand, there are soils in which the proportion of all the constituents required by a wheat-crop is much larger than that removed from the soil by twenty such crops, and yet these soils do not bear remunerative wheat-crops.

Secondly, it is well to remember, that in the quantitative determination of phosphoric acid and potash—the two most important soil constituents—the limits of variation attending these determinations may amount from 0.1 to 0.2 of a per cent., or a quantity often equal to the whole amount of phosphoric acid or potash present in a soil. It is clear, therefore, that we cannot estimate the comparative fertility of two soils by the relative amount of potash or phosphoric acid which their analyses exhibit, for it is quite possible that the larger quantity of these substances is not real, but only due to unavoidable errors attending the best analyses.

In the third place, it follows, as a necessary consequence of the preceding remarks, and, indeed, it is known to every intelligent farmer, that the dissimilarity in soils in regard to natural capacity of producing crops, cannot be accounted for by reference to a certain amount of chemical compounds; on the contrary, it is certain that the combinations which the several substances may form in the soil, and which combinations are not generally indicated in the analyses: also that the power possessed by different soils, of absorbing and retaining water, their colour and relative weight, position and many other circumstances, may combine to give a superiority to one soil over another. And this leads us to allude very cursorily to the physical properties of soils. Latterly, the chemical composition of soils has absorbed the attention of the chemist so much that the study of their physical relations has been greatly neglected; consequently, scarcely any progress has been made within the last fifteen years, and we are thus unable to make any recent additions to the labors of former observers. Formerly, the fertility or barrenness of a soil was considered to depend entirely upon its physical properties, and no importance was attached to its chemical composition. At present, the tendency of scientific agriculturists is to fall into the opposite extreme and to ascribe to the chemical composition of soils an undue importance. Although we believe the physical properties to be in nature subordinate to the chemical composition, more especially if regard is taken to the states of combination in which the different mineral constituents occur in soils, yet it ought not to be forgotten that the physical conditions materially influence their natural productiveness.

The more important physical properties of soils to which we would briefly direct attention and their density, their power of absorbing and retaining water, air, and fertilizing gases from the atmosphere, their adhesive power, their state of division of constituents, and their power of absorbing heat.

The density or the absolute weight of different soils varies considerably, as will be seen by a glance at the following table:

One cubic foot of dry silicious or calcareous sand,	weighs about	101 lbs.
Half sand and half clay	"	95 "
Of common arable soil,	" from 80 to	90 "
Of pure agricultural clay,	weighs about	75 "
Of garden mould,	" "	70 "
Of peaty soil,	weighs from 30 to	50 "

The absolute weight of purely sandy soils is thus from one to three times as great as that of peaty soils, and it is due to these differences that the former are far less injured than the latter by the passage of carts and the treading of cattle in the ordinary operations of husbandry.

Cyclopedia of Agriculture.

[TO BE CONTINUED.]

From the British Farmer's Magazine.

The Effects of the Exposure of Animals to a Low Temperature and to Moisture.

BY CUTHBERT W. JOHNSON, ESQ., F. R. S.

The readers of this magazine will, on many occasions, have noticed the effects produced on domestic animals from exposure to low and sudden transitions of temperature. The hollow coughs which resound along the London cab-stands remind even the citizen of this truth. Does the reader remember any neighbour whose stock is allowed to lie out unsheltered? or perchance in an ill-enclosed undrained yard? Does he not notice the staring coats? the poor, spiritless condition of the animals? Is not their owner of the class sometimes very erroneously called "the unlucky"? Is he not anxious to get the lives of his poor beasts insured in some defraudable Cattle Insurance? or, failing that resource, is not a parish subscription attempted ever and anon, in behalf of the unhappy dispirited owner? It is true these startling instances are not usually found amidst the better classes of farmers; and yet amongst these, even with those who have laid all science under contribution, the effects of low and changeful temperature may still be studied with advantage; and at no period more practically so, than in this month of February—one of the worst, perhaps, in the calendar, for stock.

But in gathering together a few facts on the results of temperature, the farmer must not consider that even the researches of the most profound philosophers have nearly made us acquainted with the effects of low temperature upon organized matter. Every now and then certain facts present themselves—new readings in Nature's exhaustless book, which excite in us the just suspicion that our theoretical explanations are yet far from the real truth—that they will one day have to give way to other perhaps still imperfect theories. Let me give an instance of these mysteries: We are all aware that in a temperature at or below the freezing point of water, all decomposition of organic matters ceases. The Russian preserves his meat during his long winters merely packed in snow: during our English frosts the same effect of a low temperature is noted. No one, till lately, has even suspected that by exposing the meat to a much lower temperature—that then the meat would begin to putrefy; yet such are the phenomena which present themselves in the Arctic regions. Dr. Kane thus briefly tells the story, in a work which will be read with deep interest for its many other valuable observations. After stating (vol. ii. p. 51) that on the 23rd of February they had been so fortunate, on their frozen sea, as to kill a deer, he adds in his journal of the next day: "Bitter disappointment! the flesh of our deer is nearly uneatable from putrefaction. The rapidity of this change in a temperature so low as 35 degrees below Zero seems indeed curious. But the Greenlanders say that extreme cold is rather a promoter than otherwise of the putrefactive process. Our buffalo hunters, when they condescend to clean a carcass, do it at once. They have told me that the musk ox is sometimes tainted after five minutes' exposure. The Esquimaux in latitude 73.40, even in the severest weather, are in the habit of withdrawing the viscera of their game immediately after death." Even in such a frozen land of desolation the greater effect of certain kinds of animal food in keeping up the warmth of the living has not escaped the observation of these ice-encircled savages. When speaking of that curious animal, the walrus, the Doctor continues: "Its delicately permeating fat—oh call it not blubber!—assimilate it rather to the fat of the ox; it is beyond all others, and the very best *fuel* a man can swallow." That such food enables the natives to withstand their intense frosts is evident, for Dr. Kane tells us in another place that the Esquimaux will sleep in their sledges when the temperature of the atmosphere is 93° below the freezing point of water. Well might he feel convinced that his gallant and unconquerable band of explorers were mere carpet knights beside these indomitable savages!

Such facts will not be unproductive of advantage if, I repeat, they serve to lead us to the conviction that we have yet other things to ascertain with regard to the most profitable temperature in which our domestic animals should be placed. I have already alluded to the trying nature of the month at which we have now arrived—the cold wet weather, which at this season mingles with the cold winds; at a time, too, when the minimum temperature of the year, on an average of our seasons, has only just been passed. That annual minimum, at several places on the Continent of Europe, has been noted by Colonel Sabine; he records that the lowest temperature of the year on an average occurs—

At Konigsberg	about January	9th
— Berlin	between the 12th and	19th
— Prague . . .	between the 19th and	26th
— Paris	about the	15th
— Turin	"	3rd
— Padua	"	15th

At Toronto, in Upper Canada, the minimum temperature is not attained till about the 12th or 14th of February.

That exposure to cold renders it necessary for the animal to sustain itself by increased consumption of food, is evident enough from the effect of exposure to a low temperature on even our own appetites. The chemical explanation of this phenomenon has been given by Dr. Lyon Playfair. He observes (*Jour. R.A.S.*, vol. iv., p. 217), after reminding us that the temperature of the bodies of our cattle is about 100 degrees, or more than 40 degrees higher than the ordinary temperature of this climate, and that hence there must be some provision in the animal body to sustain the heat which the colder air constantly withdraws from it—after reminding us of these things, he asks the seldom considered question, "Whence, then, comes the fuel for the production of the heat?" That fuel, he proceeds to inform his readers, consists of those ingredients of food from which nitrogen is absent: these all contain carbon. We know that oxygen is continually inhaled in the air we breathe, and that it is never again expired as such. Expired air consists of carbonic acid gas—a gas composed entirely of carbon and oxygen: in the body, therefore, the oxygen has united with carbon; or, in other words, it has produced the very gas which is obtained by burning a piece of charcoal in the open air. Now, the heat generated by the combustion of the carbon in the body must be exactly equivalent to that produced by burning the same amount in the atmosphere. It has been found by experiment that the carbon (14 oz.) daily consumed on an average by a man is equal to the production of 197,477 degrees of heat; a cow consumes about 70 oz. of carbon daily, and this must, according to careful calculation, produce by its combustion 987,385 degrees of heat. Now, it is evident that the lower the temperature to which we expose an animal, the greater will be its demand of carbon or food to retain its natural temperature; or as the Professor puts it—and his observations serve materially to elucidate some of the phenomena on which we have been dwelling—"as the heat of the animal body is the same in all regions, it is obvious that the quantity of fuel (food) necessary to sustain the constant temperature of the body must vary according to the nature of the climate. Thus less food is required for this purpose in India, where the temperature of the external air equals that of the body, than in the polar regions, in which it is very many degrees lower. But a beneficent Providence has arranged the produce of different countries so as to meet the exigencies of the climate. The fruits upon which the inhabitants of warm countries love to feed contain only twelve per cent. of carbon, while the train oil enjoyed by the inhabitants of arctic regions contains about seventy per cent. of the same element. 'Were we,' says Liebig, 'to go naked like certain savage tribes, or if in hunting and fishing we were exposed to the same degree of cold as the Samoyedes, we should be able with ease to consume 10 lbs. of flesh, and perhaps a dozen of tallow candles into the bargain, as warmly-clad travellers have related, with astonishment, of these people. We should then also be able to take the same quantity of brandy or train oil without bad effects, because the carbon and hydrogen of these substances would only suffice to keep up the equilibrium between the temperature of the external air and that of our bodies.'

"We often wonder how the Greenlander or Russian can relish train oil; we know perfectly that our own organs of digestion would refuse to receive it; but the cases are very different. In cold countries the air is much condensed, for we are well aware that the air expands by heat and contracts by cold. Hence the inhabitant of a cold region receives much more oxygen at each respiration than the inhabitant of a hot country, in which the air is expanded by heat. In a cold country, therefore, more carbon is necessary to combine with the excess of oxygen than in the hot country. As oxygen never escapes from the system, after having entered it, except in union either with carbon or hydrogen, anything which tends to increase the amount of oxygen inspired will occasion a greater consumption of food. Thus exercise increases the number of our respirations, and consequent supply of oxygen to the system; and the result is that, after exercise, we consume more food than we should have done had we not received it. The only use of clothes, in the abstract, is to economise food. They assist in retaining the heat of the body, and render less food or fuel necessary for this purpose.

"In herbivorous animals the fuel used in the production of heat consists of sugar, starch, gum, and other ingredients of food which do not contain nitrogen.

"In carnivorous animals, or those which live entirely upon flesh, the heat of their bodies is supported by the combustion of their own tissues. Hence it is that we see the hyena, pent up in the cage of a menagerie, move continually from one side of the den to the other. These movements do not arise from an impatience of confinement, but from the necessity of sustaining the temperature of its body by the combustion of its tissues. Its continued motions accelerate the waste of its body, and introduce more oxygen into its system by the increased rapidity of its respirations."

What, then, are the practical ill results which arise from an inattention to these facts?

the want of a supply of food adequate to the increased demands of the animals when the temperature of the atmosphere in which it is placed is low, or the warmth of the body diminished by exposure to cold currents of air, or by the effects of the evaporation from a wet skin? Mr. Finlay Dunn, an eminent veterinary surgeon, has gone over all these bad results of carelessness with his usual ability. He told the stockowner—in a recent volume of the "Transactions of the Highland Society," when speaking of the results of poor diet and a low temperature—truly enough, that animals even before birth are affected by insufficient food: insufficient food during pregnancy, besides redering the young at the time of birth small and weakly, has also the injurious effect of curtailing the provisions necessary for its future sustenance: the milk secreted is small in quantity, or if it be considered in bulk, is poor in quality; nor will even the most liberal aliment given after the birth of the young one always remedy the evil. Surely, then, it is a false economy to put pregnant cows to an over-restricted diet (see also the experiments of Mr. Horsfall, of Burley, in the last volume of the *Journal of the Royal Agricultural Society*). There is no period in the life of an animal in which the effects of insufficient food are more prejudicial than in early years. This is far too often the case with regard to calves. The calf, after a week or ten days, should be liberally supplied with milk, and for six or eight weeks should receive only new milk, from eight to ten pints per day, divided into at least three meals; then skimmed milk may be gradually substituted for a part of the new milk—milk should, during three or four months, form its principal food; then the calf may be gradually accustomed to other sorts of diet, especially to oil-cake. Calves should be housed at night before the weather becomes cold and inclement, after their first summer's grass. Young cattle are generally placed in sheds or courts, but their feeding often receives too little attention; the result is unthrifty coats, lank limbs, and pot-bellies; these again, when they are suddenly put upon a more liberal diet, become liable to various casualities, such as purgative, congestive fever, abortion, epilepsy, and various cerebral affections. Then as to exposure to wet: Its most uniform effects are a tendency to diarrhœa and muscular relaxation; there is a marked tendancy to anarsaca, and œdamatous swellings observed amongst men and animals living in moist localities. Wet weather is apt to induce rheumatic enlargements of the joints, foul in the feet, and quarter-ill. In sheep, the ill effects of exposure to rainy weather are still more decided than in neat cattle: in them it produces diarrhœa, affections of the feet, enlargements of the joints, scab, braxy, and rot.

Exposure to a moderate amount of cold, and for a limited time, increases the vital energies, and invigorates the organic functions. In excess, it has an exactly opposite effect. It then exercises a sedative or depressing influence, inducing slowness of the circulation, feebleness of the respiratory organs, diminished power of generating heat, coma, and death. These are the symptoms which manifest themselves in severe winters, and are seen in all their stages by shepherds whose pasture grounds are unsheltered, and exposed to piercing cold and scourging winds. Want of shelter exposes animals to sudden and excessive changes of temperature, and to the heat-abstracting influence of cold currents: it necessitates the consumption of a very large allowance of food; and when, as is usually the case with animals badly sheltered, exposure to cold is conjoined with exposure to rain and all kinds of weather, the necessity for an increased supply of food will be still greater. In such circumstances, and unusually large quantity of materials is expended in the maintenance of the animal heat; and if this extra expenditure be not compensated for by an increased quantity of food, the animal necessarily loses weight. Amongst the other diseases produced by exposure to cold, are rheumatism, pulmonary consumption, scrofulous tumours, increased loss of ewes and lambs in the lambing season.

The experience of the owner of live stock will well accord with these medical observations. They all tend in one direction, that of proving that the more attention we bestow on the *comfort* of the animals committed to our care—the oftener we vary with the seasons their food and the ventilation of their houses—the more profitable will be the food they consume, the better will they repay us for our labour and our capital.

From the Country Gentleman.

Improved Stock---No. IV.

As for the yoke we have only the Devon and Hereford, so for the shambles we have only the Short-horn, Hereford and Devon: the Jerseys are no feeders, and make poor beef when fat; while the Ayrshires have no good qualities as beefing animals, which are not found in greater perfection in the Devon. In this country the Short-Horn, as yet, is almost the only cross which has been used for the exclusive purpose of breeding steers for beef. Herefords have not been extensively introduced; and the first importers and breeders of Devons turned their attention entirely to the development of their milking properties. But in England, the feeders, who are seldom breeders themselves, admit the superiority of each in its proper place, and select their steers of whichever breed is best suited to their particular soil and location.

Let us now look at the merits of these three breeds under the several heads which we have pointed out as necessary to be taken into consideration in the choice of a beefing animal.

The first of these was *aptitude to fatten*. This is as far as most feeders go in judging of the value of an animal; they say whichever breed will make the most beef from a given amount of food, is the best; but experience has pretty clearly shown that under different circumstances each breed will have the advantage. No breed known will bear stuffing so well as the Short-Horn; they are large eaters and naturally lazy; so where they have only to fill themselves and lie down, they are placed under the most favourable circumstances. The Hereford, being more active, travels about with more ease to himself: for this reason a great many of the feeders in England hold the same opinion as to the relative merits of Short-Horns and Herefords on this point, as that expressed by that eminently practical farmer and grazier, the venerable Mr. Hillyard, in a letter to the Mark Lane Express in 1842, wherein he says: "Having for many years fed well-bred oxen of both breeds, and feeling confident that I have no bias in favour of one breed over the other, I repeat here, what I have said on former occasions, that for grazing I prefer the Herefords, but for stall-feeding the Durhams." For short pastures, again, the smaller, more hardy and active Devon will do the best; laying on flesh where either of the larger breeds will scarcely hold their condition. On this point the experience of English feeders is quite as applicable here as there; and it would appear to show that, taking the same amount in weight of each breed, and putting them into scant pastures, where they will have to travel over a good deal of ground to gather their food, the Devons will increase the fastest; on strong pastures, the Herefords; while in the stable, and fed as much as they will eat, the Short-Horn will do the best.

As regards *early maturity* and *actual weight*, the Short-Horns undoubtedly stand first, though the best Herefords push them pretty hard in both respects, and the Devons are improving very rapidly in the first point, steers of this breed being now got to a good weight and made fit for market at three years old. Early maturity is produced by high feeding, and if the Devons are to keep their present good qualities for hardiness and activity, it would not be well to endeavor to make them equal the Short-Horns in either this point or weight: as far, however, as they can be improved in these respects without injury to their other good qualities it is doubtless desirable to effect it.

As a general rule the grain of the meat is finer in small animals than in large. Game fowls are superior to Shanghais in this respect; the little sheep of Wales have long been celebrated as the finest mutton in the world, a leg of which does not weigh over three or four pounds; the same is true with regard to pigs and also cattle. Epicures in England will seldom eat any beef other than that of the West Highland Scots. On visiting the farm and stock connected with Woburn Abby, the seat of the Duke of Bedford, I saw a superb herd of Hereford cows in the park, and a number of fine steers of this breed in the boxes; but was informed that the Duke never allowed any other than West Highland beef on his own table. We should, therefore, naturally expect to find the Devons also excelling in this point, as in fact they do. In looking over the Mark Lane Express for the past three months, I find the quotations at the Metropolitan (late Smithfield) cattle market to be: prime large oxen, from 4*s*. 4*d*. to 5*s*. per stone of 8 lbs.; prime Scots, &c., from 4*s*. 8*d*. to 5*s*. 6*d*. per stone; showing a difference of from a cent to two cents a pound in favor of the small breeds. The fat and lean are also better mixed, or marbled as it is termed, in the Devon than in either the Hereford or Short Horn. The tendency of the Short Horn is rather to lay the fat on internally, whence they yield a large portion of tallow; the Hereford inclines to pachiness, as is very noticeable in the great lumps of fat seen on the hips, rumps, &c., of many of the Hereford beasts exhibited at the Smithfield shows.

As has been already mentioned, the prime pieces of beef are to be found on the back of the animal; these are worth more than twice as much as the others per pound. When we look at the broad backs found among all three of these rival breeds, it will be difficult to say which of them has the advantage in breadth of hips, in proportion to their size; the width is however carried forward better in the Devon than in the Short Horn, while the latter is broader behind the hips; giving the Devon the superiority in the rib places, and the Short Horn in the round and rump. The Hereford may be placed between the two in both points. The bone of the Devon is the smallest, even, I think, in proportion to their size; that of the Hereford the largest.

From what we have now seen, I should recommend the Short Horn cross, for beef, in those parts of the country where the climate is most moderate, and fodder of all kinds is cheap and abundant. Farther north or farther south, where the winters are severe and grain scarce, or where the intense heat of the summers dries up the pastures, the Devon will be found the most profitable. While the Hereford may be said to occupy ground between the two.

In the above statement of the relative merits of the different breeds of cattle, I believe that I shall be supported, in the main, by those breeders who have paid much attention to the subject, and have made their examinations with a willingness to see both merits and faults wherever they may find them. However valuable the judgment of a man who sees no good save in one breed, while he knows nothing of the others, may be with regard to the particular merits of that breed, his opinion of its

comparative merits is absolutely worthless. Each breed has its own peculiar good qualities in which it excels; our country is large and embraces every variety of soil and climate; we have room for them all; let each man then, as he advocates his favorite, admit the merits of the others, remembering that in doing otherwise he is only displaying his own ignorance to all well informed persons.

With sheep I have but little acquaintance,—none at all with fine-wools; I will therefore merely say that the Leicesters may be considered the Short Horns of Sheep, while the South Downs are the Devons; and this similarity may be traced, I believe, to a considerable extent in their constitution, size and early maturity.

I trust, Messrs. Editors, that you will excuse my having trespassed so largely on your space; I have been as concise as I was able, in my endeavor to bring the whole subject of the improved breeds of cattle before the general farmer. I have not, I know, stated anything new; that was not my object: but if I have succeeded in making the subject plain to any one who, heretofore through ignorance, has considered improved stock a humbug, I shall not have occupied that space in vain. As I found my article stretching out I have been obliged to omit a great deal which I had intended to say; and were I to attempt to substantiate my opinions by a recital of the facts on which they are founded, or to show the full course of observation and reasoning by which I have arrived at my conclusions, I should need the whole of your paper for more than one number. W. C. S.

April 8th, 1857.

Proper Slopes for Drains and Ditches.

We think the following article from Wilson's Rural Cyclopedia with respect to the proper slope of drains for the discharging water, worth the full price of the Planter to all those who have much ditching to do, and we advise them to preserve the paper for future reference.

The article on "Draining," from which this article is taken, is well worth the whole cost of the work—some twenty dollars.—Editor of Southern Planter.

With respect to the inclination or slope of drains, there are certain limits which must not be exceeded; the slope must be such as will at least permit the water to be carried off with sufficient rapidity to keep its channel clear, but not so fast as to injure it by acting on the sides or bottom. Mathematically speaking, the water should pass away with any the smallest inclination of channel, and even gradually accelerate in velocity. But we know that in fact this tendency to accelerate is speedily destroyed by the friction and other obstructions in the channel, and these increase in proportion to the smallness of the quantity of water, so that great rivers are enabled to move with less declivity than is required for smaller streams. This has not been sufficiently attended to in the operations on the great English fens; for, instead of uniting the upper waters into one capacious river, they have been divided and led away to different outfalls, greatly to the injury of drainage. Large and deep rivers run sufficiently swift with a fall of about 1 foot per mile, or 1 in 5,000; smaller rivers and brooks, with a fall of 2 feet per mile, or 1 in 2,500; small brooks hardly keep an open course under 4 feet, or 1 in 1,200; ditches and covered drains require at least 8 feet per mile, or 1 in 600; furrows of ridges and filled drains require much more; the elevation of ridges measuring across, is, according to the soil, sometimes as high as 1 in 10. Where the ground is level, and there is not in the direction of the smaller drains a fall equal to the above, it may be given in the formation of the drain itself, by cutting it deep at the outfall, which is preferable to widening merely.

The limit to the increase of the fall depends on the cohesion of the stuff in which the drain is cut. Firm rocky bottoms may be supposed to bear water passing over them at any slope; but, independent of the old adage, that even the drop wears the stone, the gravel and boulders, which are likely to be brought down by swift running streams, are by their battering and rubbing, equal to the destruction of the hardest rocks. In brooks and rivulets a fall of 1 in 10 over rock, or of 1 in 30 over large stones, or of 1 in 50 over smaller stones, or of 1 in 70 over ordinary pebbles, or of 1 in 100 over small pebbles, has the velocity of a torrent; a fall of 1 in 200 over very small pebbles, or of 1 in 400 over fine gravel, has the velocity of a rapid stream; a fall of 1 in 600 over coarse sand, or of 1 in 1,000 over common sand, or of 1 in 2,000 over muddy sand and clay, has the velocity of a gentle stream; and a fall of 1 in 4,000 over mud, soft clay, and some aquatic weeds, or of 1 in 6,000 over ooze and many acquatic weeds, has a dull and sluggish motion, the slowest which belongs to flowing water. But in rivers,

these velocities, over their respective beds, are greater than in brooks and rivulets; and in rills and drains, they are less,—so that a declination of 1 in 4,000 over mud or soft clay in a small drain, or even sometimes in a large one, would practically be a dead level, and would cause perfect stagnation. Straight and even channels also permit the water to flow much swifter than where it has, with the same slope, to wind round the different sinuosities of the natural bed, to pass over shoals, or through narrows. It may be observed, that a bottom of fibrous bog will bear a greater velocity than any loose earth or gravel. The intermatting of the fibres prevents them from being torn away. Accordingly, bog drains stand well, even upon great slopes, if they are not cut to the under stratum; but where that is the case, as it is generally found to be gravelly or sandy clay, the bottom speedily gives way with the stream, and the drains choke, or blow up if they are hollow.

It appears, therefore, not only advisable, but even highly necessary, to draw in sloping ground the drains across the slope, so as to be nearly on a level, since a fall of 1 in 600, the greatest that is absolutely necessary, is not sensibly very different from the horizontal. This disposition of the drains at the same time enables them to catch and collect the water as it descends through the soil down the slope, and prevents the same water from successively moistening lower and lower pieces of ground. This principle, however, is by no means generally understood by common farmers, among whom, in many cases, the only idea seems to be to carry away the water as fast as they can; and this they attempt by perpendicular parallel drains running down the slope, or by many branches collecting rapidly into one main down the hollows. They do not observe, that, in these cases, the water which falls on the field, unless it happens just to fall over one of the drains, is not in the smallest degree assisted in its passage away; for it will most probably descend through the loose arable soil, until it comes to the firm bottom, and then, as it can have no tendency to proceed sidewise into any of the drains, it must continue to trickle down the slope until it arrive at the bottom, in which situation a drain, though it may perhaps afford it a more unobstructed passage, can give no more fall than originally existed on the surface of the field.

The dimensions of open drains will chiefly depend on the nature of the soil, and quantity of water to be conveyed by them. The best form for facilitating the passage of the water, is to make the slope on each side 16 inches of base to a foot of perpendicular height; the breadth at bottom may be two-thirds of the depth of water, unless particular circumstances make it desirable to widen the channel so as to lower the surface. As to water-way we have usually found the channels of rivers and streams running about two feet per second to contain about a square foot area of section for each hundred acres of drainage; but this will vary according to soil and climate. The usual size of the smaller ditches running through farms are three or four feet top, one foot bottom, and about three feet deep; but it is difficult to preserve the sides so steep.

When the site is liable to be injured by foreign waters descending into it from the conterminous upper grounds, it is most advisable to cut them off at higher levels, before they descend into the flats, which, by this means, will have only their own waters to discharge. For that purpose, the catch-water drain must be resorted to, being drawn along the boundary of the upper, grounds so as to intercept the springs and streams flowing from them, until a convenient opportunity be found of discharging them into the receiving stream. It frequently happens that the water which is thus procured affords sufficient power to work hydraulic machinery, by which the neighbouring low lands may be freed from their proper waters, even when they have no natural outfall.

Short-Horns Rising.—The recent Short Horn sale of Mr. Lorimer of Banffshire, Scotland, resulted in ten animals calved in his herd within the last fifteen months, bringing a total price of 520 guineas, which shows an average of 53 guineas per head, adding to this large sum 131 guineas for four heifers, all of them under two years. The average value of the heifers is thus very nearly £34 10s. a head. The bulls average about 12 guineas, and the heifers about four guineas a head more than last year.

The New Cattle Market of London.

For about a year and a-half, old Smithfield with its seven acres of stalls, sties, and sheep-pens, which have been so long an abomination in the eyes of living Londoners, has surrendered its uproarious existence, and subsided into a dry dull desert, cheerless and voiceless. That border-land of tap-rooms and topers, of early breakfast-houses and drowsy drovers, of harness-makers, whip-makers, sack-makers, and dealers in smock-frocks and wideawakes, and plushy red waistcoats, and boots and Bluchers an inch thick in the sole, and studded with a pound or two of iron—that archipelago of snug trading islets in a sea of mud, which begirt the over-crammed mart—has suffered a change almost amounting to dissolution, and is about to vanish in toto, like the morning mist at the rising of the sun. Bluff old Smithfield has walked off bodily to a country-seat in the suburbs, and has squatted himself down for a perpetuity in what but a few short summers ago was pleasant Copenhagen Fields. There, where cricketers held holiday, and pitched their milk-white tents in the sun—where once poor Hazlitt was wont to resort, to liquidate his stagnant bile with a game at trackets—where nursemaids handled their babies, and boys flew their kites, and Cockney sportsmen made their first essays with gunpowder—there the green grass turf has given place to a floor of solid granite; the waving elms that overshadowed the white walls of the rustic inn are supplanted by a forest of stumpy sheep-pens; and monster-hotels, and long and lofty sheds, and a tall central clock-tower, rising in the midst of a low polygon-shaped mass of buildings, proclaim the new habitat of the London Cattle-Market.

The new market occupies, if we may trust to such measurement as we can make with the eye, about twenty acres of ground, and is therefore about three times as large as old Smithfield; but the corporation, whose property it is, have secured land enough almost to double its present extent; and to whatever objections it may be open, want of space, for centuries to come, is not likely to be one of them. It is bounded on the north by the open fields towards Highgate; on the south, by a rapidly rising suburb lying between Islington and Camden Town; on the east, by the Caledonian Road, in which stands the Model Prison of Pentonville; and on the west, by Maiden Lane, which is undergoing a transformation into "The York Road." It is evident at a glance at the new undertaking, that the two things which have been especially studied in carrying it out are—convenience and permanence. To obtain these ends, the most lavish expense has been incurred. The whole of the soil was burned to the depth of several feet into a mass of red brick ballast, before the building operations commenced; and we shall not readily forget the wild, savage, and fearful scene which the whole district presented, when it was studded with a hundred flaming and smoking volcanoes while this preliminary process was going on. On this fire-baked scoriæ was laid the granite pavement, and into that were deeply imbedded the iron pillars that form the rails and pens, the horizontal bars alone being of kyanized oak. The stone-work throughout is of corresponding mass and strength; and the same may be said of the brick buildings within the walls, which serve as hotels and public-houses, and which are leased to the old landlords of Smithfield. The market is crossed by a broad carriage-road, running east and west. The ground to the north of this road is alone devoted to the sale of cattle and sheep—that on the south being taken up with open sheds and lairs. Besides these, there are slaughter-houses, and the conveniences for a meat market.

It is just about the glimmer of dawn, on a Monday morning late in October, when we approach the new Cattle-market, for the purpose of making a few observations on the mode in which the business is now conducted as compared with what it was in old Smithfield. The bleating, lowing, squeaking, and murmur of the market, pierces through the fog, and gives us note of its whereabouts at a quarter of a mile's distance, while yet the high buildings and the clock tower are buried from sight in the mist. We are soon, however, in the midst of the tumult, and find ourselves involuntarily congratulating both the beasts and their masters on the altered state of affairs. The first thing that strikes us is the superior accommodation for the oxen, and the utter impossibility that for long years to come such a cruel and disgraceful spectacle as a "ring-drove" will annoy the visitor. The stalls for the oxen are ranged in long

alleys, each bearing a number in legible characters; the alleys are of the width of an average mail-coach road, and they are entered from roads still wider. The beasts are tethered to the rails by the head on both sides of the alley, and between each row there is double the space left free for passengers. They low plaintively in answer to one another, but we hear none of that painful bellowing which used to distress us; and, better still, we miss that incessant sound of blows, which made such devilish music in the old market.

Proceeding northward we come upon the sheep-pens, which we find not so well contrived in their space. They seem to differ very little from the old Smithfield pens; and many of them are shamefully crammed with sheep, forced in by the dog and the goad, until some of them are literally unable to touch the ground, being borne up on the backs of others. We suspect, from what we can see, that this is owing to the penny-wise conduct of the man who has them in charge, and who prefers torturing the poor animals to disbursing the hire of an additional pen. In the old market he would have huddled these unfortunates together as an 'off-drove' in a neighboring street, and transferred them to the pens as fast as he made vacancies for them by the sale of others—a manœuvre he cannot practice here. It ought to be a regulation of the market, that a sheep-pen should receive no more than it can humanely accommodate.

In the new market, the calves and the pigs, by a regulation in their favor, have the benefit of roomy pens, comfortably roofed in from the weather. On the basements of the pillars that support the roofs of the sheds, their portraits are cunningly sculptured—an honor which has not been awarded to the oxen and sheep. The swine have been the objects of further consideration, in that the flooring of their sties presents a steeply inclined plane—a plan of which the matrons among them with large families show their decided approval by uniformly reclining at full length, with their noses at an elevation of some degrees. Each sty is furnished with a grating covering a drain, a provision which goes far towards maintaining cleanliness. We find the swinish multitude on this occasion forming a very small minority, and, like most minorities, they are in violent opposition, and make more clamour than all the concurrents. Their example is not followed by the calves, which do not seem to know what to make of it, and await in silence the solution of the mystery.

Approaching the great polygon from which rises the tall clock-tower, we find it to consist of a circular group of offices and shops, in one central spot, devoted to the transaction of the business of the market. There are three offices for inquiry, belonging to the principal railway-companies; there is the electric telegraph office, in communication with all parts of the kingdom; there are no less than six banks for the payment of moneys and settlement of accounts; there is a shop for the sale of cattle medicines and drugs, and another for the sale of all articles for which there is likely to be a demand in the market, such as rugs, wrappers, horsecloths, over-caots, leggings, spatterdashes, brogues, fleams, knives, and reddle and coloring matter for the marking of sheep. In the midst of all these various marts, there is the office of the clerk of the market, who is the authority on the spot for the consultation or appeal in all matters where the interest of the Corporation is concerned, and who has the whole business, in a manner, under his control. For the satisfaction of the lieges, he exhibits on a board, at the entrance of his office, a notification of the state of the market from time to time. The state of the poll, as we pass by, happens to be as follows—beasts 5,367, sheep, 27,485—by which we know that to-day's market is considerably above the average, and that we need not therefore look for an immediate rise in the prices of beef and mutton.

A considerable influx of butchers' carts and traps has taken place while we have been making our rounds; they are ranged by hundreds in the hotel-yards, and their owners are doing business among the stalls and pens with a characteristic paucity of words and despatch of bargains. The beasts are coming in for a liberal allowance of punching and knuckling; and the sheep, invaded in their pens, submit to similar manipulation. When a butcher buys a beast—by which you are to understand an ox or a cow—he whips out a pair of scissors, and cuts his particular hieroglyph on the hide; when he buys a number of sheep, he has them marked with a signature or

monogram by means of a ball of reddle. Some of these devices are exceedingly complicated, and cover the entire back of the animal, while others are a mere touch of the red mixture on a particular spot. Where so many thousands of sheep are sold in a few hours, it is expedient that they should be marked so as to be easily distinguished when claimed; and it would appear that the ingenuity of the buyer has been taxed to the utmost limit to effect this object. The pigs appear to be spared that familiar manipulation applied to their neighbors; it is thought enough to stir them up with a stout stick, or to trot them out of their sties and in again, to afford an opportunity for a fair view.

It is the law of the market that payments cannot be made from hand to hand between buyer and seller, but only through a market-banker. When a butcher has concluded his purchases, therefore, he repairs with the salesmen to the office of one of the bankers, who makes out an account of the transaction, adding to it the market-tolls, the salesman's commission, and his own, or banker's commission. These items increase the cost of a beast to a purchaser by the sum of 4s. 4d., and that of a score of sheep by from 12s. to 15s. The banker's charge is moderate, being 8d. per beast, and 1s. 4d. per score of sheep. Ready-money is the order of the day; but the bankers occasionally make advances for the convenience of their customers.

When the butcher has settled his account, he receives an order for the delivery of the animals. He can give the order to his own man-servant, or can hand it over to one of the licensed drovers, of whom there are in London nearly 1,000 connected with the market. The driver knows where to find the animals, and he knows, too, his employer's mark; and in a few minutes he will have the morning's purchase clear of the market and on its way to the abattoir in town.

For the convenience of butchers attending the market, there are omnibusses that run from the city at an early hour to one of the market hotels, and there is a special carriage attached to the trains of the North London Railway, which stops at a station very near. There is no lack of inns and public-houses in the market itself; and in the immediate neighborhood, on the north-western side, there is rapidly coming into being the same characteristic border-land of coffee-shops, eating-houses, beer-shops, and appropriate trading establishments, whose disappearance from the old site we have referred to above.

Thus far our survey of the new Cattle-market is in all respects satisfactory and *couleur de rose;* but it has now to be looked at from another point of view, whence we shall not find its aspect so pleasing. In the first place, the intolerable nuisance which formed the grand objection to old Smithfield—namely, the enormous amount of cattle-driving in the public ways—is not obviated by the new market. Butchers assert that the cattle-driving has increased; and, looking to the fact that large numbers of both oxen and sheep are driven through the city from the south, east, and west, to arrive at the market, and have to be driven back again after sale, their assertion is probably true. Of the foreign cattle, the major part are landed in the neighborhood of the Westminster Dock, and have to traverse a crowded mass of narrow city thoroughfares and suburban by-roads before they can reach the market, lying nearly four miles off. Considerable numbers also come by way of Whitechapel from the south, traversing six or more miles of streets ere they reach the place of sale. The proportion of these that are again driven south and east after sale is the same as it used to be—with this difference, that they have twice as far to go. What is saved by the nearness of the market to those coming to town from the north is but a partial compensation, because the drovers continue to patronise the old lairs—driving the animals into the suburbs on the Saturday, and retracing their steps to the market about midnight on the Sunday. In one respect the driving nuisance is ameliorated, inasmuch as the droves leaving the new market enter the city by more various and more commodious routes than those debouching into Smithfield, and are at once spread over a larger surface. The inhabitants of the quiet genteel districts which formerly lay out of the cattle-driving track were at first indignant at the innovation, and not without reason. If a gentleman floriculturist left his gate open, or the early milkman, when he deposited his matutinal tin-can under the scraper, by virtue of an agreement with the drowsy housemaid, left it open for him, it happened more than

once that he was awakened by the rush of a score or two of sheep into his greenhouse; or, on looking out of window to ascertain the cause of the tumult, beheld a grove of fashionable fuchsias vanishing down the throats of a party of shorthorns. Mrs. Grundy flew into a passion, and out of the neighborhood; declaring that it was perfectly *preposterous* to attempt to force the poor dumb creatures to travel by a cross route after they had been used to the main road, to her knowledge, for the last twenty years at least! Other people did the same; and there is no doubt that one effect of the opening of the new market has been the depreciation of a certain class of house-property in the channels leading to it, and the stoppage of a definite style of house-building in its near neighborhood. It was anticipated, while the new market was in course of formation, that a considerable proportion at least of the animals there sold would have been taken no further; and convenient abattoirs were therefore erected, available at every moderate fees—and space was also allotted for a meat market. That anticipation has proved all but a chimera. The reason is obvious: the dead weight of meat to be conveyed from Copenhagan Fields to the various parts of the city—some of it to a distance of seven miles and more—would hardly be less than 4,000 tons weekly; and we cannot expect that, so long as this vast weight is allowed to walk through the city alive, the butchers will voluntarily incur the expense of its transport as inert matter. The only means of putting an end to cattle-driving in the streets would be by the peremptory interference of the legislature with a decree resembling that of Napoleon, who nearly fifty years ago forbade the appearance of a single ox, sheep, or pig, in the streets of Paris under penalty of forfeiture. Such a law would probably necessitate the establishment of an additional new market on the southern side, and it would undoubtedly increase sensibly the price of meat to the consumer.

Another grand objection against old Smithfield was the cruelty to which, in various ways, the poor animals were subjected. We have seen that some of these cruelties are not practised, or, indeed, practicable in the market. Off-droves and ring-droves are abolished, and not likely to be resuscitated on an area which has already accommodations for 700 beasts, 35,000 sheep, 1,500 calves, and 1,000 swine, and which is capable, if need arise, of doubling its accommodations. Yet we have seen the pens overloaded with sheep, and crammed to suffocation, and been outraged and disgusted by the unnecessary use of the goad in the hands of the drovers, The worst evil, however—and a cruel evil it is—is the want of water, of which the unfortunate sheep are mainly the victims. The beasts, after their long journey by road or rail, do get a little water at the lairs, and sometimes a wisp of hay; but the sheep get nothing. It is easy to see, as they pant along the road, that they are in a fever of thirst; and by the time they are driven into their Monday morning pens, the majority of them are gasping for breath. Immense flocks of them neither taste grass nor water from the time they leave their pastures to the moment of their death—a period varying from two to four days. The barbarity of such treatment is disgracefully apparent; but the subject is full of difficulties, and the remedy not easy of invention or application.

Talking the matter over with a humane dealer, who has frequented the cattle-market for nearly thirty years, we urged as strongly as we could, on the score of humanity, the poor sheep's claim for water, and expressed our surprise that no provision was made for watering them in the market.

"I acknowledge that it is a bad and miserable thing," he said, "but what are you to do? They come to town in such a state of thirst, that we dare not let them drink. You can't take twenty or thirty thousand sheep, and hand them 'glasses round,' or as much as would quench their thirst and do them good. The only way to water them at all is to drive them to a pond; and if you do that, as sure as you are alive, they'll drink till they kill themselves. I've seen it tried. You can't get them away from the water; not with dogs or sticks, or anything else—they'll drink and drink till they drop, but they won't come out. I tell you, I've seen it myself."

We suggested the practicability of some contrivance by which a sufficient quantity of water might be turned into a shallow basin, and allowed to be drained dry by a certain number at a time.

He allowed that such a thing might be

done, but shook his head significantly, and changed the subject. We cannot believe but that measures might be taken to avoid the perpetration of such barbarity as our friend's statement of the matter points out. It seems to us that the graziers and breeders would but forward their own interest in devising the means of sending their animals to market in a healthy and comfortable condition. It has been stated that a loss of not less than ten per cent. is suffered by the owners of sheep, as a consequence of the condition in which the average of them arrive at the market. Surely that is more than a sufficient amount to pay for reasonable care in their transport, and the supply of such food and water by the route as would prevent at once their sufferings and their decrease in value. But the proprietors of the animals must look to this business themselves, and not delegate it to the drovers, whom long habit has reconciled to the old state of things.

We have only to mention, in conclusion, that the horse-dealing is confined to the Friday's market; that the hay-market is still carried on in old Smithfield; and that the commission on the sale of all animals is a trifle heavier in the new market than it was in the old.—*Chambers' Journal.*

The Supply of Guano.

There is a growing deficiency of supply in two very important articles of import and consumption—Cotton and Guano.—Notwithstanding a cotton crop last year of 3,500,000 bales in the United States, owing to the increased demands of other countries, and the greater quantity of the raw material worked up here and in America, we are left with a supply barely sufficient for seven or eight weeks' consumption. Supplies from other quarters come in but slowly; and in the meantime the Chairman of the Manchester Commercial Association states, that for want of cotton they are starving; and that one of two things must happen shortly: a number of spinners and manufacturers, and those the weakest, will be compelled to stop their works, and their workpeople will be thrown out of employment; or, we shall have completely used up our stock of cotton.

The second deficiency is that in which our readers are more especially interested. The supply of Guano received is inadequate to the growing demands of the British farmer, notwithstanding the beds available are still ample, and the price too has recently been enhanced £2 per ton by the Agents of the Peruvian Government.

We subjoin a return of the yearly imports of guano since the first introduction of that manure, some sixteen years ago, from which it will be seen that the receipts are very disproportionate to the increasing wants of agriculture. We have imported in that period something over two million tons; but on the average of the last four years the annual imports have not exceeded 215,000 tons.

Other countries are pressing foward for supplies of Peruvian guano, to which quality we are now exclusively restricted. The continent takes some 40,000 or 50,000 tons, the United States import 70,000 to 80,000 tons, (the port of Baltimore alone taking half that quantity;) the sugar and coffee growing colonies are also liberal customers; and therefore, while the aggregate annual exports from the Chinchas are larger, we do not receive as much now as we did ten or eleven years ago.

Attempts have been made from time to time to do away with the present Government monopoly, which places the purchaser, both as to price and quality, entirely at the mercy of a trade which is alike unsatisfactory to the merchant, the agriculturist, and the shipowner.

If the trade were thrown open the consumption would be increased, without any probable reduction of price, or loss to the Peruvian Government. We believe the contract of the Messrs. Gibbs expires this year, unless it has been renewed.

In addition to stocks being unusually low in the United Kingdom, the ships expected to arrive within the season are under those of former years. In the month of November, (the latest advices we have,) only 14 British vessels, with about 9,000 tons, had loaded at the Chinchas, and this is not all available for home-consumption. The Scotch farmers have found great benefits from the use of guano; but instead of having, as usual, an available stock of 3,000 to 3,500 tons in the Clyde, there is only 1,000 tons ready to be doled out to the agriculturalist.

A year or two ago we called attention in our columns to the impending scarcity of this fertilizer, and stated "that in times

when the necessities of millions of human beings are demanding more food—when prices are so high as to stimulate the farmers to grow as much grain as possible, and so make hay while the sun shines—they are told they cannot have the quantity for either love or money." The observations made then are even more pertinent now, and we could beneficially use half as much more guano annually as is now supplied out to us under present rates.

In all parts of the kingdom the subject is occupying prominent attention amongst farmers. At the last meeting of the Highland and Agricultural Society of Scotland, Dr. Anderson, Mr. Hall Maxwell, the Duke of Buccleugh, and other speakers, alluded to the failing supply, and to the necessity of looking out for substitutes. At Truro Mr. Nesbit was catechized by the farmers on the possibility of artificial fish-manures becoming available; and in other quarters sewage-manure is being again looked after.

In 1852 an official report was published by the Peruvian government, which stated that an examination, made by a French engineer employed, gave the quantity of guano on the Chincha Islands at about 16,500,000 tons. Taking the present gross shipments from thence at about 400,000 tons per annum, with the probable increased demand, this supply will be exhausted before the end of the present century. As the Peruvian government netts somewhere about £4 per ton for this guano, these deposits bring in a revenue of more than a million and a half per annum; a sum exceeding the revenue of Hanover, Denmark, Sweeden and Norway, and many other of the Eropean states. The national debt of Peru, which is about £9,250,000, might be paid off from the proceeds of guano sales in six years.

There can be no doubt that, with the progress chemical science has already made in various departments, the question of a beneficial substitute for guano as a fertilizer is capable of solution; and we are disposed to believe that the refuse of the fisheries, properly prepared, may yet come in largely to the aid of the farmers. To discover new supplies of guano, or efficient substitutes in the form of manuring substances in small bulk, it has been well observed, are worthy objects of mercantile and scientific enterprise, more especially in view of the rich rewards which would repay success by the extensive sale of an efficient fertilizer at home and abroad.

IMPORTS OF GUANO SINCE THE FIRST INTRODUCTION.

Years.	Tons.	Years.	Tons.
1541 . .	2,881	1849 . .	84.438
1842 . .	20,398	1850 . .	116,925
1843 . .	30,002	1851 . .	243,014
1844 . .	104,251	1852 . .	129,889
1845 . .	283,300	1853 . .	123,166
1846 . .	89,203	1854 . .	235,111
1847 . .	82,392	1855 . .	205,061
1848 . .	71,414	1856 . .	200,000

Total 2,120,445.

British Farmer's Magazine.

The Guano Crisis.

We are just now at the very height of our guano difficulty. That is to say, this is the season—a most favorable season, too—when above all others we need it; and there is none to be had. One of our most respectable manure-dealers was, for the first time, on Saturday, directly refused. They could not even promise him any further supply. When people have gradually accustomed themselves to the matter-of-course use of anything, the unexpected want of it must be very severely felt. This is the case with the farmer. We want guano as a manure for our barley and oats, and as a top-dressing for our wheat. We have reckoned more or less on our customary allowance, and have consequently neglected proportionately, to provide any substitute. With ordinary care, as we begin to see now when it is too late, we might have fallen back upon our own resources; as it is, however, there is an extraordinary and altogether unprecedented run on such manufactured manures as contain the ingredients required—ammonia and phosphates especially. The makers and dealers are at their wits' end to answer the orders pouring in upon them, and go from one to the other anxiously seeking the material to fulfil them.

Each succeeding year turns up its peculiar subject for discussion. Last year it was agricultural statistics; this it is as assuredly the guano monopoly. Almost every one of our leading national societies have already touched upon it. The Farmers' Club, as we have shown, was the first to open the attack; and since then both

the English and Scotch Agricultural Societies have given it a prominent place in their proceedings. A fortnight since, Mr. Evelyn Denison, as President of the Royal Agricultural Society of England, was deputed to confer with Lord Clarendon on the subject. We have yet, however, to learn what came of the interview. And only on Monday last a more numerous deputation from the Highland Society paid an official visit to Lord Stanley of Alderley. The object was of course to procure, if possible, a supply of guano from elsewhere; and the first point urged upon the attention of his lordship was the policy of obtaining possession of the Kooria Mooria Islands. These deposits, it will be remembered, have been brought into notice chiefly through the agency of Mr. Caird, who, a week since, at a general council Meeting of the English Society, dwelt at some length upon their value. The representatives of the Scotch agriculturist went on to ask for an exploring expedition; at the same time they warned the Government from sanctioning any furthur monopoly, as it seems is to be the case with Captain Ord and the Arabian Guano. Still the principle of monopoly is broken through when once we can establish an opposition to it; and the possession of these Kooria Mooria Islands might work us good in a variety of ways.

We believe such conferences as these to be all in the right direction—the first step to the attainment of what we seek. It is sheer absurdity to say we must not look too much, or depend much upon the Government here. On the contrary, this is just one of those cases that we must look to the Government; and, moreover, let them know that we depend upom them. Pray who is to help us, or to put such a trade as this upon a proper footing, if our own flag does not? Was it any other business—Manchester, Brimingham, or Sheffield—so interested, their leaders would never stay their exertions until something was done. Neither must ours. The farmer has surely some friends in either House who will keep the question alive for him. But what did these Houses or the Government ever do for the farmer yet? the less sanguine may enquire. Little enough, perhaps. A sufficiently good reason for their doing more now they have the opportunity—and when they may do it, not merely without injury, but with manifest advantage to themselves and the community.

Still, let us repeat, the agriculturist may do much for himself. We give in another part of our magazine (see page 161) a lecture delivered by Professor Anderson, on Wednesday, before a full meeting of the Highland Society. The whole point of this paper is, as was the case at the London Club, that the farmer has not done enough for himself—that he has learnt to rely far too much upon the use of guano, when many other materials would often have served him as well or better. "*I feel convinced that guano has been frequently used when other manures would have produced an equally good result at a less cost.*" The whole lecture is very plain and practical, and must be proportionately effective. It will be observed, the Professor dwells on the now common charge against the farmer, the waste and abuse of his own home-made manure; while he hints at something more as likely soon to be a home-made article. The agriculturist is to be the manufacturer of his own superphosphate.

This leads us to another point of view, taken by a gentleman, a communication from whom was read at this meeting. How is it, if the Professor and practice agree so well in this matter—how is it that people have come to such an indiscriminate application of guano, "when other manures would have produced an equally good result at a less cost?" Mr. Finnie himself helps us to the solution of his own query. The farmers have, as a rule, become afraid of other manures. They have so often been done; so often been caught with what was warranted cheap and good, that they have prudently refrained from pursuing so dangerous an experiment. With all their faults, the Messrs. Gibbs have preserved their characters, and given us the genuine article; while the best friends Messrs. Gibbs ever had have been the adulterators. With all its puffing and quackery, there has been no time when people were more ready to pay a good price for a good article.

The thing, however, may be carried too far—just as it has been. We should have continued to submit quiet enough to Peruvian dominion, had there not, like Byron's Corsair, been

"No limit to their sway."

As it is, we are already in open rebellion. We are fighting our cause, moreover, with every precedent in history to assure us that tyranny pushed to its extreme has been ever fatal to him who exercised it. Like a pig swimming, monopoly going too fast a-head will only end by cutting its own throat.—*Ib.*

More About Osage Orange Hedges.

CAKE MINES, HENRICO,
April 23, 1857.

To the Editor of the So. Planter.

As there seems to be some difference of opinion as regards the fitness of the Osage Orange as a hedge plant, I beg sufficient space in the columns of your valuable magazine to give my experience on the subject.

In April 1854, I purchased of Gen. Richardson and planted out one thousand one year old plants, opening a trench with a two horse plough in the centre of a five foot bed, previously ploughed. In this trench I set the plants pressing the soil very firmly to the roots, spread stable manure liberally in the half filled furrow, threw sufficient earth to the plants with the plough, on each side, to give a slight bed to the row, and left them. By careful examination to-day, I find that *only four plants in the thousand failed to grow off vigorously.*—During the summer I gave the hedge one thorough weeding with the hoe. In the Spring following, and each Spring since, I have trimmed them severely and given them one hoeing. Next fall I shall remove the plank enclosure that preceded the planting of the hedge, and all trespassers, biped and quadruped, that can pass my hedge shall be welcome to all it encloses.

In the Spring of 1855, in a very hot and dry spell in May, I planted a second hedge of one thousand plants, taking the simple precaution of dipping the roots in a puddle of clay and horse dung intimately mixed, before setting them; and even at this late period I lost very few plants, not 20 in all, and their progress thus far has equalled my first experiment. A third experiment of a few hundred last Spring has furnished another evidence of the remarkable vitality of the plant, its almost infallible certainty to stand, its great thriftiness, and its defiance of intense cold.

I am inclined to think that those who have failed to secure a regular stand of Osage Orange when using one year old plants, or who have failed to raise a vigorous hedge in four years, at furthest, must have sadly neglected that moderate but indispensable attention which is required.

Our people are unfortunately too much given to conclude that where they have planted a perennial they have fulfilled their part, and the plant must accomplish all else. This is emphatically true with the whole class of fruit trees and vines in nine cases out of ten, and I suppose it is so with the Osage Orange. I will here remark in passing, that a very common error in transplanting trees, shrubs and vines is to plant manure in actual contact with the roots. This is always detrimental, and in a very dry season is often fatal. Well pulverized earth, unmixed with anything calculated to make it very porous or spongy, should be brought into close and firm contact with the roots, and the manure, if any is required, should then be applied.

As to the tendency of the hedge to draw severely upon the adjacent strip of land, I can only say that I have observed no difference between the growth of vegetables in parallel rows five feet from the line of my hedge, and the growth of others more remote. I should think that deep coultering with a cutting edge within four feet of the line of the hedge every Spring would prevent the lateral roots from poaching too much on the field, and at the same time arrest the growth of the Orange when its tendency is towards too robust stature.

The increasing scarcity and enhancing value of timber for dead wood fences, and the inaccessability of stone for that purpose, gives an increasing interest to the subject of live hedges especially in Eastern Virginia; and it is to be hoped that the partial experiments now being made with the Osage Orange will receive the little patience and attendance which my experience assures me is alone necessary to secure its general adoption for that purpose. As I deem it a good rule for writers on practical subjects to give the sanction of their names to what they offer to the public,

I subscribe myself,
Very respectfully, your obd't s'vt,
JOHN J. WERTH.

On Improved Farming.

The rapidity with which our country has been cleared and settled is beyond all precedent. The exhaustion of large portions of the Atlantic slope by reckless cultivation doubtless hastened the settlement of the great West, and thus contributed no little to the extension of our original western boundary to the Mississippi instead of the Ohio river. Now, however, that our territory extends from ocean to ocean, it becomes us, who prefer to remain where our fathers first settled, to restore, if possible, our inheritance to fertility. The *fact* of its great exhaustion stares us in the face, so that one who had travelled much in foreign parts remarked "that old Virginia was the oldest looking country he had ever seen." Its *cause*, too, is sufficiently evident—the extensive cultivation of corn and tobacco, with the very heavy rains of our climate, and the general neglect of any efficient means of restoration. The important

question here arises—have we such means sufficient to effect the desired object? This question was answered in the negative some thirty years ago by one most competent to decide—excepting alluvials or other lands originally very rich, and such others as had ready access to marl or lime. This opinion was given not from any want of zeal or enterprise, but from a candid, deliberate view of the case as it then stood. A third of a century in this fast age has made great changes, so that the poorest lands are said now to produce (with guano) most astonishing crops; and one would think from these reports that the golden age of farming had surely come. The spirit of agriculture has been aroused; much has been nobly given for the good cause; and immense outlays have been made—but unless properly directed, we fear there may be heavy losses, and a collapse from this high state of excitement, causing us to lose years of steady progress.

For our direction to the true course in this important crisis let us review the history of improved agriculture in Virginia.

About 70 years ago, Col. Thos. Mann Randolph of Albemarle, then a student of medicine in Edinburg, afterwards governor of Virginia, was led, perhaps by recollecting the fine lands he should inherit, to observe and study the best systems and examples of British husbandry. There, so far as applicable to our country, he introduced, and was in fact the pioneer in this cause. "Arator" thus alludes to him, p. 172:

"This classic system of agriculture has been introduced into Virginia by a gentleman of Albemarle, in a style completely adapted to the nature of the country, and which will be copied by those who shall not be discouraged by its perfection."

The chief improvements introduced by him were superior plowing, the cultivation of corn on rolling land in horizontal instead of straight rows, and the use of clover and plaster.—Among his numerous followers was Mr. John Rogers, who bought the half of a large estate adjoining Col. Randolph's, and adopted his plans of improvement with such skill and success as, besides more substantial profits, to enjoy the reputation of being the best practical farmer in our region. Then arose a still brighter star, not yet sunk below our horizon, Mr. Richard Sampson of Goochland, (son-in-law to Mr. Rogers), whose thorough knowledge of all crops raised in our State, and of the best methods of arrangement and improvement, is perhaps surpassed by none. Indeed it should be made the business of some competent person to condense and perpetuate the valuable results of his large experience, close observation and practical good sense. In the mean time arose scarcely lesser lights in other parts of the State—especially those combined in forming the Valley Agricultural Society.—Among these stood pre-eminent Mr. Henry S. Turner of Jefferson, combining the fullest theoretical knowledge of that day with the highest practical skill—taking, by general consent, the first prize for the best managed farm in the Valley. Next, perhaps, was Mr. Wm. M. Barton, who left, at little more than thirty, a reputation as a farmer, a business man, and a useful citizen, which riper years would have made more extensively known, but could scarcely have enhanced with those who knew him well. A compeer of these in this Society was Mr. R. K. Meade, whose passion for improved stock, especially sheep, "rendered the State some service." Another co-laborer, Mr. Thos. Marshall of Fauquier, was noted not only for his zeal and success, but for his enlarged and well digested views of agriculture. While the agricultural papers, and reports to societies were enriched by occasional communications from these leading farmers; it would yet be desirable now to have a fuller account of their views and practices. Some of your numerous friends could perhaps furnish such notices of these and other remarkable men in our calling. Our State can as yet claim but two authors on agriculture.—1st—Col. John Taylor of Caroline, who published in 1814 our only systematic work, "Arator," and next Edmund Ruffin, of Hanover, the Drummond-Light of lower Virginia farming, whose essays on "Calcareous Manures," and "The Farmer's Register," have affected the Commonwealth's statistics by tens of thousands of dollars. Nor have his labors been confined to Virginia. The spirited State of South Carolina enjoyed his services as State Surveyor, with the happiest results.

Now what has been the teachings of all these worthies, and what may we consider as the leading principle of modern improved farming? Some system or rotation (and there are many) by which our fields may not only produce the best grain crops—but while resting from these may enrich themselves by a luxuriant crop of clover or other fertilizing growth. Manure of any kind used simply for the benefit of grain crops, is as old as history or tradition. On enquiring of a traveller, who had seen Mount Ararat, as to the agriculture of that region, he replied, "it was, he supposed, much as Noah had left it." They use wooden plows, and apply such manures to their crops as they are not obliged to consume as fuel. Shall we with all the lights of experience and science go back to this antediluvian system of applying manures, and often at enormous expense, for grain crops alone—and not give the incidental, but rapidly increasing benefit of richer and still richer coverings of grass? These, at the slight expense of seed and plaster, and no additional culture, will follow on and enrich the land—if just let alone! It is written "the husbandman hath great patience," but this virtue seems almost to have deserted the earth, or rather those who cultivate it. Marl, manure and guano are wonderful agents, but for an increasing and perma-

nent fertility, grasses are required, and above all, clover aided by plaster. This exclusive reliance on repeated manurings may be best for gardening, and to a great extent practicable on small farms in a thickly settled country dotted over with villages—but to talk of it on a large scale in Virginia reminds me of your story about Col. Bierne. When asked if he sheltered his cattle in winter—he replied, "I would like to see a man sheltering 1,400 head of cattle!" To manure this number of acres would be my hopelcss task, while on the other hand, the more open land one has, the better can he avail himself of the modern plan of enriching it by rest and grass.

A great deal of idle breath has been wasted by knowing ones from the North in telling us, we should never enrich our lands till divided into small farms—whereas just the reverse has been practically true. Estates have been subdivided and worn out till unable to support their owners, who have sold out and gone to the West, and these small farms have been *annexed* and improved by men of capital and more liberal views. The difficulty has been that thousands of acres have been so worn out as not to be recoverable by grass alone—because even that will not grow on them to any available amount. How then to get the grass to grow is the question? Let manure, marl, and lime be used to the fullest extent, and the immense deficit made up by a judicious use of guano and plaster, till not an acre shall be cultivated without the honest intention and reasonable hope of improving it. Can this be done so? or in other words—will it pay? To show this will require figures, which being rather dull, I must ask a fresh hearing in your next number. M.

Nottoway Farmers' Club.

Our friends of the Nottoway Farmers' Club have again favored us with a series of their papers, from which we extract the following. So many of them are experiments with regard to manures or crops, and are therefore appropriate to the present season, that we publish in this No. more than a proper proportion; in the hope and belief, however, that each one will be found interesting. If all other clubs of the State would follow the example of our friends of Nottoway, not only in making, but in publishing experiments, the number of FACTS thereby obtained could not fail to be of great value to agriculture.

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(No. 1.)

TOBACCO—ITS HISTORY AND VALUE.

To the Members of the Agricultural Club of Nottoway..

GENTLEMEN.—I have selected the Tobacco Plant as the basis of a few desultory remarks on the present occasion, (the termination of the period for which you called me to preside over the deliberations of the Agricultural Club of Nottoway.)

It would be a work of supererogation, if not an evidence of presumption in me, to undertake to give my fellow members any information on the cultivation, management, and sale of this staple of Virginia; your superior success, gentlemen, in all these respects, manifestly attests your thorough knowledge and experience on the subject. I shall pass this over, and refer you to the many invaluable articles to be met with in the agricultural journals of the day.

The Tobacco plant is a native of America, and was found in general use by the Aborigines, on the first discovery of this continent, as a highly esteemed luxury, and an agreeable stimulus. It was introduced from this country first into Spain and Portugal, by a Spaniard, in the year 1559, and is supposed to have been introduced into England in 1585, by Sir Walter Raleigh or Sir Francis Drake. Which of those worthies is entitled to the credit, if a blessing, or the malediction of an evil, history has not clearly settled. It soon began to grow into general use, and was received with great enthusiasm as a remedy for indigestion, colds, rheumatism, low spirits, and most of the ills to which human nature is heir to. Probably from the abuse of the article, it soon met with great opposition, both from Church and State, throughout all Europe. The Pope issued his bull against it. James the first of England wrote a most violent philippic against its use; the Sultan made it a capital offence; and in Switzerland its prohibition was added to the Decalogue. See Farmers' Register, Vol. II.

All this array of power, the combined efforts of Church and State, proved utterly powerless to arrest what these high dignitaries and potentates believed, or professed to believe, a great moral and national evil. The taste once acquired and the habit formed, the use of the Indian weed continued to increase, and spreads among all ranks of society from that time to the present, and is, at this day, the most fashionable and universally esteemed luxury in use in the known world. How and why this magic power over the taste and propensities of man, savage and civilized? It is not because the article is really palatable and agreeable, as sugar, wine, and alcoholic liquors; not because it is nutricious and necessary to the growth and development of our physical nature as vegetable and animal food. On the contrary, it is hot, pungent, bitter, noiseating, and to all tastes offensive at first. It is not the result of habit, for the taste and the desire for the article is acquired before the habit is formed, and the system accommodated to its use.

The only solution to the inquiry that occurs

to my mind as plausible is, that the desire, taste for, and use of Tobacco, alcohol, opium, and other artificial stimulants, if not one of the laws of our fallen and corrupt nature, is at least, one of the results of that depravity induced by the fall; and hence its universality. The untutored Indian, with but few wants, and those easily satisfied, removed beyond the influence of civillzation and its vices, feels the need of some artificial stimulus—some excitant, to rouse up and bring into action the dormant energies of his mental powers, and, directed by instinct, or guided by reason, he found in the Tobacco plant a panacea for all his wants; and while inhaling the exhilarating, stimulating fumes of the sweet aromatic oronoco, realizes the fact that all the softer and kinder feelings of his nature are aroused and brought into active operation; the rough and crooked paths of life made smooth and straight for the time; suspicion, enmity, and revenge give place to confidence, kindness, and hospitality, and the calumet is offered and received as the emblem of friendship, and the sign manual of peace.

The indolent, sensual, enervated Turk resorts to the inspissated juice of the poppy from the same feeling of want,—it may be necessity,—and with the same results.

Nor is the white man, the civilized, refined, intellectual, Christianized inhabitant of Europe and the United States, exempt from, or removed beyond, this same universal law of necessity, and unconquerable desire for artificial stimulus. Yea, it would seem that where mind predominates most over mere physical matter, there the desire is strongest, and the necessity greatest; consequently, the white man has superadded to the Tobacco of the Indian, and the opium of the Turk, the juice of the grape, the fermented and alcoholic liquors of christendom.

The Tobacco plant has been extensively cultivated since the settlement of this country; it was peculiarly adapted to a fertile wilderness country, such as our forefathers found this to be. Their true policy was, to cut down and open the lands, in the earliest and most expeditious way; and had they stopped the desolating system, and stayed the axe at the right time, it would have proven not only a profitable employment of labor, but a judicious investment of capital. Tobacco was their only staple,—the basis of all their commercial and financial operations; with it they paid their tax and tithes, their foreign and domestic debts. In short, it was almost the only medium of exchange in those days; and the true policy was to make Tobacco, and to make all they could at any sacrifice. This policy was right in its commencement, and only wrong in its too long continuance.

Many crocodile tears have been shed over the pretended waning fortunes of Virginia,—her exhausted and gullied fields, her very bad and wretched husbandry; her sparse population, and her defective system of education. In a majority of instances, these tears flow from eyes blinded by prejudice, and inflamed by malice, and not hearts warmed by sympathy and melted with love; they come from a region cold, barren, and unproductive in everything that is good and great: where nothing but herecies and isms flourish and grow to maturity. Tobacco and its concomitant, slavery, are the great causes of all this social evil, moral and agricultural desolation, which these self-constituted fogies and would-be philanthropists so much deprecate and mourn, and which they so anxiously are endeavoring to avert by their officious interference with our domestic institutions. To the one, as Virginians, we will continue to devote that measure and portion of our time and attention which to us seems most conducive to our interests. To the other, as Southerners, we will cling with death-grasp.

We said the Tobacco crop was the basis of all the operations of our forefathers; it is now intimately connected with our habits and industrial pursuits; it is one of our principal exports; we could not do without it; we must continue to grow it as a monied crop. Not to the detriment of our farms, not as the all-absorbing interest of our vocation as farmers,—but as an auxiliary, as a second resource to meet our pecuniary wants. As a cleansing and preparatory crop in any rotation adapted to our immediate section of country, it is unsurpassed by any other, and is less liable to casualties and more certain than any other.

The abuse of anything is no argument against its use. We are not reluctant to admit that the injudicious cultivation of the Tobacco crop was, in gone-by days, attended with many disastrous results; but what other crop could have been cultivated to the same extent in this or any other country with the same slovenly recklessness and the same indifference to consequences that would have been less deteriorating and ruinous to the country? And what other crop could so long have sustained and supported Virginia aristocracy and chivalry in her colonial days; and Virginia hospitality, generosity, and magnanimity of character from the revolutionary epoch, to the present time, the wonder and admiration of all who are familiar with her history or acquainted with her people.

If Tobacco is the blight of all that is fair and lovely, leaving in its train sterility and desolation, from whence has Virginia been enabled to send out such vast colonies and treasures to subdue and populate the South and South-western portions of these United States, causing the wilderness to blossom as the rose, and to crowd the halls of legislation, and to fill the offices of honor and profit with so many of her gifted and talented sons, both in the State and Federal departments?

How is it, if slavery and Tobacco are so demoralizing, so offensive in the sight of high heaven, and so obnoxious to the charges preferred against them, that Southern altars are not as frequently desecrated, and our jails and penitentiaries are not so crowded with felons and convicts as some others, where Tobacco is not cultivated, and African slavery is not tolerated? Tobacco, as now being embraced in our rotation, under the improving spirit of the day, may not only be profitably but advantageously cultivated on our improved lots and flat lands,—rendered more productive by the application of manure from domestic sources, with the aid of artificial and foreign fertilizers, —guano, bone-dust, phosphate of lime, &c. &c., than the virgin lands are or ever were.

I do not think that it is hazarding too much to venture the opinion, that the capabilities of middle Virginia to raise Tobacco are any less now than fifty or a hundred years ago, while at the same time the use of the article is diminishing, and that the present relation of supply and demand is likely to continue for some time to come,—and that we shall continue to realize remunerating prices for the article. Let Eastern Virginia continue to give all her attention to cereal and leguminous crops, and all other advantages with which a bountiful Providence has so abundantly favored her. Let Western Virginia open up and bring into market the rich and inexhaustible fossil and mineral resources of her mountains; open and improve her meadow and mountain lands so admirably adapted to grass and stock of every kind, employ her unsurpasssed water-power, and increase her manufacturing operations to their legitimate extent. We, gentlemen, will not rival them in their pursuits, or envy them in their prosperity.

It is the true policy of Middle Virginia, the finest portion of the State, to stick to her old staples,—corn, wheat, Tobacco,—her soil and climate are admirably adapted to their production. No country can boast of three richer staples; they are identified with our habits; they are adapted to our wants; they have borne us on to wealth and prosperity through evil and through good report; and especially let us cling to the Tobacco plant. Let it be the emblem, the motto of Virginia. It should occupy a conspicuous place on the banner of the Old Dominion. Every Virginian should have a luxuriant Tobacco plant painted and hung up in his drawing-room, a memento of what it has done for us in gone-by days, and as identified with our present and prospective agricultural and financial pursuits and interests.

Gentlemen, I am aware that I have already trespassed too long on your patience, but I cannot conclude without congratulating you on the prosperity of our enterprise, the success of our Club in all the essentials which we had in view at its formation. There can be no doubt but that we are better farmers, individually, than we were previous to our association. Our example has had a beneficial effect on our neighbors and the community at large. The influence which we are exerting on the agricultural classes, though silent and unobtrusive, is extensive and potent for good. The results of our good or bad management arrest the attention of our neighbors, and they are large beneficiaries by our experiments, and they follow on in our wake, without incurring the danger of pioneers; they profit by our success, or are admonished by our failures. We have awakened the spirit of inquiry, and quickened the energies of the agricultural public. Our association is eminently calculated to promote social intercourse among the citizens of different and remote parts of the country, and a free interchange of opinions and practice in our industrial operations. Since our organization, some of our members have left us; but it is a source of gratification to believe, that they have left with us their warm regards and best wishes for our prosperity and ultimate success; and we now tender to them our thanks for their efficient aid in the formation and advancement of our Club while they remained with us, and our best wishes for their present and future happiness and prosperity.

A. A. CAMPBELL, *President of the Agricultural Club of Nottoway Co.*

May 8th, 1856.

(No. 2.)

Report of Experiments with Peruvian Guano and DeBurg's Superphosphate of Lime.

In the fall of eighteen hundred and fifty-four I applied at the rate of 200 pounds of DeBurg's Superphosphate of Lime to the acre, on some old field land upon which I had raised a crop of corn the previous summer, and to which I had applied a hundred pounds of guano in July. At the same time, upon similar land, I applied two hundred pounds of Peruvian guano per acre; the guano was applied before breaking the land and the superphosphate afterwards, the whole broken up with two horse ploughs—the whole was then seeded to wheat and put in with a cultivator. The result was in favour of the superphosphate, not only in the wheat, but in the subsequent crop of clover, more especially the latter, which is very greatly superior to that grown upon the land where the guano was applied.

Last spring I again tried both manures upon corn and tobacco, and although I was well pleased with the action of superphosphates, my experiments were too inaccurate to warrant a detailed account. I tried again upon wheat last fall, but the whole crop was so indifferent and so nearly alike, I can come to no conclusion with regard to the comparative merits of the two. As I design seeding the same land in

wheat again, I did not sow clover seed upon it, so I cannot test it in that way.

Respectfully submitted,

June 3, 1856. T. R. Blandy.

(No. 2½.)

Experiments with DeBurg's, Jordan's and Duval's Superphosphate of Lime.

I used last year on tobacco, one ton of De Burg's Superphosphate of Lime, one ton of Jordan's Superphosphate of Lime, and about a half a ton of Duval's Superphosphate of Lime. With each of them I mixed one-fourth (by measure) of No. 1 Peruvian guano, and applied in the drill at the rate of 200 pounds per acre. Jordan's and DeBurg's were used on the same land in strips—applied at the same time and planted the same day. The difference was very great in favour of Jordan's, which grew off rapidly and made very good tobacco. The tobacco on which DeBurg's and Duval's was applied was so indifferent, that to save the crop I had to make an additional application of Peruvian guano, from which it improved very rapidly and made a good crop. I could not perceive the slightest benefit from DeBurg's and Duval's Superphosphate, as the guano mixed with them would have made as good a yield alone. Respectfully submitted,

April 9, 1857. Wm. J. Harris.

(No. 3.)

Peas Sowed with Oats—Superphosphate of Lime and Peruvian Guano in combination for Tobacco.

In compliance with the injunction of our constitution, requiring each member to report in writing the result of some experiment made or process executed, I have to report that I last Spring, on two different pieces of land, sowed peas with oats at the usual time of seeding oats; on one piece I used the common black-eye pea, on the other the Oregon or Chickasaw; the black-eye peas were sown and turned in with the oats, with a one horse turning plough. They came up thinly (which I attributed to their being buried too deeply), but stood the cold late Spring without injury, and after the oats were taken off, grew to be nearly knee high; the Oregon peas were harrowed in with a 24-tooth drag, and came up much better, and after the reaping of the oats, gave a respectable cover to the land. These experiments were made to see if peas could be sown with oats, so as to give a cover to the land after the oat crop was reaped.

I also made an experiment with the view of comparing the effects of a combination of superphosphate of lime and Peruvian guano, with Peruvian guano on tobacco; that portion of the the tobacco which received both the phosphate and guano, was, in my opinion and that of my overseer, decidedly superior to that dressed with guano—both applications were made to land well manured with home made manures. The whole is now in wheat, but it is too early to say anything of their effects upon this crop.

Respectfully submitted,

April 10, 1856. Wm. R. Bland.

(No. 4.)

Comparative cost of Improved Land by "Trashing" and by Peas—Mulching Corn with Pine Trash—Peas Sowed with Oats.

My experiment for this year was made first, with a view of ascertaining the comparative cost of improving poor lands by hauling vegetable matter on it, and in turning in pea crops, both plans in connection with the use of guano. Secondly—To ascertain whether corn can be grown by mulching with pine beards. And thirdly, whether peas will succeed sowed with oats. I hoped the above would have proved interesting, but from my own carelessness, the inferior quality of the guano used, and the very unfavorable seasons, I have been disappointed.

Last Spring I laid off two contiguous acres of poor land for the above experiments; on one I used 200 pounds of Peruvian guano broadcast, and turned it under with a two horse plough, planted it in corn, one part in drills 5 feet apart, and the other 3 feet apart, and covered the whole with pine beards about 1 inch thick. The corn suffered very much in the early part of the year for the want of thinning, but more from the long rainy spell in June, which caused such a growth of grass and weeds as well nigh destroyed it. I will state just here, that I made a similar experiment in 1851, on a perfect gaul, and think a yield of three or four barrels of corn per acre may be reasonably calculated on—moreover, I found the plan a most excellent one for curing gauls, and can confidently recommend it, where pine beards or wheat straw are at a convenient distance.—On the second acre I sowed April 18th, 1½ bushels oats, 1 bushel black peas and 100 lbs. Peruvian guano—and turned all under together with a one horse plough. The peas came up about half as thick as they should have done, and were very much injured by the frost and cold weather in May. They, however, looked much better in August than I expected. The oats on this acre were cut. The peas turned under about the 1st of October. I intend sowing both acres in wheat this fall, and herd's grass next Spring—measure the wheat from each acre, and notice the comparative improvement. The following is the account current for each acre:

1st Acre.

To 200 pounds guano, - -	$5 00
To ploughing and planting, no other work done after, -	2 50
To hauling and spreading pine beards—1 cart, 1 man, 1 woman and 2 boys—3 days, $3,	9 00
	$16 50

Cr.		
By 1½ bushels corn and 1½ bushels nubbins, and for 100 pounds fodder and shucks,	3 00	
		$13 50
2nd Acre.		
To 100 pounds guano, - -	$2 50	
To ploughing, &c., - -	1 50	
To 1½ bushels oats, 75 at cts.,	1 12	
To 1 bushel black peas, -	1 25	
	$6 37	
Cr.		
By 849 lbs. of oats, at 75 cts.,	6 36	
		0 01
Difference, - - - - -		$13 49

Had the acre in corn produced as much as I supposed it reasonable to expect from experiment in 1851, the Dr. and Cr. sides would have been about equal.

Respectfully submitted,

Nov. 8, 1855. WM. IRBY.

(No. 5.)

Experiment on Planting Corn late with Guano in the Drill.

In 1855, in consequence of the dry weather and the hardness of a piece of land which I had failed to have broken up in the winter, I could not break it until the first of June, when we had seasonable weather. I then had it broken and well harrowed, and on the 9th of June had it planted in corn, one grain in a hill, with from 50 to 75 pounds of guano sowed in the drill, as the land was rather thin and below average quality of the rest of my field. The corn came up well and grew off well, and did not seem to need any work until it was about a foot high. I then had it thinned, and one furrow run with a trowel-bar plough on each side of it, and when about three feet high had the whole row plowed with the turning plow, throwing the dirt to the corn, but not ridging it high. That was all the work of any kind that it had, and it made a very fair yield, averaging with most pieces of corn.

TRAVIS H. EPES.

Nottoway, May 8, 1856.

(No. 6.)

Comparative Product of Level and Ridged Culture of Corn.

By the request of the Club I last Spring proceeded to test the cultivation of corn by the use of the turning plough exclusively on a series of lands, and in competition the exclusive use of the Cultivator in same manner, side by side. I laid off 6 strips of land, containing 3 rows of corn each. On the first strip I used the turning plow, on the second the Cultivator, and alternate throughout. I gathered the middle row of each strip as the fairest test of the product—and the yield the three rows cultivated with turning plows, was 6½ bushels. —of the rows cultivated with Cultivators was - - 10 "

A difference in favor of the level cultivation of about 38½ per cent.

I did not notice the fodder—in fact no fodder was pulled. The soil on which the experiment was made is light, second low grounds. The corn was planted about the 10th of May, and was manured with guano, at the rate of 100 pounds to the acre. I may here add that my whole crop of high-land corn, was cultivated exclusively with the cultivators, and I think was throughout the season in as good condition as I have ever had one—never having been too hard for a cultivator to fail to do good work.—The experiment only confirms my previously formed opinion, that if land is well prepared, the level cultivation is most advantageous and productive, and is less injurious to the soil—and moreover leaves the land in much better condition for receiving a crop of wheat or other small grain.

Respectfully submitted by

RICHARD IRBY,

One of the Committee.

(No. 7.)

Plan to take Annual Census of the Wheat Crop —Suggestions about Prizing Tobacco, and about County Insurance.

As I have no experiment, for the present year, sufficiently accurate to be valuable to the Club, I will offer suggestions on several subjects, which, if they meet the approbation and support of the Club, I think may be carried into practical operation.

The first is a plan for ascertaining the amount of wheat raised in the State of Virginia every year, and in time to render the information available to the farmer before his crop is thrown on the market. Some plan of this kind seems to me the only mode of preventing the fluctuation of prices, caused by false estimates and reports, generally made and circulated for the benefit of individual operations. If the plan is found accurate on trial, it will be adopted by other States, and it will soon acquire the confidence of buyers and sellers, so that both will have, I think, the best approximate estimate to govern them for the ensuing season.

I do not claim for the plan originality, as I believe a similar one has been tried in Scotland, and found to work admirably well. The plan I propose is as follows: the Executive Committee of the State Agricultural Society shall appoint annually a committee of three or more persons in each county of the State, and notify said committee of their appointment before the first day of May, and instruct them to appoint sub-committees of three or more for each Magisterial district in their county; the members of the sub-committee to see every farmer in their district between the

first of July and the first of August, and ascertain from him the number of bushels of wheat he thinks he will have for market. A list to be kept, and the name of the person and amount of crop to be entered, and this list to be reported to the committee at August court, and the aggregate product then forwarded to the Executive Committee for publication in the public papers.

Every farmer knows that he can make a more correct estimate of his wheat in the shock than at any time before or afterwards until it comes to the test of the half-bushel. And when the estimate is carefully made, it will vary very little from actual measurement; the slight errors of bad judgment will generally offset each other. I am satisfied that, if faithfully done, (and the farmers are more interested in the faithful execution than any other persons,) it will soon acquire the confidence of all parties, and we will not see estimates varying fifty millions to distract buyers and sellers,—thus causing a fluctuation in price of from fifty to a hundred per cent.

The second suggestion is in regard to prizing Tobacco. The average crop of Tobacco in Virginia has been generally estimated at forty-five thousand hogsheads, and the hogshead supposed to weigh fifteen hundred pounds. But planters, from carelessness or by making tobacco with guano alone, have made a very material difference in the average weight of their hogsheads. Last summer it was ascertained by the first of August, that the crop of Tobacco in Virginia would reach between fifty-five and sixty thousand hogsheads,—or from ten to fifteen thousand more than an average crop. The buyers immediately became alarmed, and prices immediately fell from one to two dollars per hundred. Well, this was a false estimate, and caused by the farmers themselves. The crop proved to be fifty-seven thousand in Virginia; but I have been informed by several persons engaged in buying and selling Tobacco, and who were regular attendants at the "breaks," that they did not believe the hogsheads of Tobacco inspected last year averaged one thousand two hundred lbs. So, taking that as the average, and deducting three hundred lbs., or one-fifth, from the number of hogsheads inspected, to bring them up to the old fashion average of fifteen hundred lbs. per hogshead, and we have only forty-five thousand six hundred hogsheads as the actual crop of Virginia. I think, therefore, that every planter should make his hogsheads average at least fifteen hundred lbs. If that weight is too much for good Tobacco, that may be fixed to weigh less, and the inferior Tobacco and lugs made to make up the average; so that in the aggregate, every hogshead shall count fifteen hundred lbs.

The third suggestion is, to institute a Mutual Insurance Company, on the plan of the "Washington Mutual Insurance Company," of New York. This company to insure only in the county, and to a limited amount. In that way the losses would be so light, and consequently the rate of insurance so small, that I think every farmer in the State would find it to his interest to be insured by it. The plan requires so little actual capital, that the greatest difficulty would be to procure honest agents. Whether or not this should be undertaken by the Agricultural Society, or left to private enterprize, I leave to wiser heads. I merely throw out the suggestion for others to act upon; being well satisfied that it would be a valuable institution, if properly managed.

Respectfully submitted,

Wm. J. Harris.

Nottoway, April 21st, 1856.

(No. 8.)

Period of Gestation in Mares.

The report I wish to submit to-day, in accordance with a rule of the Club, is one connected with that noble animal, the horse, which may be considered one of the most valuable assistants of the farmer in the conduct of his pursuits. Though the observations to be made upon this subject are more properly within the province of Physiological science, yet they are not without some practical bearing on the interests of agriculture. If it is a source of benefit to the farmer to become acquainted with the scientific relations of plants and soils, it is also the case with the knowledge to be obtained from the study of the nature of those animals which perform an important part in the success of his operations. The rearing of colts, while it is with us a matter of minor consideration, yet possesses sufficient practical interest to make it worthy of such inquiries and observations as will tend to render it most successful and profitable. After a mare has been let to a horse, it may become a question of some moment to her owner, at what time to expect her to bring forth her foal. There is a tradition among us, to the effect, that this event takes place, if I mistake not, at the end of eleven months, with as many days added as the mare numbers years of age. How nearly this period would conform to actual results in the multitude of cases, I am not prepared to determine. But from some observations which I have been enabled to make and researches into natural history to which my attention has been drawn, it would seem that there are many cases in which it bears but a faint semblance of truth. In the year 1848, I put two mares to a Jack on the same day, the 5th of May, and without being put again, they foaled respectively on the 14th and 25th of April following. In the one case 11 months and 9 days, and in the other 11 months and 20 days. One mare supposed to be 6 years old, and the other was 8 years old about the time of foaling. In the year 1855, one of the same mares was put once again to a horse and brought forth her foal in

12 months and 1 day at the age of 15 years. These personal observations coincide with the investigations of Tessier, the naturalist, in showing the inconstancy of the period to which the mare, in common with some other animals, carry their young. The investigations of the latter inquirer led to the following conclusions:

"In 277 mares, with foal for the first time, 23 foaled between the 287th and 329th days, average 322 days; 226 between the 329th and 360th days, average 346 days; and 28 between the 360th and 419th days, average 372 days; average of the whole, 347 days; difference between the extremes 132 days.

"In 170 mares which had foaled before, 28 foaled between 290th and 329th days, average 321 days; 128 between 329th and 360th days, average 341; and 14 between the 360th and 377th days, average 370; average of the whole 341 days; so that between the shortest and the longest period, there was a difference of 97 days, more than ¼ of the mean term."

Respectfully submitted,

GEORGE FITZGERALD.

Jan'y 8, 1857.

The Horse Charm; or the Great Secret for Taming Horses.

The horse-castor is a wart, or excrescence, which grows on every horse's fore legs and generally on the hind legs. It has a peculiar rank, musty smell, and easily pulled off. The ammoniacal effluvia of the horse seems peculiarly to concentrate in this part, and its very strong odor has a great attraction for all animals, especially canine, and the horse himself.

For the oil of cumin, the horse has an instinctive passion—both are original natives of Arabia, and when the horse scents the odor, he is instinctively drawn toward it.

The oil of Rhodium possesses peculiar properties. All animals seem to cherish a fondness for it, and it exercises a kind of subduing influence over them.

The directions given for taming horses are as follows:

Procure some horse-castor, and grate it fine. Also get some oil of Rhodium and oil of cumin, and keep the three separate in air-tight bottles.

Rub a little oil of cumin upon your hand; and approach the horse in the field, on the windward side, so that he can smell the cumin. The horse will let you come up to him then without any trouble.

Immediately rub your hand gently on the horse's nose, getting a little of the oil on it. You can then lead him anywhere. Give him a little of the castor on a piece of loaf sugar, apple or potato.

Put 8 drops of oil of Rhodium into a lady's silver thimble. Take the thimble between the thumb and middle finger of your right hand, with the fore-finger stopping the mouth of the thimble, to prevent the oil from running out whilst you are opening the mouth of the horse.

As soon as you have opened the horse's mouth, tip the thimble over upon his tongue, and he is your servant. He will follow you like a pet dog.

Ride fearless and promptly, with your knees pressed to the side of the horse, and your toes turned in and heels out; then you will always be on the alert for a shy or sheer from the horse, and he can never throw you.

Then if you want to teach him to lie down, stand on his nigh, or left side; have a couple of leather straps about six feet long; string up his left leg with one of them round his neck: strap the other end of it over his shoulders; hold it in your hand, and when you are ready, tell him to lie down, at the same time, gently, firmly and steadily pulling on the strap, touching him lightly on the knee with a switch. The horse will immediately lie down. Do this a few times, and you can make him lie down without the straps.

He is now your pupil and friend. You can teach him anything, only be kind to him, be gentle. Love him, and he will love you. Feed him before you do yourself. Shelter him well, groom him yourself, keep him clean, and at night always give him a good bed, at least a foot deep.

In the winter season, don't let your horse stand out a long time in the cold, without shelter or covering; for remember that the horse is an aboriginal native of a warm climate, and in many respects, his constitution is as tender as a man's.

Preserving Green Fodder.

According to the Rural Encyclopedia, the following mode of preserving fodder has been adopted in Germany and some parts of Prussia:

Pits are dug into the earth from 10 to 12 feet square, and as many deep; these are lined with wood, and puddled below and at the sides with clay. They may obviously be made of any other suitable dimensions, and lined with brick. Into this pit the green crop of grass, clover, or vetches is put just as it is cut. Four or five cwt. are introduced at a time, sprinkled with salt at the rate of 1 lb. to each cwt.; and if the weather, and consequently the crop, be dry, two or three quarts of water to each cwt. should be sprinkled on each successive layer. It is only when rain or heavy dew has fallen before mowing that this watering is considered unnecessary in East Pussia. Much, however, must depend upon the succulency of the crop. Each layer of 4 or 5 cwt. is spread evenly over the bottom, is well trodden down by five or six men, and especially is rammed as close as possible at the sides with the aid of wooden hammers. Each layer is thus salted, watered (if

necessary,) and trodden down in succession till the pit is perfectly full. Much depends upon the perfect treading of the grass for the exclusion of air; and, therefore, for a pit 10 feet square 4 cwt. is as much as should be put in it at a time. Between each layer must be spread a handful of straw, in order that when emptying the pit afterwards for the daily consumption of the stock, the quantity taken out may be known without the necessity of a second weighing. When the pit is full, the topmost layer is well salted, the whole then covered with boards or a well-fitting lid, and upon these a foot and a half of earth for the more perfect exclusion of the air. A pit 10 feet square, and as many deep, will hold about 5 tons of fresh grass; and each pit should if possible not be filled in less than two days. When covered up the grass speedily heats and ferments; and after the lapse of six days, when the fermentation has ceased, the whole has sunk to about half its original bulk. The lid must be examined during its fermentation at least once a day, and the earth, as it sinks, carefully replaced whenever crevices appear; for if the air be allowed to gain admission, a putrefaction will come on, which will impart a disagreeable odor to the fodder, though it will not prevent it being readily eaten by the cattle. When the first fermentation has ceased, the lid may again be removed, the pit again filled with fresh grass—trodden in, salted, and covered, as before. A pit 10 feet square, when perfectly full of this fermented grass, will contain nearly 10 tons, equal to two or three tons of dry hay. The grass when thus fermented has the appearance of being boiled, has a sharp acid taste, and is greedily eaten by cattle. The pits should be kept covered for at least six weeks, after which they may be opened as successively as required, and may be kept open till their contents are consumed by the cattle, without any injury from the contact of the atmospheric air. Of the feeding qualities of this salted fodder one experimenter says, that by giving only 20 lbs. a day of it, along with chopped straw, he kept his cows in condition during the whole winter. His green crop was vetches; and the 20 lbs. of salted fodder were equal to, or would have made less than 4 lbs. of hay. Another experimenter says, that on a daily allowance of 28 lbs. of his salted fodder his cows gave a rich and well-tasting milk.—*Boston Cultivator.*

Cure for Fever and Ague.

Lieut. Maury has been planting "a belt about 45 feet broad around the Observatory [at Washington] on the marshy side, and from 150 to 200 yards from the buildings," with Sun Flowers. This is "to protect them from Fever and Ague." He says it is "at the risk of spoiling the looks of a beautiful lawn," but last year it seems to have been successful in setting "the shakes" at defiance. Some years ago much was said of the different uses to which the Sun Flower might be put, but we do not recollect that this was one of them. Could not the advocates of "Chinese sugar cane," include it also among the merits of that sugar, dye, cider, forage, molasses, and tallow-candle producing plant? Will some one answer, who has a few seeds left?—*Country Gentleman.*

Albemarle Tobacco—Highest Average this Year—Ivy Creek Land Ahead.

Mr. R. W. N. Noland, of this county, sold his tobacco crop through Messrs. Deane & Hobson, Richmond, at the following prices:

Two hogsheads at $11 37; 2 do $14 25; 5 do $16, and 4 do $16 25; making an average of $15 09 for the entire crop, which is the highest average price for a crop of tobacco realized by any planter in Albemarle this year. Ivy Creek Land, we think, is very desirable property.

From the Ohio Cultivator.

Cattle Raising in the West.

The great Decrease of Stock in Ohio, Indiana, and probably other Western States—The Causes of this Decrease—Encouragement to Stock Raising instead of to Wheat Growing.

The census of 1850 exhibited the fact that the agricultural productions of the United States, used for human food, did not increase in proportion to its population. The increase of population from 1840 to 1850, was 36 per cent., of cattle 24 per cent., of hogs 15 per cent., of sheep 13 per cent., cent., of wheat 20 per cent., and of corn 57 per cent.—the last article only being greater than the increase of the people, while all the others were far below it. This fact was an important one, because it assured the farmer that the prices of his productions must assume a permanent advance gradually independent of those temporary causes, such as wars or short crops in Europe, which so frequently and greatly increase prices. But this fact has yielded to another one still more important, disclosed by the annual agricultural statistics of Ohio and Indiana, and that is, *that stock is decreasing in these greatest of Agricultural States.* It is the object of this article to show this fact, to enquire into the causes, and state the results that must follow from it.

1. The following statistics of Ohio were compiled from the annual reports of the Auditor of State, by the Ohio Cultivator, and of Indiana, from the reports of its Auditor of

State. The latter do not exhibit the true amount of the whole number of animals, because the person who prepared the assessors' lists, did not understand his business, and mislead them by the heading—many taking the annual increase only, while most of them, as the law directs, took the whole number. But this defect runs through the several years alike, and therefore gives a sufficiently correct return to exhibit the annual increase or decrease:

OHIO.

	Horses.		Cattle.		Sheep.		Hogs.		Wheat.		Corn.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	Acres.	Bushels.	Acres.	Bushels.
1851	402,695	16,863,796	1,136,700	10,097,858	3,050,790	3,581,385	1,299,746	3,090,836	1,624,715	22,962,774	1,730,188	58,165,517
1852	615,085	27,844,619	1,646,195	17,646,810	4,104,450	6,448,391	2,498,792	5,727,790	1,421,826	17,118,311	1,836,493	73,436,090
1853	632,598	32,512,983	1,772,667	20,995,680	4,845,189	8,081,854	2,887,015	5,558,487	1,475,935	11,819,110	1,972,337	52,171,551
1854	624,746	31,415,004	1,791,189	18,902,006	4,337,943	5,664,829	2,195,769	3,531,562	1,407,773	19,569,320	2,205,282	87,587,434
1855	621,443	36,231,127	1,687,710	21,175,070	3,513,681	5,009,410	1,851,124	5,268,008		19,859,446		

INDIANA.

	Horses and Mules.		Cattle.		Sheep.		Hogs.		Wheat.		Corn.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	Bushels.	Value.	Bushels.	Value.
1854	304,028	$13,657,874	798,419	$7,578,200	882,797	$937,370	2,668,572	$5,514,098	6,658,952	$7,789,324	34,811,902	$11,756,664
1855	296,655	14,833,502	782,152	6,671,225	838,798	867,767	2,277,124	6,629,696	10,076,710	10,868,514	58,256,127	13,898,449

We have given the statistics of Ohio for several years, to show the increase and decrease, but only the last two years of Indiana, because we had not the returns of 1853. Our remarks shall be confined to these years in both States.

The decrease in Ohio between 1854 and 1855, has been as follows: Horses, 3,303; cattle, 103,479; sheep, 824,262; hogs, 344,645. In Indiana, as follows: Horses and mules, 7,373; cattle, 16,267; sheep, 43,999; hogs, 391,448.

These returns show a remarkable decrease, and one that is of great importance to every stock raiser. Are they correct? Those of Ohio are as much relied upon as other statistics, and we know of no error in those of Indiana, except the one already referred to. But their general correctness is sustained by the high prices of stock, and by the returns received at Cincinnati of the number of hogs slaughtered in the West. It will be seen that there are a few more hogs in Indiana than in Ohio. The decrease in Ohio was 344,645, in Indiana 391,448—a proportion approaching the difference in the whole number. Again: upon the supposition that one-half the whole number of hogs is slaughtered every year, then the deficiency of this past season should be about one-half the whole deficiency reported by the assessors. This is the case, for in Ohio it is 169,339, and in Indiana 154,838; and, making the proper allowance for the hogs sold from Indiana at Cincinnati, it would make the deficiency greater in Indiana, and both together would be nearly the one-half of the whole deficiency reported by the assessors. Thus:

Whole deficiency reported by Assessors	736,093
Whole deficiency from these two States reported by the Cincinnati *Price Current.*	324,177
Leaving	87,737

To represent the deficiency of those retained at home for home use. The assessors' returns are thus sustained by the number of hogs slaughtered the past season. And if they are sustained as to hogs, there is no reason to question their correctness as to other stock. And if horses and cattle and sheep have proportionately decreased in other Western States as their hogs, then there is a heavy decrease of stock in all these States.

2. What are the causes of this decrease? They are several, and among them are these: The readers of the New York Tribune know how persistently that paper has sought to keep the price of the best beef down to *ten* cents in New York. Its course called out one of the Renicks in answer, in which he showed the greater profit twenty to thirty years ago to the cattle feeder, when beef was six cents in New York, than ten could be at the time he wrote. Land and labor, he showed, had advanced from 200 to 300 per cent., while beef had advanced but about 60 per cent. The same causes had been gradually operating to lessen the profit of all farm stock; and when from 1850 to 1854, the States of Ohio, Indiana and Illinois were covered with their net-work of Railroads, the prices of land and labor still far more rapidly advanced, and a market was opened for grain crops. High European prices stimulated the production of the latter, so that stock was neglected. Every one sought to profit by the favorable market for breadstuffs. The Prairie Farmer, more than a year ago, cautioned its Illinois readers against the abandonment of stock raising for wheat growing. Besides this general cause, there were other minor but not unimportant ones. The raising of mules lessened the number of brood mares, which operated to decrease horses. In Indiana, we have no means of determining the number, for horses, mules and asses are embraced in the same column. In Ohio in '52, '53, '54, and 1855, the increase was about 70 per cent.—the whole number in 1852 being 3,002, and in 1855, 5,315. In Indiana the increase was probably greater than this, but mule raising, we think, must now be decreasing here. The severe winters of 1855 and 1856 destroyed large numbers of pigs. So far as my personal information extends, the loss by the last winter has been unexampled, and must present a still further decrease of hogs in the returns of the assessors for 1856. The hog cholera is destroying its thousands.

But there is another and a much more general cause than any or all these, that is rapidly diminishing animals that are used for food—the increased consumption of animal food. Ten years ago, if a merchant in any of our small towns bought a barrel of molasses for sale, it required a long time to sell it out. But, until recently, its consumption so rapidly increased, that every merchant or grocer had several barrels always by him. The general statistics showed how rapidly the quantity consumed had increased. So it has been with fresh meats also. Ten years ago, one beef was the weekly supply of our good inland towns, and now, regular markets, for three of the several days of the week are held, in which beef, mutton, pork and veal are regularly sold. Ten years ago no one here slaughtered sheep or calves, and now no one rejects either. Better living is found every where, even in Europe, and I will be pardoned for the following extract from the *London Post* of Jan. 27th. In adverting to the increased production of gold, the rapid improvement of all classes in society, as shown by the increased consumption of cotten goods, manufacturers of leather, etc., that paper says:

"Not less is the deficiency in the better class of food beginning to make itself felt. In that country (France) the price of butchers' meat has risen to an extent to give some uneasiness to the government; not because there are

fewer beasts or less forage, for agriculture never was so flourishing in France as it is now, but because there are a greater number of people who can afford to pay for the more expensive sort of food; and the like cause in this country produces the like effect, and causes that dearness of which we hear so many complaints; and there are many other indications, too, that the requirements of civilization have reached a point they never before attained. We believe the prosperity which enables men to wear better clothes and more of them—to consume better food and plenty of it—to live in better houses and still apply much money to literature—to have its source in the greater perseverance, energy and application displayed in the industrial arts—to science applied to agriculture and augmenting production—to self-restraint and sobriety, and especially to commerce."

What is true in France and England is much more so in the United States; and the encouragement which this bettered condition of mankind gives to our farmers, clearly points to stock raising as one of the best paying branches of agriculture.

The New York Tribune, following up its accustomed efforts to depress the cattle market, intimates in a recent article that the scarcity of horses was owing to a greater attention paid to raising cattle. It says:

"Then came transportation of beef cattle by railroad, and a very great increase of price, and consequent conviction that raising and feeding bullocks was more profitable than raising colts and selling horses."

Yet the statistics I have given show how much greater has been the decrease in cattle,—a fact that would not have been exhibited by the assessors' returns, if "raising and feeding bullocks had not been more profitable than raising colts." But this is the same paper that represented the great West as covered with cattle, last fall, ready to beg a market in New York and other Eastern cities, at the lowest prices. These statistics present an unanswerable refutation to all such declarations, and for that reason the Tribune will not touch them.

3. I have intimated that a result of this decrease of stock and increased consumption of animal food, will be in making the raising of stock the most profitable branch of farming. It will of course have its brisk and dull times, like all other pursuits, but the facility of overproduction is not great, while it is easy to bring it down to profitable limits. It will not impoverish the soil, as grain raising and exportation does. On the contrary, it will better fit our lands for casual heavy crops of grain, when European demand largely advances prices. The States of Ohio, Indiana and Illinois are therefore acting wisely in giving so great encouragement to the introduction of the best breeds.

The present price of wheat indicates that the supply is greater than the market demands. Although the greater portion of the United States is embraced in the drouth region of 1856, which is without vegetables or fruits, and with corn hardly sufficient to feed stock, yet wheat is dull at one dollar. It is obvious that the grain market cannot be relied upon, especially under the Reciprocity treaty, by which Canadian wheat comes into our Eastern cities free of duty. The farmers of Ohio and Indiana must place their chief reliance upon stock; and with their market facilities, their spirit of improvement of breeds, which is to be found in so many portions of both States, their soil, climate, and energy, success is certain.

LEWIS BOLLMAN.

Bloomington, Ind., May, 1857.

Haw's Woodpecker Saw.

Several correspondents have written to us to know the price, performances, &c. of Haw's Woodpecker Saw. The following letter from Dr. Carter Wormley of King William gives more information than we can give in regard to it. We know nothing whatever of the machine. We never saw it. But we know Messrs. Haw & Gresham, and Drs. Wormley and Macon, and underwrite them all. Mr. Haw's address is given in Dr. Wormley's article, and gentlemen wishing farther information are referred to him.

Dear Planter:—In compliance with a promise made you a few weeks since, and from a desire to do justice to a most worthy and estimable citizen, and one of the most ingenious, honest and obliging mechanics of my acquaintance—one of whom his native State may well be proud, I write this communication to add my testimony to what was written by Mr. Gresham in the April No. of the Planter in regard to "Haw's Woodpecker Saw." It is not only "indispensable in preparing plank for fencing, &c., as you remark in your editorial in the May No. but it will saw as *smooth* and *true* a line in *any* kind of timber, and plank of any thickness from ¼ of an inch to scantling, as any saw now known, whether it be driven by steam or water power.

I purchased the first saw made by Mr. Haw—his experimental saw (and he has made many improvements in it since) and have now worked it two seasons with perfect success, and it has given entire satisfaction.

A friend was present a few days since and timed the saw cutting in tough white oak, a line 18 inches deep and 18 feet long (27 feet)—the line was cut with 7 mules to the machine in four minutes and 45 seconds with the most perfect ease to the team.

My saw is attached to the horse power of my wheat machine and is all under a shingle roof. I haul the logs up with a carry-log at convenient times, and in bad weather I have occupation for my hands and mules in sawing, which time would otherwise be lost. With a driver and a hand to assist the overseer, who manages the saw, I generally saw 12 or 1300 feet of oak timber per day—but with additional force to assist in placing the logs on the carriage, I have no doubt that 2000 feet could be sawed daily, with six good mules, with perfect ease.

The machine is perfectly simple and can be managed by any one who has half an allowance of brains. It is very strong, well made and not at all liable to get out of order.

I am now making all of my fences of plank. I am inclosing one field every Spring, and hope at the end of five years to have every fence on my estate made of plank, the advantages of which I need not mention. I find that four planks six inches wide with a good bank thrown up with a plough and shovel, are sufficient to turn any kind of stock. My posts are cedar and locust—this year I am using *Catalpa*. By the bye I have often wondered that Catalpa has not been cultivated by our farmers in Virginia. It is easily raised, of very rapid growth and more lasting than cedar or locust. Did you ever see any person who ever saw a piece of decayed Catalpa? I have often made the enquiry, but never yet heard of a piece of *rotten Catalpa*.

But I have wandered from the subject of my communication, and conclude by recommending with perfect confidence to the farmers of Virginia, a Virginia implement made by native Virginia workmen—"Haw's Woodpecker Saw."

I believe Mr. Haw has already orders for more saws than he can make this season, but those wanting them by sending their orders in time will be "first on docket" for another season. His P. O. is Old Church, Hanover Co.

Respectfully,
CARTER W. WORMLEY.

Manskin Lodge,
King William Co.
May 11th, 1857.

For the Southern Planter.

Improved Fence of Cheap Plank.

MR. EDITOR.—Having lately proposed an improvement in fencing, that I deem of much importance to planters of this State, and the South generally, lest you did not, in the little conversation we then had, fully understand me, I now propose to say a few words from my own actual knowledge and experience. The labor and expense of fencing in this country, where stone cannot be had for the purpose, as at the North, has been, is, and ever must be, a heavy drain upon the profits of the farmer; so much so, that a less amount is found than would be desirable and convenient on most of our farms. Now, if a more economical method of fencing can be devised, all may be benefitted, and all would be pleased. I propose a fence without rails, posts, logs, spikes, or nails!—but simply of boards and stakes!—boards about seven-eighths of an inch thick, and say twelve feet long, with stakes from five to six feet long; two stakes to each pannel after the first, which takes three stakes. The stakes being set after an iron bar, a proper distance from each other, and the boards woven into them. I claim the following advantages for this kind of fence: First. It will take but about one-third as much lumber from the forest to build a given distance; for the upper part of a tree that cannot be mauled into rails, is as good for fence boards as any. Second. One acre of land is saved in each mile of fence, that is lost with the zigzag fence. And my fence being on a straight line, leaves no corners for bushes, briars, and weeds to grow where the plough cannot reach them. Third. In building, or rebuilding, in case of moving a fence, which is often desirable, the labor and expense is but about one-third as much as with rails. Fourth. A fence of the kind I propose, four feet high, will be found as effectual to stop cattle, &c., as a rail fence five feet high

and a ditch and embankment are the same advantages with my fence as with any other. The reason that this fence is more effectual to turn "unruly cattle" is, they cannot see through it, and if it be just high enough that they can't see over it, they do not press. Who ever saw an unruly creature attack the side of a building that was close covered, even with these splits or boards? while they will throw down a rail fence however heavy. Fifth. The same kind of lumber, say "old field pine," will last probably three times as long for the boards of this fence as for rails; and a cedar or other enduring wood, three and a half inches thick, will make two good stakes. I will anticipate the greatest objection, which is the cash for sawing the boards. Most of the rails are mauled by the hands at a leisure season. But I insist, if but one tenth of a farmer's work is thus saved, he can sell one-tenth of his help for cash, and pay his sawing bill. I would be glad to do his sawing for what labor and expense it would actually save him, leaving him a clean field, a more enduring fence, and one that would more effectually secure his crops from the ravages of cattle, sheep, and hogs.

In haste, C.

Proctor's Creek, Chesterfield, May, '57.

For the Southern Planter.

Destroying Sassafras.

Mr. Editor.—In looking over the April No. of the Planter, which a friend loaned me,—for I am not a subscriber,—on page 218, I find a method for destroying sassafras derived from the late John C. Page, Esq. I doubt not the efficiency of that mode of destroying such a pest; and the same treatment in amount with other pests, would be crowned with the same desirable results. It is simply cutting off all the bushes and trees, and then keeping all the sprouts closely cut until the roots are dead, which will be in a short time. Frequent cutting will very soon destroy all kinds of trees, bushes, briars, and weeds that afflict the farmer and diminish his crop. The common grass scythe is the best instrument for this purpose, if used often—so often that it is sufficiently strong. The truth is, we do not use the scythe enough,—nothing like enough. Most of the labor and expense of grubbing can be saved, and the work as well done with scythes as in the manner we now practice. One good hand will mow five acres in a single day, if not more thickly covered with bushes, briars, weeds, &c., than the average of fields I have seen in this State. And suppose it be necessary to mow it three times a year, the cost is but about one dollar per acre, for a clean field, and a fair chance for a good crop. A word to the wise is sufficient.

C.

Chesterfield, May, 1857.

For the Southern Planter.

Crops in Loudoun and Prince William.

Southern Border of Loudoun Co. Va. }
April 25th, 1857. }

Frank G. Ruffin, Esq.:

Dear Sir.—The present prospect of the growing wheat crop in this portion of Loudoun county, and the upper portion of Prince William county, is bad, and worse than that. Many farmers will not reap more than they seeded; and few, if any, much more. I understand that the prospect throughout the upper portion of Loudoun and Fauquier counties, generally, is still worse. I am pretty well satisfied that Prince William will beat Loudoun acre for acre.

Old Prince William is getting out of the ashes fast! The wheat crop may possibly come out yet pretty well, but it is not at all probable.

Bull Run.

Mr. Jones in Reply to Major Shook.

Pursuing the rule in courts, which allows one party to open his case, the other to reply, and the first to conclude, we admit Mr. Jones' reply to Major Shook on the point in dispute between them. This, so far as this paper is concerned, closes the controversy, which we do the more willingly, because Mr. Jones has not introduced any new matter into his argument, but confines himself strictly to what his opponent had relied on in his defence.

Near Brownsburg, May 18, 1857.

Mr. Editor.—In the Southern Planter for this month I find an article over the signature of Jacob Shook. I am aware

that the columns of your journal is not the proper place to discuss the difficulty between Major Shook and myself; but as he has appealed to the bar of public opinion through the planter, I ask a like indulgence; and while he accuses me of seeking public notoriety, I think the charge comes with an ill grace from one who is publishing himself and his *business at reduced rates*, in the prominent journals of the State.

Personally, I have no unkind feelings to the Major. I have partaken of his hospitality, in the way of a lunch. He is said to live like a prince, and like Dives of old, fares sumptuously every day. I pray that his end be not that of the rich man.

He has set himself up as an agent to serve the public for a consideration, and his acts are open for criticism. If a public agent treats me badly, his proceedings deserve to be made known. If he can justify his course, there is an end of the matter.

I will endeavor to be as brief as possible in what I have to say; yet I fear my article will be more lengthy than could be wished.

The Major sets out by saying my article in the April number of the Planter is absurdly unjust and rather vindictive, bolstering up himself and his far-fetched ideas by slanderously assailing a certain cattle agent in this city.

When I wrote the article in the Planter, my object was to serve the public engaged in the cattle and stock trade, and not to injure Major Shook, provided he so managed his business as to satisfy the public.

For the prosperity of Richmond, the more trade that can be made to centre there, the better for the place. I was of opinion, and am glad to see that you agree with me, that good, well managed packing houses located at Richmond, would be calculated to keep a more regular market, and more uniform prices. I do not complain of the low price of beef, for in reality beef and other meats, have for years past been too high. What I wished to see was uniformity of price. Not up one week and down the next. Some favored and heavy dealers, realizing fine profits, and the small drovers, often suffering loss.

Further, I have some state pride, and would be glad to see Richmond, the capitol of my native State, spreading out on every side, and her population ten fold what it is. Our main lines of improvement once completed, are destined at a future day, to throw an immense trade in your midst; and if you are prepared to receive, and dispose of the herds of fine cattle, which, in their season, pass down our valley to Baltimore and Philadelphia, it will be an item of trade worth securing.

Major Shook says further, "Now let me give a true statement of the cause, which led Mr. Jones to perpetrate his effusion on the 'Richmond Cattle Market.' In the month of December, 1856, Mr. Jones wrote me he had a drove of cattle he wished me to sell. I advised him when to start; he did so. Other droves, which were ahead of him, cut him out of his turn. Mr. Jones came to see me, and insisted that his cattle should come in ahead of others, which were ahead of him. To this proposition I could not consent, but first come, first served. Mr. Jones would not, however, take the miller's turn. I, however, appointed a day on which his cattle should come in. They came, the market was so full, and prices so low, that I was neither able to get a fair price, nor willing to sell at a reduced price. He then, according to my advice, drove back a short distance from the city, &c." (I have not quoted the precise words, but have given the substance of the Major's article so far.)

Now let me give a true statement, also, and judge between us. I left home with a lot of 65 cattle at the time appointed by Major Shook, a lot from my immediate neighborhood preceded me two days. I drove carefully, got to Charlottesville Saturday evening, and rested over Sabbath. Monday proceeded on, and arrived in vicinity of Richmond Thursday. Stopped with Mr. Keck; found here 45 cattle which were to go in on Friday. This day met the drover who had preceded me two days, he had sold out promptly at eight dollars. Left my cattle with Keck, and went in with Mr. Pence and his lot of cattle, which were sold this day. Leaving none near Richmond save my lot, so far as I could learn. I saw Major Shook and wished him to sell my cattle on Saturday. He said it would not do, the butchers were now full; I must wait—he would let me know when to come in. Saw him again

on Monday, asked him about the market, &c. He told me McCue's cattle would be in Thursday, but they were sold at $10. He told me to bring in my cattle on Tuesday. I brought them in as proposed—placed them in the Major's hands and stood aloof. After an hour he came to me to say that he could do nothing, was only offered $6½ per hundred nett and he knew I could not take that price, &c., &c. That I must go back to the country, and he would let me know when to come in again.

I drove to the country, but though I took no part in trying to make sales while the cattle were in Major Shook's hands, I now determined to see what I could do myself, and before I saw Major Shook again, I had sold out one half of my cattle at fair prices; sales averaging about $7½ nett. On Friday morning I met Major Shook on the street, and told him what I had done. He appeared pleased, said he felt greatly interested for me, and was gratified at my sales. Said he thought he could help me out with a lot that day, and advised me to go out and bring in a lot of my best cattle. Upon his suggestion I brought in a lot of 13 head. When they arrived, he was on the ground, and told me he had received an order from Hampton that morning for eight cattle, and he would take them of me. I wished him to take the entire lot; he, however, refused, and I finally persuaded him to take nine, at $7 nett. There was nothing said with regard to pay, or any charges on the cattle till after they were driven from the pens. I, of course, concluded it a cash sale, as in all my other transactions, I either received the cash, or negotiable paper at 30 and 60 days, as agreed on.

The next day I called on Major Shook for a settlement, being on my way home. When he presented his bill, I objected to it, and we soon got into an angry discussion; I told him to his teeth that he approached me as a friend, and now to present such a bill was out of the question. That if his friendship was to be measured by dollars and cents, I wanted nothing more to do with him. He retorted by saying he charged every body alike, that he would settle by that bill, and no other, and I was compelled to pay it, or not get a settlement.

In truth, I did not expect any charges to be made by Maj. Shook; nor do I now think, he had grounds on which to base any. The cattle he purchased from me, was an accommodation to his Hampton friend. There were no other cattle than mine in the Richmond market unsold. In his last article in the Whig, he denies buying cattle. Now, if he did not buy my cattle, who did buy them? I knew no other person in the transaction but Maj. Shook. I sold them to him as I would have sold them to any other butcher; and when they passed from my hands to his, he certainly has no right, so far as I can see, to charge me with the expenses to Hampton; and I had no one to look to for payment but himself. He says in his last letter, he only charged me with half the expenses, (6.12). Now if he had the right to charge the half, he had the same right to charge the whole expense. Agreeable to the laws of trade, (if I know any thing about the matter,) his Hampton friend was the proper person to foot the bill of expenses.

It is not the pitiful sum of $18.36 that I care about, but it is the principle involved in the transaction. To be approached under the guise of friendship, and then fleeced to the tune of $2.04 per head on my cattle, and to be ridiculed for exposing the transaction, is a little galling.

The Major again says—I "did feel interested enough in his behalf to fill an order for Hampton," (in his last letter). As before stated, he could not fill his order without coming to me. Indeed, with all the parade the Major makes about a glutted market, there were no good cattle in market unsold for ten days, except Col. McCue's and my lot, in all about one hundred and sixty head. The butchers were pretty well supplied, and pork and fowls were in good supply, consequently beef was rather dull.

With regard to the Major's comment on caterpillers, he has misquoted me and, altogether, his comments are contemptible. So with chinch bug and tobacco worm.

Major Shook has called my veracity in question. I would just remark, that I have been in rather active business for more than forty years, during which time thousands of dollars have passed through my hands annually, and I do not recollect during this long period, that my veracity

has ever been called in question before; or that I have ever been called on the second time for a dollar, with regard to my own business transactions.

As to my ignorance, and other expletives the Major thinks proper to indulge in, they may pass for what they are worth.

Other paragraphs I will not notice.

The Major having come down to his old charges, and having associated with him in business a gentleman of good stock, I hope their journey through life may be prosperous. And as the steam is now pretty well blown off, I hope no evils to him, or myself, will result from internal expansion.

H. B. JONES.

Wheat in Rockbridge.

"We are in the midst of corn planting, some two or three weeks behind our usual time. The wheat is looking better, but is far from a good crop, except on well manured lands. The forest trees are beginning to bud, the apple trees are generally in blossom. There are some peaches, cherries, prunes, nectarines, and smaller fruits.

NORFOLK FARMING.

The readers of the Planter may recollect to have seen in the accounts of the Premiums awarded at the first Exhibition of the Virginia State Agricultural Society, an account of the farming of Mr. Wm. Sayre, then of Norfolk county, now of Hanover. In a late trip to Norfolk we visited one or two of these Norfolk farms, and were so struck with what we saw and heard, that we applied on our return to our friend Col. E. H. Herbert, of Princess Anne, the public spirited President of the Seaboard Agricultural Society, for the Report of that Society's Committee on Farms, that we might shew to our readers in an authentic form some of the results of farming in the finest part of Virginia, though it is almost a *terra incognita* to the rest of the State. At Col. Herbert's request the Secretary of the Society, Thos. C. Tabb, Esq., has very obligingly furnished me the following Report:

To those who may doubt the accuracy of the different statements, should any be so skeptical, we have this conclusive answer: at the first exhibition of the Sea Board—then the Norfolk county Agricultural Society—Mr. Cox, one the persons who takes the second and third premiums in this report, took the first premium. On a question raised as to the accuracy of his statement then, which did not, by the way, at all impugn his veracity, it was observed that Mr. Cox's land was all rented, and he had to settle with his lessor by the statement he submitted. Of course he would take all possible pains to prevent errors, which, if allowed, would cause him very considerable loss.

REPORT ON FARMS.

To the Executive Committee of the Seaboard Agricultural Society.

SIRS:—We, the committee appointed to examine the farms in Norfolk Co., which should be offered for premiums to be awarded by the Seaboard Agricultural Society, at its annual Exhibition in 1856, beg leave to offer the following report:

Four farms have been entered. Three by Mr. Cox, on the Western Branch; and one by Mercer & Joins, on Scott Creek.

On the 29th Oct. we examined one of Mr. Cox's farms, known as the "Armstead Farm." It contains 100 acres, and has been under a lease to Richard Cox for 12 years, ending with 1856.

It was furnished with horses, implements, &c., in the beginning, and the amount of farming capital has remained the same. The land was very poor, but by heavy manuring and proper cultivation, the fertility of the soil has been greatly improved—over one hundred per cent. The products of the farm are almost entirely trucks, consisting of tomatoes, peas, cucumbers, potatoes, &c.; and the labour is performed, principally, by hands hired from the North by the day or month.

Mr. Cox gives us the amount of his sales and statistics of his farming operations during this year and they are as follows—

The amount of gross sales, or an av'ge of $171,25 per acre.	$17,125,28
Expenses including every thing, or $65,91 per acre.	$6,534,50
Net Profit, or $105,34.	$10,534,50

On the same day we visited the "Fair View Farm," where Mr. Cox resides, which he purchased of Mr. Sayre; and this is the first year of his management of it. It contains 100 acres. The crops are the same as those on the "Armstead Farm." He attributes the large amount

of his expenses that will appear to his outfit or farming capital of horses, forage, boxes, barrels, &c.

On this farm the amount of gross sales are	$13,852,81
or an av'ge of $138,52 per acre,	
Expenses including every thing,	$6,500,00
or $65,00 per acre.	
Net Profit,	$7,352,81

or an average of $73,52 ct. per acre.

On this farm the amount of farming capital is nearly established. Mr. Cox is now draining it to some extent, which improvement has been almost totally neglected heretofore, and which will tend greatly to the improvement in the quality of the land, and will adapt it more to trucking with greater profit. Although both farms consist of sand and sandy loams, yet the draining of all lands, in the opinion of your committee, is highly necessary for the early vegetation of crops in the Spring, increase of crops, and lasting improvement of soils. He is now engaged also in erecting a large barn and stables, and improving his premises; and this farm bids fair to vie with any in this section of country.

On the 3rd day of Nov. we visited the farm entered by Dr. Mercer & Joins, which they lease of Capt. Carter, on Scott Creek. This is the second year of their lease, but has been in trucks for the last 12 years. It contains 20 acres soil, sandy loam, forces good, draining neglected, field clear and partly ploughed. The amount of farming capital is now established and no credit is given for it in our estimate.

The amount of his gross sales were as follows—

Gross sale,	$6,000,00
or $300 per acre,	
Expenses,	$2,500,00
or $125 per acre,	
Clear Profit,	$3,500,00
or $175 per acre.	

On the same day we examined the "Wilson Farm," the 3rd offered by Mr. Cox, but managed by Mr. Wm. C. Fox. This has been leased for 6 years. It contains 25 acres, and lies on Scott's Creek. This farm has been greatly improved in fertility and neatness during the lease The amount of farming capital is estab lished. The fences are as good as need ful, but draining totally neglected hereto fore. The soil has been greatly improved in fertility, and the crops consist of the same trucks as those named above.

From this farm the gross sales were	$7,584,62
or an av'ge of $216,70 per acre.	
Expenses including every thing,	$3,371,45
or $96,32 per acre.	
Net profit	$4,213,17
or $120,37 per acre.	

From what we have seen, and from the facts by which we can form a correct judgment, we deem it just and proper to award to Mercer & Joins the first premium of $25 for their farm; and we award to Mr. Richard Cox the second premium of $20 for his Wilson Farm managed by Mr. Fox, and we award to Mr. Cox also the third premium of $15 for the Armstead Farm.

Respectfully,
J. E. READ,
Chairman of Committee.

Osage Orange Hedges.

FINCASTLE, Va., April 1857.

Editor of the Southern Planter,—

In your April number of the Planter there is an article over the signature of Wm H. Richardson, concerning the Osage Orange as a hedge for fencing. I have had some little experience in planting Osage Orange myself, and do believe, with Mr. Richardson, that all failures are owing to the manner in which they are cultivated. I have no doubt the greatest cause of failure is the want of trimming or cutting back, as it is called; unless that is done, the hedge wont be thick enough in the bottom. Four years ago this spring I planted a young orchard of choice fruit trees, of several varieties, about two and a half acres, two sides of which, or about 40 rods in all, I wished to grow an Osage Orange hedge as a fence. The same spring I planted my orchard, I procured from New York one quart of Osage Orange seed; and after preparing in my garden a bed well manured, I sowed the seed in drills, according to directions that came with the seed. They came up very well, and was no more trouble than to keep them clean during the summer. By fall the plants were from three to five feet high. In the letter of Mr. Sigenor, from which you made some extracts, he says, "that plants should be full two years old before the knife is used, or cut off;" but I did

not treat mine so. The following spring, after I planted the seed, as soon as the ground was in order, I think the last of March, or first of April, I plowed up a bed with a two horse plow as deep as I could plow it with two horses, where I wished to have my fence. I made my bed about six feet wide, then manured it with stable manure and harrowed it. I then took a shovel plough and ran a deep furrow in the centre of the bed, where I intended to plant the hedge, and perfectly straight. I was then ready for planting. I then dug up the plants out of the plant bed, and with a pair of pruning shears, made for the purpose, I cut them off clean just above the ground and planted them in a single row twelve inches apart. Of the 2000 plants that it required to make the hedge, I do not think there was one that failed to grow. They soon sprouted out and grew very fine. During the summer I plowed and howed them several times to keep the insects out. By fall they had grown three or four feet. The next spring I cut them back within a foot of the ground: it was not close enough. Six or seven inches would have been better. That summer was very dry and hot in this part of Virginia; they did not grow as much as the year before, owing to the drought in the following spring. I cut them back to about eighteen inches, and in July to three feet of the ground. This spring, the fourth year since the seed was planted, my hedge presents a very formidable appearance: it is from four to eight feet high, and thick enough to turn any kind of stock, especially where the ground is rich. A very important thing in growing a hedge is to have the land rich. Some portions of my hedge is planted on rather poor ground. Though I manured it all alike, the hedge is much better on the land that was rich and loose. My own opinion is, that the Osage Orange will succeed well if rightly managed. They are cheap, easily planted, and very hardy; and I may say very pretty I think. I shall plant more of them around some lots I have. As to it standing our winters, I am perfectly satisfied on that score. The two last winters have been the coldest in this part of Virginia ever known. My hedge has not suffered one particle from the frost. I have also made on my farm a good deal of wire fence, which has been in use for five or six years, and to my entire satisfaction. I may say something on this subject at some future time.

I am unusued to writing for a journal. If you can make any thing out of the above, you can do so; if not worthy, kick it under the table. I have read the Planter for four of five years, and like it very much. I cannot do without an agricultural paper. I commenced the Albany Cultivator in 1836, two years after it was commenced by J. Buck, and have taken and read it ever since. I have them all bound; and often take the back volumes and read them with profit.

I have said more than I intended at the outset. For fear of worrying your patience,

I remain your obt. serv't,

DANIEL AMMEN.

A Trap for Catching Sheep-Killing Dogs.

Make a pen of fence rails, beginning with four, so as to have it square, and as you build it draw in each rail as you would the sticks in making a partridge trap, until your pen is of sufficient height, say 5 feet. In this way you will construct a pen that, when finished, will permit a dog to enter at top at pleasure, but out of which he will find it difficult to escape should he have the agility of an antelope. All that you have to do to catch the dog that has killed your sheep, is to construct the trap, where a dead sheep is left, as directed, as soon as possible after an attack has been made on your flock, put a part or the whole of a sheep that has been killed in it, and remove the balance to some other field. In a majority of cases the rogue and murderer will return the succeeding night, or perhaps the next, and you will have the gratification next morning of finding him securely imprisoned. Some may object to the plan perhaps on the ground that you might catch an innocent dog. If so, he can content himself by not trying it. For my own part, I should pronounce the sentence of guilt on any dog caught on *my farm* within three nights after my sheep had been killed and execute the law speedily without any qualms of conscience.

I will only add that the above plan is not original with me. I was told about it by a friend in an adjoining county who had tried it successfully, and I have had

occasion to my sorrow to try it myself very recently, but had the pleasure of catching the very dog that I suspected.

W. J. PENDLETON.

Cooked Food for Hogs and Cattle.

Why cooked food should be so much more nutritious for man or animals, than that which is uncooked, has furnished matter for some enquiry among the observers of nature. That it is so, every intelligent farmer, we believe, is willing to admit. From a number of accurately conducted experiments it has been ascertained that a given quantity of corn meal made into pudding or mush, of a proper consistence, will make nearly as much pork as twice the same quantity of meal fed uncooked. In some countries of Europe where food for man and animals are scarce, food not only for hogs is cooked, but even the meal that is fed to work horses and oxen is made into bread, and is broken up and fed with hay and straw.

It has long been known to those who feed cattle or horses, that ground food will go further than that which is unground; for this reason we see that wheat bran and shorts are readily bought up at the flouring mills at prices far exceeding their relative value, by analysis, when compared with oats or corn. With the present improvement in flouring mills the "offal" is left with but a very small per centage of the more nutritive portions of the grain in it, yet what it does contain is so readily available that it is digested with comparatively little loss, and the animals fed on it appear to thrive so well, renders it in great demand. A knowledge of these facts has led many of the most intelligent farmers to supply themselves with suitable mills for grinding the grain for their stock.

The introduction of the iron corn and cob mills, which require no expensive machinery to run them, has brought them within the reach of every farmer, and into very general use; and although they only crush, or but imperfectly grind the corn, for a certain class of stock there is evidently great economy in their use; yet if the same corn was ground to the fineness of common meal, the advantage derived from them, no doubt, would be double that from the corn which is only crushed.

Why is it that the crushed corn for stock is better than that which is whole? We answer—because, while it is minutely divided it is *more readily and effectually acted upon* by the digestive fluid of the stomach, a larger portion of it is rendered available for nutrition; and the finer the meal is ground, the more of it will be digested and assimilated and converted into flesh. Yet even corn when ground into fine meal and fed *uncooked* to healthy animals is not all digested, but a large portion of it passes off and is loss.

The fact is clearly proven, and the cause illustrated, why cooked food is so much more valuable than what is uncooked, by the researches of Detrochet, Dumas, and more lately by Raspail, who has devoted much time, aided by the best microscopical instruments, to the discovery of the original nutritive particles in food and the change they undergo in the process of preparation for nutrition.

According to this philosopher, the nutritive matter in grain or roots, is composed of, or rather is contained in minute, smooth, white globules, different in size in the different grains or roots. Thus, in wheat they are 2-1000 parts of an inch; in the potato double this size—while in buckwheat they are only 1-10000th part of an inch in diameter. Pure flour or starch would be but a mass of these globules in their natural state. Raspail ascertained that these minute globules consist of an envelope and an inclosed kernel, constituting the nutritive matter.—These globules are *insoluble* or *unalterable in cold water, but require a heat of* 122 *deg. to expand the kernel and burst the envelope,* yet at this degree of heat the substance is not decomposed. It is these coating envelopes that constitute the starch of the laundry. The investigations of these philosophers seem to have established the following facts as stated by Raspail:

"1st. That the globules containing flour, meal or starch, whether contained in grains or roots, are *incapable of affording any nourishing as animal food until they are broken.*

"2d. *That no mechanical method of breaking is more than partially efficient.*

"3d. That the most efficient modes of breaking the globules by heat, by fermentation, or by chemical agency of acids or alkalies.

"4th. That the *dextrine,* (the nutrient

part,) which is the kernel, as it were, of *each globule, is alone soluble, and therefore alone nutritive.*

"5th. That the envelopes or shells of the globules, when reduced to fragments by mechanism or heat, are *insoluble, and therefore not nutritive.*

"6th That though the fragments of these shells are not nutritive they are indispensible to digestion, either from their distending the stomach or bowels, or from some other cause not understood, it having been proved by experiment that nourishment, such as cane sugar, essence of beef, or ozmazome, cannot long sustain life without some mixture of coarser and less nutritive food.

"7th. That the economical preparation of all food containing globules of fecula, consists in perfectly breaking the shells, and rendering the kernel or dextrine contained in them soluble and digestible, while the fragments of shells, are at the same time rendered more bulky, so as the more readily to fill the stomach."

That great advantages are derived from cooking meal for stock, we think these facts, and hundreds of experiments that have been made, clearly demonstrate; and the only question that presents itself for consideration is, whether the saving in grain by cooking is equal to the labor and expense of the operation. Two points must determine this question; first--the market value of grain, and second, the perfection of the apparatus for cooking and feeding. At the present price of corn, (and we have no reason to suppose that it will ever permanently be less,) we believe it will be found that there will be a saving of at least *twenty-five* per cent in cooking the grain fed to hogs.

Steam will be found the most convenient and economical agent for this purpose. The process is simple and comparatively cheap. A vat or steam box, and an ordinary steam boiler supplied with guage cocks and safety valve will constitute the apparatus for cooking. These in capacity must be in proportion to the number of animals to be fed. Meal sufficient to feed two hundred hogs, for a day, can easily be cooked at one time. The boiler should be arranged, so that it can be readily supplied with water. The vat can be made of plank and secured firmly together with frames around each end, and keyed up so as always to be tight; it should be so situated that the slop can be drawn off into cooling vats, and from these directly into the feeding troughs. The steam is conveyed from the boiler into the vat through an iron pipe, one inch in diameter; this should pass into the box at the bottom and make several turns, each running nearly the whole length of the bottom; the end of the pipe should be closed, and in the top of the pipe that is within the vat, small holes should be drilled three inches apart for the discharge of the steam.

Portable steam engines are now coming into use to considerable extent among the larger farmers, taking the place of the horse powers for threshing, and are also employed for grinding corn, cutting hay and straw, breaking hemp, sawing wood, &c. On any considerable farm they will be found cheaper than horse power for any of these uses. One of these engines may be employed to the best advantage in steaming food, when the steam is not required to run the engine. Under this arrangement, the whole fixtures for all the power required for performing these various offices, as well as the cooking, may be secured at comparatively low rates.

When we began this article, it was our design to give the whole plan and dimensions in detail of the apparatus, but this is unnecessary, because any mechanic who is competent to do the work can plan it. We will, however, remark, that the greater the capacity of the steam vat with a boiler in proportion, the less fuel will be required to cook a given quantity of food.

Valley Farmer.

Remedy for the Hoven.—Cattle pasturing on clover in a wet state, are apt to become bloated. I have relieved them in a short time, by simply placing a straw band in their mouth as a bit, and tying it over the head. In their endeavors to get it out, the wind is expelled from the stomach.

A farmer near Binghamton, N. Y., last year, in order to convince a neighbor of the usefulness of birds, shot a yellow bird in his wheat field, opened its craw, and found in it 200 weevils, and but four grains of wheat, and in these four grains the weevils had burrowed.

THE SOUTHERN PLANTER.

RICHMOND, VIRGINIA.

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Two Dollars and Fifty Cents per annum, or Two Dollars *only*, if paid in ADVANCE.

Subscriptions may begin with any Number, but it is *desirable* that they should be made to the end of a volume.

Subscribers who do not give express notice to the contrary on or before the expiration of their yearly Subscription, will be considered as wishing to continue the same; and the paper will be sent accordingly.

No paper will be discontinued until all arrearages are paid, except at our option.

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All Payments to the Southern Planter will be ac knowledged in the first paper issued after the same shall haye been received.

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 that of our correspondents; and we wish it distinctly understood that we take the risk only when this condition is complied with.

It is indispensably necessary that subscribers remitting their Subscription, should name the Office to which their papers are sent; and those ordering a change should say *from* what to what post office they wish the alteration made. A strict observance of this rule will save much time to us and lose none to them besides insuring attention to their wishes.

Postmasters are requested to notify us in *writing* as the law requires, when papers are not taken from their Offices by Subscribers.

RUFFIN & AUGUST, *Proprietors.*

OFFICE: No. 153, Corner Main and Twelfth Streets.

Reapers.

Before another issue of this paper we shall all be cutting wheat. All who can afford it, or who have land that will at all admit of their use, it is hoped will use reapers. What precise sort is not material, if the particular machine happens to be made well. We say "happens," because, some how or other, it seems to be an accident if one gets a really well made reaper. Undoubtedly there is a good deal of choice in these machines, but any of them are good that are well made.

In working the teams, be sure to have enough horses or mules to change them often. Every two hours is better than three times a day, though it will be hard to make many people, especially overseers, believe that they save time and team by such frequent changes. The reason of it, however, is plain. The work, so far as mere draught is concerned, is not so much harder than a plough-team is accustomed to, but all the machines are "geared too low," *i. e.* it requires too much speed in the animals to give motion to the cutting apparatus. Inventors say this is unavoidable; we are not a sufficient judge of such things to contradict them: but we don't believe it. So they said that speed of team was necessary to give motion to the drum of a threshing machine; and many a poor beast have we seen the drivers "whip through in a hard walk," as a Georgia stage-driver once said he did on his line. But we have worked for several years a machine of J. B. & J. E. Smith, of Louisa, which had as many revolutions per minute as any other, and hardly required a horse to move faster than an ox. The pull was harder, to be sure; but what of that? The team was accustomed to it. That is just the difficulty with reapers. The team is kept at a higher speed than they are used to; and it is just that that kills them up. Every farmer knows that it is trotting a work-horse that uses him up, though he may tug at a three-horse plough all day for weeks at a time and hold his own. Therefore, "merciful man," change your team often.

Use no grease about your machine, and no dirty oil. Use only the best oil; and you will be paid for that kind of extravagance, as Mr. Pennywise might denominate it. Your machine will not be as apt to heat in any part, and all the gearing will last longer.

Never cut round and round, or in a circle, nor across ridges and water furrows; but let the machine cut down the row, make a wide turn, cross the bed on stubble and come square up to its work on the opposite side of the parallelogram. This will give the raker, should your machine require one, an opportunity to leave his seat and avoid the cruel jolts that he is subjected to when he rides across the water-furrows. It will be safer too, for he is

then less apt to be thrown off by a jolt—a thing which has produced some dreadful accidents. The machine, also, will lose less by wear and tear.

Cut always, when practicable, in parallelograms, whose long sides shall be proportioned to the force that you have to follow the reaper; and whose ends shall not be so wide as to cause loss of time in getting from one side to the other. There are several advantages in this plan. 1st. In cutting round and round, even where there are no beds to cross, it is impossible to preserve the proper curvature at the turns, so that a hand must be called from other work to round them occasionally, or kept constantly at that work with irregular employment for himself and a binder, and confusion to the work of the other binders; or if such an extra hand cannot be spared, the corners become very irregular, and in turning, much wheat is pulled down and trodden upon by the machine and horses; or wider circuits and more frequent turns must be made, causing loss of time to all hands: whereas, in cutting as we propose, the reaper drives straight out, turns with a wide sweep, and comes up to the next swath perfectly square, overrunning no wheat, and causing no trouble, confusion, or loss of time.

2nd. It is the best arrangement for a proper disposition of the hands. When the wheat is "sheafed," as it is called, or tied up in bundles, we believe the usual custom is for the hands to follow the reaper round. If, for instance, an area of six hundred yards in circuit is cut around, and six binders—or one to each hundred yards—be employed, then, as each hand binds the hundred yards—by which time the reaper will have overtaken him—he takes the *new* track of the reaper from that point, advancing another hundred yards; and so around, coming nearer to the centre at each hundred yards of his circuitous progress, and advancing each time upon the work of the hand ahead of him. Under this mode it is impossible to see that each hand does his proper work, or does it in a proper manner. The sheaves of all are so mixed that it will be impossible to find who ties up a sheaf that drops to pieces, and who fails to glean well; there will be no interval of rest for the industrious hands, and no means to detect the lazy ones. We found these objections to that arrangement for two years, but think they may be very greatly mitigated by the plan we have since pursued, which is this: Suppose a parallelogram of three hundred yards by thirty-two, and a reaper that cuts a row six feet wide.—Suppose six binders to be able to follow the reaper. That gives three, on each side of the land to be cut over, or one binder to the hundred yards, as before. Now it is plain that by the time the reaper has gone around, the hand will have had time to sheaf his hundred yards, and will have a few moments to rest if he has been diligent. Let him stand his ground, and as the reaper passes him bind *back* to the mark he started from, and stand again. This time, as the reaper meets him at his mark, he binds *after* it as at first. When the reaper comes up once again he binds *back* to his mark; and so he alternately follows and meets the reaper, advancing always towards the central swathes as the reaper does, but never advancing in the direction of its line of progress further than his hundred yards. Sixteen rows on each side finishes the work, and the hands meet at the close without confusion. By this plan accountability is secured, because one hand's work cannot be mixed with another's; due diligence is attained, because each hand has his task; and each is encouraged to do his task, because a short rest, brief it may be, but still acceptable, awaits him at his goal. If some hands are quicker than others, as they are sure to be, for there is great slight in sheafing, their relative lines should be lengthened and shortened; and no one submits more cheerfully than a negro to this equitable distribution. If, owing to the inequalities in the crop, or to other causes, one or more of the hands have more than a necessary time for rest, they can be employed in setting up the sheaves or in heaping them.

It may be that the hands will not be as constantly employed in this way, as in other plans; but we believe more work will be done, and done better. System and accountability have as much to do with the amount of work done at any business as hard driving. The fox hunter who gets the brush generally does the least hard riding; and he will shew you, if he will not tell you, that a judicious horseman is as necessary as a good horse.

A good many persons prefer a "side delivery." So we did once, and imagined that a "rear delivery" would be useless to us. But experience has now satisfied us to the contrary; and we would rather purchase a "rear delivery" than accept as a present a "side delivery" with the obligation to use it. There are very few plantations which do not afford hands enough to work after a "rear delivery," and keep up the shocking; but where it is otherwise, we would greatly prefer to postpone the shocking to regular intervals when the cutting should cease altogether, than to have the wheat swathed by a "side delivery," to be bound up afterwards. If the reaper does the work of six men, which is about as much as it does accomplish, it is no difficult matter for six rather inferior hands to follow it; and when the wheat is heavy it will rest them to stop and shock up. But we do not mean to condemn a side delivery for other purposes. When it gathers up the wheat like Atkins' self-raker, and deposits it ready for the binder, it is very well; but for all useful purposes it would be still better if it delivered it behind and directly in the track of the next round of the machine.

A Surge Pump.

A surge pump is nothing but a *squirt* applied to a new purpose. It is made of tin. It is a cylinder about two and a half feet long, one and three-quarter inches bore, with a piston rod of wood wrapped around with tow at the bottom. The cylinder is provided with an enlargement at bottom, like the base of a china or plated candlestick, pierced with holes to admit the water, and having a spout, like the spout of a coffee-pot, starting just above the perforated base, and running up as high as the cylinder itself. This spout is provided at its mouth with a triangular piece of tin, so curved as to flare the water as it is forced out by the piston, and make it fall in a smart shower. It will work in two inches depth of water, and will force it forty or fifty feet. We have worked one this afternoon—the 15th of May—and watered a large strawberry bed with it, making the ground quite muddy in about a half hour. For such purposes, and especially for watering plant beds, it is a very valuable implement, and so cheap—$1 50—that it will not break any man to buy it, and not ruin him if he breaks it. In ordinary situations, it is as effective as a garden engine that costs from $25 to $60. A friend, to whom we showed it a few evenings since, said he considered it good to him for 150,000 hills of tobacco. At $1 50 insurance, or the one-thousandth part of a cent to each hill, he gets them low enough. If not to be had in the country—any tinner can make them, they can be bought in Richmond of Mr. William S. Wood, Market Bridge, Richmond; of D. & C. R. Weller, Main Street, below the St. Charles Hotel, and very probably of other tinners in the city.

Tethering Horses.

The article we wrote on this subject last month was not understood by two very intelligent gentlemen, and may not have been by others. As we deem it very important to some sections this year, especially to those which have been devastated for two or three years by chinch bug, and are buying Northern hay in such quantities, we will be more clear. If one shall not like Mr. Fontaine's mode of tethering by a rope too large to cut the animal if he shall become entangled and struggle to get loose, and shall prefer the plan which we gave, not as preferable, but as a choice, let him connect two poles together—a mule can't tangle himself up in *them*—and tie the mule to one end of one pole, and fasten the end of the other pole to the ground, in any way he pleases. That is the whole affair—two poles secured together, end to end, a mule at one end of these, and a "*tob*" at the other.

Virginia State Agricultural Society.

At a meeting of the Executive Committee of the Virginia State Agricultural Society, on the 28th of April, 1857, it was

Resolved, That the premium for "the best wagon body for hauling wheat in the sheaf, or hay, or straw," may be awarded on the exhibition of a model, as the article itself cannot be conveniently transported from a distance, and that the Secretary be requested to publish a notice to that effect in the Southern Planter.

Teste, CH. B. WILLIAMS, *Sec'y*.

Mr. Gowen's sale of Short Horns.

A gentleman who knows Mr. Gowen's stock of cattle and esteems them very highly asks us to call the attention of our readers to the advertisement of them to be found in this number of the Planter.

To the Friends of the Planter.

It is now six months since we enlarged the Planter. In the endeavor to make the paper not only more creditable in appearance to the great interest it represents, but substantially more useful, we have extended the quantity of reading matter to more than double its former amount; and its quality and variety have been increased in still greater ratio. It is needless to specify the particulars of this improvement. We are happy to state that these efforts are appreciated by our subscribers, a large number of whom have testified their approbation in distinct form, and cheered us in our labors. But praise, valued as it is, is not all that an editor requires to enable him to make himself useful. If we had the means which a little exertion on the part of each subscriber would soon confer, we should be enabled to make still greater improvements. In many matters, diagrams and illustrations would be of great benefit; and in some cases they are indispensable to the demonstration of particular things. In the matter of draining, for instance, than which there is no branch of our agriculture so much neglected, it is impossible to teach the true principles of it without such diagrams and maps. But their cost is greater than we can incur. For this reason instruction is not given in a subject, the true understanding of which would put thousands of dollars into the pockets of many who now lose every cent of it. Other improvements of this sort, which it were tedious to enumerate, might be made, if we had the means. And we do not think we shall be deemed importunate in asking aid when our object is the public good, of course coupled with a natural regard to our own private interests. Nor do we think it amiss to remind our friends, in this connection, that many a Northern publication numbers thirty and forty thousand subscribers. We do not expect such a number here upon a request that they be sent us; we doubt if it would be wholesome for us to have that number suddenly thrust on us at any rate. It might serve us, as old Mr. Watson said clover did his low grounds, "it made the land run mad." But we *could* stand an increase of a few thousand without danger of such deplorable consequences, and would gradually become enured to a heavier increase.

As a preparative, we now propose that any one who chooses, for himself or friend, can take the paper for six months, if he commences with the July number, by paying one dollar for the half year, and discontinue in December if he pleases. Try that. Both parties can then get accustomed to their lot—he to the effulgence, we to the money.

ANOTHER GENERAL NOTICE.

During the last six months of the past year, we kept a standing "General Notice" in our columns notifying delinquents that we should, on the first of January, drop from our list all subscribers who were then in arrears for two years or more. In consequence of the change in the "Planter," which took place at that time, and for reasons satisfactory to ourselves, we did not carry that resolution into effect. We now give notice that *we shall, from this date,* DISCONTINUE THE PAPER TO ALL WHO ARE INDEBTED FOR IT TO THE AMOUNT OF FIVE DOLLARS, that sum being, in our opinion, large enough for any subscriber to be in arrears for a paper published at the low price of the "Planter." This rule, so plain, "that he may run that readeth it," and which we hope will be understood by *all*, is now upon our *Statute Book*; and like "the law of the Medes and Persians, which altereth not," will remain hereafter unaltered and unchanged.

Unpleasant as it is under any circumstances to discontinue the paper of a subscriber, it is especially mortifying to be compelled to do so in consequence of his indebtedness.

Most gladly would we give unlimited credit to our subscribers were we in a condition to do so; but our necessities, and the numerous and frequent demands upon us, require the adoption of the foregoing rule, and we hope that a strict adherence to it will render a similar notice unnecessary hereafter.

We are now, and have been for some time past, engaged in sending to our subscribers circular statements of their accounts, to which we hoped they will respond cheerfully and promptly. If it should so happen that we send a bill to any subscriber who has paid us, or any authorized agent of ours, we request that he will forthwith report the fact and we will at once make the proper credit.

Subscribers who had made payments beyond the 1st of January last under the former terms

of the "Planter," are entitled to the paper in its present form one half of the time of such advance payment, (one paper or one year of its present size being equivalent to two of the former.) This explanation is made that subscribers may understand why their accounts do not correspond with their receipts or former credits.

New Books.

We have received from C. M. Saxton & Co., of New York, through the hands of J. W. Randolph, of Richmond, "The Chinese Sugar Cane and Sugar Making: Its history, culture and adaptation to the climate, soil and economy of the United States. With an account of various processes of manufacturing sugar, drawn from authentic sources," being one of Saxton's Rural Hand-Books. Price 25 cents.

We recommend this book to the various persons who are going to make their own sugar and molasses, as containing, in a convenient form, an account of the troubles they are going to take upon themselves.

We have also received from the same, The Cotton Planter's Manual, which we have not wasted our time on, as we would not in any way encourage any one in Virginia to try and hurt himself making cotton.

Also Dr. Geo. H. Dadd's Anatomy and Physiology of the Horse, which we noticed a month or so ago.

Also Buist's Family Kitchen Gardener, a fair book, but not equal to *White's Gardener for the South*, by the same publisher, which every Southern lady who tills a garden ought to have.

Mr. Saxton, as an agricultural bookseller, keeps as good a supply as any one in this country; and we thank him for it. As an agricultural book publisher he issues, with occasional exceptions, such as Dr. Dadd's work, the merest catch-pennies that can be imagined.

From Moore, Wilsback, Keys & Co., of Cincinnati, we have received *Hooper's Western Fruit Book*. A compendium of facts from the notes and experience of successful fruit culturists arranged for practical use in the Orchard and Garden. This seems to be an excellent book and is admirably arranged. How far it would suit our latitude we cannot say. It is illustrated with four admirable coloured engravings, being one sample each of the apple, the pear, the peach and the cherry, and with a hideous frontispiece in lithograph of the eleven principal fruit growers of Cincinnati. They are, as represented, the roughest looking set of men we ever saw.

The Italian Bride: *A Play in Five Acts.* Written for Miss *Eliza Logan*, and published for private distribution. Savannah: John M. Cooper & Co. 1856.

The author of this production has modestly abstained from placing his name on the title page, but is understood to be S. Yates Levy, Esq., a member of the Savannah Bar. We have just risen from its perusal and confess that we can see no good reason why he should not openly have avowed the paternity of an offspring which reflects much honor upon the taste and poetry of its progenitor.

The plot of the Italian Bride is simple. A noble Venetian, (Clodio,) is fondly attached to Venetia, the pure and lovely daughter of Giovanni, an old and wealthy citizen, and his affection is returned with all the ardor of her clime. Her father places in his hands a will bequeathing to him and his intended bride all his wealth, which although declined, is pressed upon Clodio, who places the document in his bosom.

The charms of Venitia have attracted another suitor, a "bold bad man," Lorenzo D'Arpa, belonging also to the Venitian aristocracy, whose suit has been rejected by the father, and whose disappointed pride urges him to revenge. Clodio, apprehensive of the consequences, upon being informed by Giovanni of his rejection of Lorenzo, urges him not to go forth that day.—Finding his efforts in vain, Clodio entreats him to take the dagger which he wears, that if attacked he may defend himself, to which Giovanni consents, although incredulous of harm. Clodio proceeding to meet Giovanni at evening on the Rialto, by accident finds a dagger sheath near the quay richly adorned with jewels which he unwittingly places in his breast, and at the same moment a cry is raised that Giovanni is murdered. Clodio is near the fatal scene; his hands and clothes are stained with the blood which unknown to him was on the sheath. The guards surround him and the evidence of his guilt being strengthened by the

discovery of the will, which falls from his bosom, he is arrested and charged with the murder of Giovanni. He is condemned on this circumstantial evidence to suffer upon the rack, and is only rescued at the last moment by the confession of Larenzo who has been slain by Hugo, the friend of Clodio, while attempting by force to carry off the nearly frantic Venetia.

Mr. Levy, it will be perceived, has not relied upon any startling stage effects or brilliant "*tours de forcé;*" but has with much skill contrived to keep up the interest of the drama, by appealing only to the heart of the spectator, in language at times extremely beautiful, and always well chosen and refined.

The rythm is for the most part remarkably smooth and flowing, and either indicates considerable practice, or gives promise of future achievements, which will place the author upon a very elevated pedestal.

In support of our opinion we give some extracts from the work.

In the first scene Hugo is rallying Clodio on his passion for Venitia, and good humouredly exclaims:

"O, Clodio, Clodio, how I pity thee."

Clodio.—And why?

Hugo.—Because I see thou art in love.
Trust me a lover sees not with his eyes;
But blind and dazzled by his passion's glare,
And all his senses in confusion tost,
He sees and listens through the heart alone.
So all thy sense is gathered to thy heart!

Clodio.—I would not have it elsewhere: I would trust
Soul, thought, life, sense, heart—everything on earth,
Aye, and hereafter to her guardian care.
Believe me, Hugo, 'tis a worthy trust—
For there is not a surer path to Heaven
Than where a virtuous wife points out the way,
And leading gently down the path of life,
Makes love the guide to Immortality.

Hugo, the devoted friend to Clodio, reluctant to believe him guilty, but staggered by the chain of circumstances, informs Venetia of her father's murder and the arrest of Clodio. The whole scene is well sustained and presents a favorable specimen of the author's power. We extract a part of it.

Hugo (sorrowfully.)
Lord Clodio is in bonds.

Venetia (fiercely.) In bonds, in bonds.
Who dares to chain a free Venetian noble?
In bonds! for what? Thou tell'st me first my Lord,
My father's dead, and now this monstrous tale
That he whose name reddens the City's cheek
With mantling pride, gives his free limbs to chains?
In bonds! for what?

Hugo.—Charged with the murder of ——

Venetia (laughing histerically.)
So now the mockery 's ended, 'tis complete;
My Clodio charged with murder. Oh! 'tis rare,
Confess my Lord that all this is a jest.

Hugo.—Alas! 'tis true, all true.

Venetia.—Thou tell'st me this!
Thou who wert wont to call my Clodio friend.
Did'st thou stand by and see him led to prison,
And did'st not lift thy hand in his defence?
Oh! friendship, what a mockery art thou!

Hugo.—What should I do?

Venetia.—Fie; fie; what should's thou do?
Summons thy vassals—raise thy spotless banner,—
Cry "Corelli to the rescue,"—and set on.
If thou had'st lov'd thy friend, thou had'st not asked.

Hugo.—Defy Saint Mark! why this is utter madness.
Besides, e'en if I wished, the proofs of guilt—

Venitia.—The proofs are what? Thou dost not think him guilty.
My Lord thou dar'st not! Call thyself his friend
And doubt his faith! Hugo, I am at best
But a frail woman: but were I a man
Who had a friend, and such a friend as he,—
Did an archangel come down from the skies,
Radiant with glory, hand in hand with truth,
And call'd him murd'rer, I should think, my Lord,
A demon had usurped the Heavenly form
And would have answer'd—"*Liar.*"

The passionate eloquence and unaltered confidence of Venetia in the honor and innocence of her lover, succeed in removing from Hugo's mind every lingering suspicion; he pledges himself to do every thing for the safety of his friend, and nobly does he redeem the pledge.

We could multiply extracts from the poem, but deem it unnecessary, as we hope it is within the reach of our readers, although published for private distribution only; and we should be reluctant to forestall the enjoyment which we feel sure they will derive from its perusal. We hail with pride this evidence of Southern taste and poesy, and hope the author will not rest contented with the laurels he has won, but go on and accomplish new achievements.

Agricultural Professorship in the University of Virginia.

BELMEAD, May 15th, 1857.

Hon. Wm. C. Rives,

DEAR SIR:—Your report of the result of the interview of the Committee of the Farmer's Assembly, with the Rector and Visitors of the University, respecting the proposed endowment of a professorship of Agriculture in that Institution, appeared whilst I was on a visit to the South, from which I have recently returned.

It seems to me to be proper that I should explain to yourself and my other friends of the committee, as well as to the public, the position in which I conceive the proffered donation to stand, since the recent action of the Visitors of the University.

Your Committee was the organ of the Farmers' Assembly, charged of course with the duty of representing *them.* The Assembly did me the honor to place me on the Committee, and had I been present at your conference with the Visitors, I should have held myself bound, as doubtless you and your Committee conceived yourselves bound, to adhere to the views of the Farmer's Assembly, as indicated by their resolutions and proceedings in respect to any and all conditions annexed to the endowment.

This would have been the duty of the Committee, although they might not have concurred in the views of the Farmers' Assembly. But in *my* case there is another and higher obligation, if possible, to adhere literally and absolutely to the terms and conditions of the endowment; for these terms and conditions were essential part and parcel of the donation proffered by me to the Assembly, and accepted, approved and adopted by them, and therefore not to be changed by me without their consent, without a violation on my part of an honorable good faith. For I might just as well withhold the fund, or direct it to some other purpose, as to consent to yield up the control, and some of the chief benefits of it, without the consent of the Assembly, or the final failure of the whole scheme. It follows, therefore, that I cannot remove the objections raised by the Board of Visitors to the terms of the endowment—nor, in my humble opinion, can your Committee or a majority sf them. The Farmer's Assembly and myself concurring, could alone modify the terms of the endowment.

But I infer from the resolutions of the Board of Visitors that they do not regard themselves as at liberty to qualify their general power of appointing professors, as contemplated in the scheme which I submitted to the Farmers' Assembly, and which was made by them the basis of their application, through your Committee, to the Rector and Visitors—and this is the only reason assigned by the Visitors, in their resolutions, for declining to accept the proffered endowment.

I am not aware that exception was taken to the scheme of endowment in any other particular, though it contained other provisions deemed important by myself, and, as we may infer, by the Farmers' Assembly.

The objection to the power to nominate, if it go not beyond this absense of authority on the Rectors and Visitors to consent to it—may be removed by an enlargement of their powers, which, in their application, the Legislature would probably accord.

It must be confessed, that looking to its probable effect in enlisting private liberality on behalf of literary institutions—such a power might be judiciously committed to their patrons—it may indeed be expedient to regulate by law, this power to nominate—so as to guard against official vacancies, and perhaps further, that no appointment could be made, but with the consent of the appointing power. If so regulated, I do not see how the power could be abused to the prejudice of the public. Whilst its acquisition would hold out inducements, to public spirited association and individuals, to ally themselves with, and beneficently to expend their means in support of the literary institutions of the State. Nor would all this be without example or precedent—for, if I mistake not, we have the highest authority in the practise and experience of granting similar privileges connected with the endowment of professorships in the literary institutions, both of this country and of Europe.

I confess it is a cherished wish of mine to connect the Farmers' Assembly with the proposed Professorship of Agriculture, and thereby, to form an enduring interest and alliance between the organized agri-

cultural education in our State University. Hence I have asked that, after my death the nominating power connected with the professorship may be accorded to the Assembly,—and that they shall also have the power of appointing to the reserved scholarships.

And in case of an unexpected failure of the school of agriculture—it was also further provided by me, that the fund should revert to the State Agricultural Society, "the principal to be undiminished and the" interest to be devoted to the diffusion of agricultural "knowledge or the promotion of agricultural education" under the special sanction of the Farmers' Assembly.

The Board of Visitors having expressed themselves as "prepared to co-operate to the full extent of their powers," in the establishment of a school of agriculture in the "University, upon a footing equal in all respects to that of the other schools in the institution," I would most respectfully, but earnestly suggest that the Committee of the Farmers' Assembly apply to the Visitors at their next meeting in July to ask of the Legislature the passage of an act authorizing the establishment of the Professor of Agriculture, in accordance with the unanimous wish and application of the Farmers' Assembly as communicated through their Committee.

I remain sir, very truly,
Your most obedient,
PHILIP ST. GEO. COCKE.

A Request to Mr. J. J. Hite.

EDITOR SOUTHERN PLANTER,

Sir—Seeing in your very valuable work the Planter, of November, 1856, a letter from an enterprising and successful farmer, J. J. Hite, Esq., of his then flattering prospect for a crop of wheat, in which he speaks of having used the various fertilizers, as well as the different farm manures, &c.; also of his success in a crop of corn the past season from subsoiling, will you be kind enough to ask of Mr. Hite, through your valuable journal, his present prospect for a crop of wheat, and a report of effects of the different manures on the crop, as well as the result of subsoiling on the wheat crop, and any other information on the subject of farming he may deem worthy of note. Being a young farmer, and dependent upon it for a support for myself and young family, I will be much obliged to Mr. Hite for a full report on the subjects above.

Respectfully, yours, &c.
A FARMER.

From the Scientific American.

Simple Butter Cooler.

Melted butter is all very well in its right place, but when butter is put upon the tea or breakfast table, having the appearance of being just out of the oven, it is anything but creditable to the housekeeper, and far from satisfactory to those who eat it. Dry toast is positively spoilt if spread with soft butter; indeed, if butter cannot be brought to table at least firm, if not hard, it is better to keep it away altogether. Fortunately, however, it is not necessary to proceed to such desperate measures, as butter can be kept nice and cool in the hottest weather, and that in a very simple manner. Procure a large, new flower-pot of a sufficient size to cover the butter-plate, and also a saucer large enough for the flower-pot to rest in upside down; place a trivet or meat-stand (such as is sent to the oven when a joint is baked) in the saucer, and put on this trivet the plate of butter; now fill the saucer with water, and turn the flower-pot over the butter, so that its bottom edge will be below the water. The hole in the flower-pot must be fitted with a cork; the butter will then be in what we may call an air-tight chamber. Let the whole of the outside of the flower-pot be then thoroughly drenched with water and place it in as cool a spot as you can. If this be done over night, the butter will be as "firm as a rock" at breakfast time: or, if placed there in the morning, the butter will be quite hard for use at tea hour. The reason of this is, that when water evaporates, it produces cold; the porous pot draws up the water which in warm weather quickly evaporates from the sides, and thus cools it, and as no warm air can now get at the butter it becomes firm and cool in the hottest day.

SEPTIMUS PIESSE.

NATURAL BAROMETER.—Chickweed is an excellent barometer. When the flower expands fully, we are not to expect rain for several hours. Should it continue in that state, no rain will disturb the summer's day. When it conceals its miniature flower, the day is generally showery; but if it entirely shuts up, or veils the white flower with its green mantle, let the traveler put on his great coat.

Carrots consume 197 pounds of lime to the acre; turnips but 90 pounds.

Horticultural Department.

E. G. EGGELING, Contributor.

The Strawberry.

Among all berries, by universal consent, the Strawberry is ranked chief,—being more delicious and wholesome than all others. The name is supposed to have originated from a common practice of laying straw between the plants to keep the fruit clean. However this may be, from whatever circumstance the name may have arisen, there are few that will not agree that,

"A dish of ripe strawberries smothered in cream,"

is a delicacy not to be surpassed.

The Strawberry is supposed by some to be a native of temperate climates, but we are not sure that this is entirely correct. Three species have been found growing wild in the United States,—one in Ohio, one in Virginia, and another common alike in the Southern, Middle, and Northern States. In Great Britain, two species have been found indigenous to the soil; and in most countries, and in nearly every variety of climate, it is known and esteemed.

These wild berries, however, will not compare in any respect with those which have been improved by the process of hybrideyation. No plant which has a place in our gardens owes more to the care and skill of man than this. To instance, Hovey's Seedling,—which is admitted to be the finest in the country, whether the size of the berry, or the productiveness of the plant be considered,—was produced entirely by this process; owing all its celebrity thus, to the fostering care of the Messrs. Hovey, of Boston. Mr. McEvoy, also, of Cincinnati, has, by the same process, produced a number of fine plants, among which is McEvoy's Superior, which, after several years experiment, we are satisfied, deserves its name, being indeed superior. Another, called the Princess Alice Maude, is equal, we think, to either of the above mentioned; and to those who wish to cultivate large berries of fine flavour, we particularly recommend these three to be mainly cultivated. In order to prolong the season, there is another Strawberry, which ripens some two weeks earlier than the above called the Large Early Scarlet, which should be planted also, and while there are many other varieties, some good, and many worthless, these are all that any person need care to have. Amateurs, may select a few other varieties, as Black Prince, Myatt's British Queen, and Elton.

The plants are propagated from the runners, which are always taken to form new plantations. The Strawberry runner is very well known to all persons who have cultivated the plant; but to such as have not, we can only describe it, as a string shooting off from the plant, from six to sixteen inches, on the end of which a bunch of leaves is soon formed. This falls down upon the earth, and very soon becomes rooted in the soil. Sometimes from this, another string shoots out, and soon forms another sett of leaves and roots, and in very wet seasons, as many as three or four runners will thus be formed. Where this is the case, however, good cultivators take only that runner which is nearest to the plant, and reject all the others. These runners begin to develope themselves about the time that the plant begins to bloom, and is stout enough to bear transplantation by the first of August. If a good stand of plants is obtained at that time, they will produce a pretty fair crop of berries the next year.

In removing these runners, the first step is to cut the string which joins them to the parent plant, and then the runner is to be taken up with a trowel or small spade, and not dragged up by the hand. Very much depends on this. Pulling them with the hand is very likely to injure the roots most seriously, and it is all important that the roots be disturbed as little as possible. To this end, a good share of earth must be taken up with the plant, and this care will ensure a rich reward in an early crop from the plants transplanted.

The soil best adapted to the culture of the Strawberry, is deep, rich loam. Deep and rich it must be, if large berries and plentiful crops are desired; and nothing less than this will satisfy any one who pretends to cultivate Strawberries. When the soil is not naturally deep and rich, trenching and manuring is the appropriate remedy, and must by no means be neglected. The manure must not be fresh

and green, as in that event it will bring a plentiful crop of weeds, and for the Strawberry, the desideratum is, to keep it clear of weeds. If the manure is old and well-rotted, having gone through a fermentation, the seeds of weeds, for the most part, will have been destroyed, and there will be comparatively little trouble.

The soil having been thus enriched where it was poor, it is then to be broken very deep with a spade, the clods well mashed and broken, and with the hoe and rake made as fine as practicable.

In laying off the ground for new plantations, some persons make beds three or four feet wide, leaving narrow alleys between the beds,—but the best mode, in our opinion, is to lay it off in rows, leaving from two and a half to three feet spaces between the rows, and checking the land across about fifteen inches apart in the rows where the runners are to be planted. This will give sufficient room for the plants to grow, and also for persons to walk along to clean about the plants, and to gather the fruit.

The plants having been removed as directed, if it can be done, put them in the earth with the soil sticking to the roots; but where this cannot be done, as where they are brought from a distance, the runners are to be planted pretty much as cabbage plants are, using a trowel, or something of the kind, to open the holes into which the roots are to be put. The roots should be well put into the earth, but not deep enough to cover the bud, which ought to be just resting upon the top of the soil. The subsequent growth and success of the plant depends in no small measure upon the treatment which it receives at this period,—a remark by the way, which is equally applicable to all transplanting. If the weather is dry when the runners are planted, dip the roots in a tolerable thick mud before planting and then water them until they grow off.

Here, then, we have the plantation made larger or smaller, according to the wishes and desires of the cultivator. The next and most important direction which we have to give is, *to keep the plantation entirely clear of weeds and grasses.* This is absolutely indispensable, and must, on no account, be neglected. So important is it in our judgment, that we advise, without hesitation, that unless the plants are to be thus cared for, that no attempt be made to raise them at all. It will occur, then, to every one, that the ground selected for the Strawberry plantation ought not to be foul, but such as has been carefully prepared with special reference to destroying the weeds, and then it must be kept clean, by the liberal and constant use of the hoe. This is the chief cultivation required for the Strawberry, and for the want of it, many persons fail to make a crop. Where the weeds are allowed to grow, the plants become spindling and weak, and will bear but few berries, if any at all. This direction, be it remembered, is to be observed with respect to all plantations, whether new or old. At all times they must be kept clear of weeds.

About the first of November, the Strawberry plants are to be covered, not as some persons suppose, to protect them from the winter's cold, but for other purposes, which will presently more fully appear. To prepare for this, our custom has always been to haul, during the summer, a quantity of "pine tags," and throw them into the stable; and then put it altogether in a pile, to produce fermentation, so as to have the manure well rotted. At the proper period, (that before mentioned,) we take an asparagus fork, or a three-pronged hoe, and stir the ground well just around the plants, making the soil fine and light,—and then put on the manure as before directed. This manure is placed on the plant, which is covered with it to the depth of one or two inches. The rains and snows of winter will dissolve the manure, and sink all its fertilizing qualities into the soil to feed and nourish the plant, and at the advent of the spring, there will be nothing on the surface but the "pine tags" which were mixed with the manure. These are to be allowed to remain, to serve as a protection against sand when the berries ripen. Some persons are silly enough to remove this litter from about the plants, and, as a consequence, when the fruit is ripe, it falls on the earth, and every shower of rain covers it with dirt and sand, and renders it totally unfit for the table, whereas, the litter would have preserved the fruit from contact with the soil, and kept it clean and nice. Wheat or oat straw might be used, were it not for the fact

that it is almost sure to rot completely during the winter, and so fails to answer the purposes specified; and, besides, when it does begin to rot, it has a musty smell, which it imparts to the fruit, whereas the "pine tags" are tough and do not rot easily; and being washed perfectly clean during winter, in no wise affect the fruit. Saw-dust, spent, tan-bark, and other things are sometimes used, but nothing, we believe, answers the purpose so well as "pine tags."

At the same time that the soil about the plants is stirred, we are accustomed to manure the alleys between, and to spade them very deep, and use them to make some crop which will be out of the way early in the spring. A crop of spinach or lettuce may thus be raised in the Strawberry plantation without the slightest detriment to the plants.

The plantation is now done for until the spring, and then commences again the process of removing the weeds. With this difference, however, that until the fruit season is over, the hoe cannot be used to remove the weeds, but they must all be taken away by the hand. And for the obvious reason, that if the hoe be used, the soil will become mixed with the litter, and so the good to be obtained from that will be lost.

As soon as the plants begin to blossom, let water be given them freely, as was directed in our article in the May number of the Southern Planter, at page 318.

Persons who rear Strawberries for market, will find it much to their interest to leave long stems to each berry, instead of plucking them short, as is too commonly done. Two points are gained by this. The berries are less likely to get mashed and bruised, because the stems will serve as a protection; and secondly, they are prepared for the table with far less trouble.

About the time that the plants begin to bloom, runners begin to develope themselves, and they should be removed as fast as they come throughout the year, as they operate upon the plant as suckers do on fruit trees,—take away sap and so impair its fruitfulness. They should, therefore, always be removed except where they are wanted to use in making new plantations.

Every Strawberry plantation requires to be renewed once in five years from the time that it first comes into bearing; and in order that a supply of fruit may be kept up, the new plantation should be made during the third year. The fact that this renewal is requisite, is generally conceded, indeed we may say universally, but the why is not so well known, and in our judgment a vast deal of twaddle and nonsense has been written and printed in this connection. Volumes have been written about male and female plants, stamanates, pistallates, and hermophradites, without casting much light upon the subject, whereas the explanation of the difficulty is to be found in a simple fact, which is familiar to all, or with which all may acquaint themselves with very little trouble. When the runner is first planted, the roots by which it feeds are fibrous roots, clinging to a sort of neck, and are all of a light colour; the second year this neck elongates, and changes its colour, becoming quite dark, as do also the fibrous roots to which we have already alluded, and they cease to perform the functions which they performed originally, and a new set of roots are found just above the former, which also change as the others did,—and so the third year another set of roots are formed, which pass through like stages; and the fourth year, these fibrous roots are found growing almost on the surface of the soil, where they cannot obtain that sustenance from the soil which the plant requires. Of course, then, the plant becomes partially or totally barren, and may as well be removed immediately. This simple statement, which any of our readers can verify, by examining the plants in their gardens, gives the real solution of the fact which everybody has observed, that the plants in a few years become barren; and it may serve to direct all in purchasing plants, and prevent the imposition sometimes attempted, of selling plants two or three years old as new plants. If any of the roots are dark, the purchaser may rest assured that the plant is a year old, if no more.

The simplest, cheapest, and best method of making new Strawberry plantations, is that which we have adopted for many years, and which we recommend to all. It will be recollected that we directed, that between each row of Strawberry plants, an alley be left,

two and a half or three feet wide; and that we suggested its use for the rearing of some early crop. If this space is kept well manured and raked year by year, it will be in capital condition for making the new plantation. In the third year, take the runners from the old plants and set them out in the middle of these alleys, and by the next year, when the old plantation is becoming worthless, these will begin to bear, and then the old plantations may be spaded up, and there will be no interruption to the crop of Strawberries; and this process may be repeated from time to time indefinitely.

There is an infallible rule by which persons buying Strawberry plants may ascertain whether they are good or otherwise. Take the plant and examine the neck,—by which, we mean that portion of the plant to which the roots are attached, and if it is found to be small and puny, the plant is worthless, and should be rejected; whereas, if it is found to be large and full, the plant is good, and may be safely selected. If that neck be cut open with a knife, there will be found inside the embryo blossoms from which the future fruit is formed; and if they are large, healthy looking embryos, they will produce fine, large berries; whereas, on the other hand, if they are small and weak, the berries will be small and indifferent. The Strawberry is, in this respect, like hyacinths, and no person need be taken in who will have his eyes open.

Thus far, our observations have been directed to those who cultivate only a few Strawberries for family use; and we would now address a word to those who cultivate them for market. Let a level piece of land, near a running stream, or where water can be procured easily, be selected as the place for the extensive plantation. As the chief expense consists in keeping the land clean, the cultivator should take care to have his land well prepared before planting. To effect this, sow a crop of rye in the fall of the year, which, in the spring of the ensuing year, say about the first of May, will be sufficiently grown to be turned under with the plow. Sow, immediately, a crop of peas, which are to be also turned under in the fall of that year, say about September. This will have the double effect of cleaning the land of all weeds, etc., and of enriching the soil sufficiently to produce a crop of Strawberries. The land being thus ready, let the directions for planting, &c., heretofore given, be pursued.

In conclusion, we would urge all persons to cultivate this delicious crop, especially persons living in the vicinage of our cities. It always commands good prices, and since the introduction of the custom of putting up fruits and vegetables in self-sealing cans, Strawberries may be profitably cultivated now by persons living in remote rural districts. Put up in these cans, they command a ready sale, at remunerative prices, and many of our farmers might swell their annual revenues by giving more attention in this direction.

Products of our Orchards.

The value of the orchard products in this country for any given year is very considerable. The report of the Superintendent of the Census shows this value for the year 1850 to have been $7,723,326. This is the aggregate value of the product of all the orchards in the United States for a year not by any means remarkable as a fruit year.

It may be profitable and interesting to see how this amount is distributed among the several States and Territories of the country.—Maine claims $342,865, New Hampshire $248,563, Vermont $315,255, Massachusetts $463,995, Rhode Island $63,994, Connecticut $175,118, New York $1,761,950, New Jersey $607,268, Pennsylvania $723,389, Delaware $46,574, Maryland $164,041, District of Columbia $14,843, Virginia $177,137, North Carolina $34,348, South Carolina $35,108, Georgia $92,776, Florida $1,280, Alabama $15,408, Mississippi $50,405, Louisiana $22,359, Texas $12,605, Arkansas $40,141, Tennessee $52,894, Kentucky $106,230, Ohio $695,921, Michigan $132,650, Indiana $324,940, Illinois $446,089, Missouri $514,711, Iowa $8,434, Wisconsin $4,823, California $17,700, New Mexico Territory $8,231.

From this it would seem that eleven States are ahead of Virginia in the amount and value of their orchard products. They are Maine, New Hampshire, Vermont, Massachusetts New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois and Missouri. All the rest are behind Virginia, though two or three are very nearly equal with her.

It is worthy of note, however, in this connection that Virginia leads all the slave States except Missouri, in productions of the orchards, and that all the free States are far ahead of the slave States in this respect.

This may seem singular. How shall we account for it, that little Vermont, with its cold rude climate and comparatively barren acres, produces fruits nearly double the value of those grown in Virginia? Several solutions might be given, but the true one, in our judgment, is found in the fact, that our farmers are accustomed to think that nothing is worthy their attention but the staples, corn, wheat, oats and tobacco, and further South, rice, cotton and sugar. Living in temperate latitudes where nature deals so bountifully with the human race, our people do not feel called on to take every possible advantage of the circumstances surrounding them as those living in less generous climates do. The farmer at the North is an economist every way, and studies to get from the soil all that it is capable of producing, and is thus led to cultivate many things which the agriculturist of the South deems unworthy his consideration.

It may well be doubted, however, whether the course pursued by us, is wiser than that universally adopted at the North. The neglect of little things makes our farming far too costly, and diminishes the profits which might be, and ought to be received by the cultivator, and puts the Virginia consumer at the mercy of Northern farmers. There is to instance the article of apples, which at this present writing are selling in the Richmond market *at six dollars the barrel*, and selling readily at that, and only to be had from the Northern producers.—See you not how the Virginia consumer is thus made to support the Northern farmer, and how the profits of Northern farming are enhanced, by the stupid neglect of Southern producers. What hinders such a cultivation of apples in Virginia, Tennessee, North and South Carolina, and other States of the South, as would make us entirely independent of Northern production.

It will be seen that we address ourselves equally to the farming community in all the Southern States, and it is fitting that we should, because there is not one which is not equally capable with our own State, and none which may not greatly improve in these respects. In all the rearing of fruits is too little cared for, the orchard is too much neglected. Yet what farm is complete without a well stocked, well kept orchard? Who can realize all the pleasure and profit of farming without this?

Aside from the profit which would arise from the sale of the fruits from the orchard, there are other considerations which in this general view of the subject must not be overlooked.—There is the delight and gratification which the farmer's family always derives from the orchard. It cannot well be ascertained.—Children, visitors and others find the fruits of the orchard an unfailing source of pleasure, and we speak what all well informed medical men certify to be the truth, that health is greatly promoted by the use of apples, peaches, pears and other fruits; and there is little doubt but that the visits of the doctor would be less frequent to our families if we used these articles of food more largely than is customary.—If instead of the sugared desserts so common on our tables, and which clog our stomachs, we would use these health giving products of the orchard, we should find our account in it, in improved health and the avoidance of doctors' bills and nauseating drugs and medicines.

There is this other fact too which well deserves mention, that butter and milk, both are much improved, where the cow is occasionally fed with apples, and when it is considered how largely these things enter into the family consumption, and how much of the pleasure of eating depends upon having them sweet and well flavored, and it will not be deemed an unimportant item of the value of an orchard.—Besides which it will be admitted that all stock feed gratefully on the products of the orchard, so that however the crop produced that there is never need that it be wasted.

By all these considerations then, and by others to which we cannot now even so much as allude, we urge all farmers in this and other Southern States, to devote more space and labour to the cultivation of fruits.

But be it understood that we recommend to no man to rear any except the best fruits.—Time was in Virginia when any apple tree that would bear was deemed good enough for the farmer, because his object was not so much to raise fruits fit for food and for sale in the mar-

ket, as to get an annual supply to be converted into brandies. Hence in some sections we could find orchards extensive enough; but among the hundreds of trees, there would not be one producing a fruit fit to be eaten and desirable as an article of commerce. While it may be admitted that apples cultivated solely with the view of converting them into vinegar, will pay the producer well for his trouble, we believe it is susceptible of the clearest proof, that it will pay much better to raise good apples for sale in the markets.

Time and space would both fail us should we attempt to set forth all the reasons which enforce the propriety of having good orchards in this and the other Southern States. Nor is it perhaps necessary. Surely no man can read the statement with which this article opened without feeling that our section of the country is culpably neglectful in this respect. Sectional and State pride alone,—the mere ambition to be first in everything—might well enforce our exhortation, even if there were no higher considerations impelling the farmer to cultivate the choicest fruits.

Flowers Accessible to All.

There is a widely prevalent sentiment that flowers are luxuries which are well enough for the rich, but which the poor have no concern with. Nothing could be more fallacious, as will be readily conceded when the sentiment is thus broadly and unequivocally stated. Its absurdity strikes every mind; every one remembers that flowers spring up spontaneously everywhere, as well on the scanty lands and about the houses of the poor, as upon the broad acres and around the mansions of the rich. God has scattered them profusely over the earth's surface to beautify and adorn it, and like the all-surrounding and all-embracing atmosphere, they are the common property and heritage of all the sons and daughters of Adam.

True enough it is, that conservatories, green houses and such like contrivances for the cultivation of rare plants are only within the reach of men who are well to do in the world, and there was a period when a collection of choice roses cost far too much money to be within the reach of men of moderate means. But there never was a time when the poorest might not have brought from the woods the graceful and fragrant jessamine, the exquisite honeysuckle, and a thousand other bright and beautiful blossoms, which meet the eye in field and wood wherever the foot may stray. And these despised and neglected gifts of God, vie ofttimes in beauty and fragrance with the most costly and rare products of the green house, and want only the stamp of fashion to make them the favorites of the flower garden. Besides, it is no longer a matter of difficulty and heavy expenditure to have a small collection of rich and choice roses. This queen flower of our gardens can now be bought for a small price, and there is no farmer in Virginia so poor that he cannot have them if he will. Plants which once sold for two and three dollars, can now be purchased for a twentieth part of that sum, and so of other flowers which we might mention.

Thus it will be seen that, however, in times past, many of our choice garden-plants were beyond the reach of the humble farmers of the country, now no man can plead poverty as an excuse for neglecting to cultivate them about his dwelling. It is well. The family of the poor man has to endure privation enough without being cut off from these simple enjoyments which seem to have been designed for all men everywhere. If the girls of such a family cannot have the advantage of schools and music and refined society, they can at least have their natures impressed by contact and communion with the buds and blossoms of spring and summer, and nature is ever a kindly teacher, and her lessons never unprofitable to her pupils.

In all sobriety and seriousness, we urge our readers to rear flowers themselves, and to encourage the rearing of flowers in their respective localities. A patch of flowers is a potent educational agent, and he that induces a family to make one about a dwelling, has done something towards the elevation and refinement of that family, and something towards the promotion of virtue in the world. Intercourse and companionship, with all gentle and graceful forms and beings, has the tendency to elevate and refine human nature, and this the great office which music, poetry, flowers, children and women have to perform in the world. All these in the Divine economy are so many educators, training the heart for virtue and happiness here, and for the higher and better estate

of heavenly happiness hereafter. All of us are witnesses to the truth clearly revealed to us by our personal experiences, and we know that this is no fanciful speculation, but the teaching of soberness and truth.

Let us, then, one and all, love flowers, and teach our children and our neighbours to love them. Our children indeed will not need to be taught this, if we will only give them the opportunity by planting flowers around our dwellings; for there is that in the heart of childhood which turns to flowers as the plant turns to the light. Meet this natural affection with proper objects, brought from the field or forest, or from the nursery of the florist, and great shall be your reward.

How to Make Tomatoes Produce Early.

Persons who plant large crops of tomatoes, can easily make them produce ten or twelve days earlier than they would otherwise do by stunting the growth of the plant by a process which we will now proceed to describe. The plant usually grows up perpendicularly to a height of eighteen inches more or less, when a bunch of bloom appears, from which the fruit is to be formed. Then from this point another shoot grows off, on which, in course of time, other blossoms would appear. But to produce the result of which we have spoken, this shoot must be pinched off, which will have the effect of throwing all the vigour of the plant into the first developed blossom, and will so hasten their maturity as to give fruit ten or twelve days earlier than it could otherwise be attained. Of course it would not be prudent to treat all the plants thus, as it certainly diminishes the productiveness of the plants, but it is very well to treat a few plants thus, in order to have early fruit.

Tomatoes for Pickling.

At this time sow a crop of pear-shaped tomatoes for pickles, either yellow or red, or both, according to fancy. Most persons do their pickling in the fall, and by sowing these tomatoes now, they will come into bearing just at the right season. Persons often depend upon what they call volunteers for tomatoes for pickling, but we advise all persons to plant specially for that purpose, and by all means, to use the pear-shaped tomatoe. It makes a beautiful pickle, and is really an ornament to the dinner table when carefully and nicely prepared.

Staking Tomatoes.

Very many persons, we know, think it needless to stake tomatoes, but we would advise that this be done invariably. When it is neglected, two difficulties almost invariably occur. One is, that during the hot season the earth becomes very much heated, and so much of the fruit as is lying directly on the ground, is likely to be scalded and rendered unfit for use; or when this does not happen, the first being cut off from the sunshine by the vines, and they ripen slowly, and even when ripe, are not so well flavored as where they are so staked as to have the sun freely.

Two methods of staking have been practised by us, either of which we can confidently recommend to our readers.

First, take pea brush and lay it down by the tomatoe plants and let them run over it, which will keep them from the ground and support them while bearing. This is specially commended to those who plant tomatoes largely. The other is designed for those who cultivate but a few vines, and who can therefore give them more attention. Take four stakes and put them in the ground all around the tomatoe plant, and then fasten to them a barrel hoop, just high enough to support the plant. As the plants grow higher, add other hoops, until the support is high enough to support the plant in the more advanced stages of its growth. This method will answer every purpose for which staking is recommended, and will besides, in no small measure, preserve the fruit from the attacks of fowls, while, at the same time, it is believed by many experienced cultivators that this treatment will much enhance the productiveness of the plants.

A Needed Caution.

The season has been so backward, the cold weather has continued so long, that probably very little has yet been done in the flower gardens, and we must refer to the articles in the last number of the Planter. If seeds were sown sometime ago, it is very likely that they have failed to germinate, or having appeared above ground have been cut down by the cold. Wherever this has happened, of course the flower seed must be resown, else there will be no flowers as the spring and summer advances. Owing to the same causes, all farm work is considerably behindhand in most localities.

and for that reason, unless the ladies are watchful of their own interests, their husbands will be very likely to neglect the flowers altogether. This our fair readers must by no means allow. If it be important to raise wheat, corn, oats, tobacco, and other staple agricultural products, it is scarcely less desirable to have roses, pinks, violets, pansies, sweet williams, mignoinettes, and a hundred other bright and beautiful blossoms which the all-wise Creator has given us for our good. One feeds and clothes the body and puts money into the pockets; and the others cultivate the taste, refine the emotions, and feed the soul. As we are not all pocket and body, but have mind and soul as well, let us give to each what is fitting and convenient, "that we may be perfect and entire, lacking nothing."

Watch the Worms.

As the warm season advances caterpillars and other vermin will begin to show themselves in the trees of the orchard. Have an eye to them, and so soon as they are discovered, brush them off and kill them. It is the easiest thing imaginable to keep clear of all such pests by timely effort, and nothing is more difficult than to get rid of them when once they have grown numerous. In this, as in everything else about the farm, "a stitch in time saves nine," and he little deserves pity who neglects to exterminate the vermin from his fruit trees while they are yet few and far between, and who finally has his hopes blasted by ravages he himself has invited. He reaps only the reward of his own folly, or as the lawyers would say, he suffers by his own laches. If, then, you would preserve your orchards from the scourge of the vermin, heed the words which heads this article, "Watch the Worms."

The Morello Cherry.

MR. EDITOR:—There is growing in my yard a common Morello cherry tree, planted, I suppose, some eighteen years ago. I have known it for the past twelve years, during that time, I am confident that it has never borne two quarts of fruit, in any one season, save the present. During the heavy sleet the past winter, it was broken down, turned up entirely by the roots, and would have fallen flat to the ground, had it not lodged on the garden fence near which it was growing. On discovering its situation, my first impulse was to have it dug out entirely, and burned as a cumberer of the ground, but on second thoughts, I concluded to restore it to its original position, prop it up, and note the consequences. And well have I been rewarded for my forbearance; for this season it has produced as heavy a crop and as fine fruit as is usually seen on that species—the effect no doubt of the severe *root pruning* that resulted from the accident. However, let the cause of its fruitfulness this season be what it may, the fact is an interesting one.

As I am speaking of fruit, it may be as well for me to go a little further and give you an account of one or two other trees that have rewarded my *skilful culture*, in a very different manner. I allude to two beautiful apricot trees, which I had, one a Peach, and the other a Moor Park. These had always been pruned every winter by "shortening in," notwithstanding their luxuriance made them put forth branches of enormous length, giving them as I thought, a straggling, unsightly appearance; to remedy this, and make them form dense, handsome heads, I cut off from three-fourths to four-fifths of the end of every new branch; as a consequence, each of them is now at this present writing *as dead as a hammer*. Some think they died from the severity of the winter. I scarcely think so; a Blenheim apricot, a year younger, pruned in the same way, is dead; but a Royal apricot of the same age as the Blenheim, not so severely pruned, is alive and flourishing. This season for the first time, it shows fruit, now nearly ripe, and as beautiful as eye ever rested on.

Very respectfully, yours, &c.

HUGH M. NEILSER.

Summerville, June 15, 1856.

Root pruning has been practised with much success to induce the pear tree to fruit. It is done in this wise—a circle is described around the tree, and then a trench dug around with a sharp strong spade. The surface roots are cut, and during the healing process, and the formation of new rootlers, the tree being in a state of comparative rest, forms fruit buds instead of wood. This no doubt was the case with your cherry tree. The loss of the apricot trees, was no doubt owing to severe pruning. There was too great a hole made in their lungs. Had you checked out your over-luxuriance by root pruning, and shortened in only enough to form handsome heads, your trees would have been as lively as a *trip hammer*, and giving fine crops of fruit, *barring the curculio*.—ED.

Caked or Inflamed Udder.

The spring season is that part of the year when many cows are very liable to have caked udder. We therefore commend to the attention of our readers the application of tincture of arnica as a wash, which the Connecticut *Homestead* states has been found to be a remedy. One of the subscribers to that journal says "that he had a cow last season that came from the pasture with her bag swollen and very hard, in such severe pain that she would not allow any one to touch it, but gave evidence of being in the most excruciating agony. She was held, and her udder bathed with cold water sometime, without producing any effect, and other usual applications were resorted to; finally, knowing the effect of tincture of *arnica* on pain with the human subject, he brought some and applied some of it to the bag. The cow

ceased struggling, and almost immediately gave evident manifestations of pleasure, allowing the swollen and hard mass to be rubbed and kneaded. After again applying the *arnica* and again rubbing, a complete cure was effected.—In a few days she regained her milk and is now in as good case as before.

EVERY MAN HIS OWN ARCHITECT.

The way
To Build a Country House
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RICH'S AMERICAN ARCHITECT.
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SAXTON & CO.'S, No. 140 Fulton-st., N. Y.
☞ Sent free of postage on receipt of price.
June 1857—1t

NEW PIANOS FOR OLD ONES.

The undersigned will give full value for **Old Pianos** in exchange for **New ones.**

No one will offer greater inducements to purchasers of **Pianos** than myself. I have been engaged in the business for more than twenty years, and no one can say that I ever sold a bad one.

E. P. NASH.
Book and Piano Seller,
Petersburg, Va.
June 1857—tf

PLOUGHS.

THE FOLLOWING numbers of PLOUGHS and PLOUGH CASTINGS always on hand:

Minor & Horton, Nos. 18, 18½, 19, 19½, 20, 21 and 22.
Mayher & Co. and John Moore, of same numbers, including 10¼, 11¼, 12, 13¼ and 14.
Wiley, double point, 3, 4, 5½, 56, 76, 8½, 11.
Livingston County, Nos. 1, 2, 2¼, 3 and 4, right hand.
" " Nos, 4, 5, 6, left hand.
Wilson & Smither's Improved Livington, Nos. 2, 2½, 3, 4, for right and left hand, for wrought points.
McCormick, Nos. 6, 7, 8, 9, 10, 12, wrought point.
Davis, 9, 10, 12, wrought, 9 and 10 cast.
Prouty & Mear and Ruggles, Nourse, Mason & Co., several sizes, 2 and 3 horse.
Cosbys, Grants and Saunders Grain Cradles, Gleaners and other Implements to suit the season.
WM. PALMER, SON & CO.
June 1857—3t

PUBLIC SALE OF
Improved Short Horns (Durham Cattle.)

James Gowen will sell at Public Sale, on *WEDNESDAY*, the *10th of June next, at Mount Airy*, Philadelphia, a choice Herd of SHORT HORNS, consisting of Cows, young Bulls, Heifers and Calves, bred expressly with the view of establishing the fine Milking and easy Feeding properties of the "Durham Breed."

Catalogues with pedigrees will be furnished in due time.

☞ Sale to commence at 11 o'clock.
June 1857—1t

Valuable tract of Land for Sale at Public Auction.

On Wednesday the 8th of July next. will be sold on the premises, *without reserve*, a valuable tract of land situated on Banister river in the county of Halifax, one mile from the Richmond and Danville Rail Road, and eight miles from the Court House.

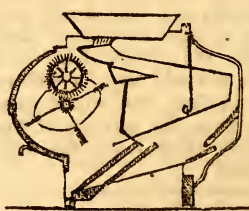
The tract contains SEVEN HUNDRED AND TWENTY FOUR AND A HALF ACRES, of which Two hundred and Seventy five are best river low grounds, and the balance fair high land. The land is well watered with lumber sufficient for all plantation uses.

Having purchased a dower interest, which has heretofore been an incumbrance on the land, I can now make a perfect title.

Presuming that persons wishing to purchase will see the land before the day of sale. I deem farther description unnecessary. The terms will be one third cash and the balance in two equal annual installments, with interest from day of sale. Secured by a deed on the land or by good personal security.

THOMAS BRUCE.
Jnne 1857—2t

Double Screened Rockaway.
J. MONTGOMERY & BROTHERS



CELEBRATED PATENT DOUBLE SCREEN ROCKAWAY WHEAT FAN, which since the late Improvement has taken the first premium at all of the Agricultural fairs at which it has been exhibited, and at the Fair of the Virginia State Agricultural Society last fall, had awarded to it the first premium after a most thorough trial with the most celebrated fans now manufactured.

The subscribers agents for the Patentees have made arrangements for a full supply for the approaching season.

WM. PALMER, SON & CO.
June 1857—3t

HORSE TONIC

FOR improving the condition of Horses and Mules, giving them an appetite, relieving them of Hidebound, Botts, Surfeit Worms, Mange, Chronic Cough, Roaring, and all internal diseases, and improving their skin and hair. Can be left off after the animal is improved without his falling back to his first poor condition. Can be used without regard to work or weather. Warranted to be no quack humbug, but put up and sold only by the manufacturers.

DUVAL & NORTON,
Agricultural Druggists and Chemists,
Mar 1857—tf Richmond, Va.

HYGEIA HOTEL,

Old Point Comfort, Virginia.

This most delightful Summer Resort—the "bright particular" locality of all the sunny South—is now the sole property of the undersigned and will be opened on the 1st of June next, and each successive June following. I engage to make it to the seekers for health, recreation, gayety, and good living, supremely attractive.

For health, no mountain retreat can be safer, *at any season of the year*. It is as exempt from disease in August, and September, and October, as in April, May, or June. Indeed, the first three are infinitely the most pleasant of the season. The weather is milder, the sea breeze balmier, and the luxuries of the salt water, are to be had of finer quality, and in greater profusion. There is no more inviting spot on the whole Atlantic Seaboard. It is strictly true of it, what the Poet hath said:

"Oh! if there be an Elysium on earth, it is this, it is this!"

That visitors may safely seek its attractions at *all* seasons of the year, I submit the following letters of Drs. Jarvis, Archer, Semple, Shield, Hope, Mallory, Simkins and Vaughan, and of James S. French, Esq., who, for nearly ten years, was the proprietor of the establishment. My own experience and observation for more than thirty years past, are to the same effect.

JOS. SEGAR, *Proprietor*.

Old Point Comfort, April 25, 1857.

—

FORT MONROE, VA., Feb. 11, 1857.

My Dear Sir—I acknowledge the receipt of your letter of yesterday asking my opinion as to the "character of Old Point Comfort for health, and particularly as to its exemption from diseases of a bilious character."

A residence of three years at Old Point Comfort as the Surgeon of this Post, enables me to bear full testimony to its well known salubrity, and the reputation it has heretofore enjoyed in its exemption from the ordinary forms of disease, especially those of a malarial or febrile nature, usually prevailing during the spring or autumnal months in other sections of the country and neighbourhood.

The records of the military hospital for years past further confirm my own experience, not only in this fortunate exemption from that class of disease ordinarily arising from malaria, but in the less frequency as well as diminished severity of those epidemics that have, from time to time, prevailed in almost every portion of our country.

I remain yours, very respectfully,

N. S. JARVIS, M. D., Surgeon U. S. A.

Jos. Segar, Esq., Roseland, Va.

—

RICHMOND, Aug. 7, 1856.

MY DEAR SIR:—Your favor requesting my opinion as to the general healthiness of Old Point Comfort, is received, and I hasten to reply.

I resided at Old Point, as Post Surgeon and as Physician, upwards of twenty years, and I have no hesitation in saying, that there are few, if any localities in the United States, more healthy at all seasons of the year.

I know of no place more exempt from bilious diseases, and I have never known a case of intermittent fever to originate there.

In fine, I consider visitors from any climate as safe from disease, at Old Point Comfort, during the autumn months as they would be in the mountains; or any where at the North.

Very respectfully, your obedient servant,

R. ARCHER.

JOSEPH SEGAR, ESQ., Old Point Comfort.

HAMPTON, Aug. 18. 1856.

DEAR SIR:—It gives me pleasure to comply with your request to state my opinion of the salubrity of Old Point Comfort, during the summer and autumn.

Having practised medicine for the last ten years among the residents and visiters, and having been frequently employed to attend the Garrison, I am entirely satisfied that the place is entirely exempt from bilious fevers of all kinds—the very few such cases which have fallen under my treatment, having been clearly traceable to exposure at some notorious miasmatic locality.

Visitors at Old Point are as perfectly safe, at any season, from intermittent and remittent fever, as they would be in any mountainous region. Patients suffering in such regions from bronchial affections, particuly asthma, are uniformly benefitted by a visit to Old Point.

I can also state that several army surgeons have informed me that the sick reports show less sickness at Fort Monroe than any military post in the Union.

Very respectfully, your obedient servant,

G. WM. SEMPLE, M. D.

JOSEPH SEGAR, ESQ., Hygeia Hotel, Old Point Comfort.

—

HAMPTON, Aug. 23rd, 1856.

DEAR SIR:—Yours of yesterday's date, asking my opinion of the health of Old Point Comfort, is before me.

I have been practising medicine in Hampton and Old Point for 15 years, and consider it as healthy a place as any that I know on the face of the earth. I do not remember having seen there a case of remittent or intermittent fever that was not contracted elsewhere.

Very respectfully,

S. R. SHIELD.

JOSEPH SEGAR, ESQ., Hygeia Hotel.

—

HAMPTON, Aug, 22nd, 1856.

MY DEAR SIR:—In reply to your queries contained in your note of the 7th inst., it gives me pleasure to state that, in my opinion, Old Point Comfort is as healthy a locality as any on the Atlantic coast.

Persons from any part of our country may remain there through the entire year with perfect safety. The endemic diseases of all this region, I may add, have become very much modified of late, as any one at all familiar with the causes which produce them, might, upon the slightest observation, perceive. An ordinary case of bilious fever seldom requires more than two or three days' treatment.

I have not, during a practice of more than five years in this vicinity, seen a case of intermittent or bilious fever which originated at Old Point.

Yours, truly, JESSE P. HOPE.

JOSEPH SEGAR, ESQ., Roseland.

—

NORFOLK, VA., Aug. 25th, 1856.

Joseph Segar, Esq., Hygeia Hotel.

DEAR SIR:—In regard to the health of Old Point, I have only to remark, that having been familiar with the place ever since my boyhood, I speak confidently when I declare it to be among the healthiest spots on the Continent of America. Bilious and ague fever are unknown there, while in all our epidemics it has escaped unharmed. I would sooner take my chance at Old Point to avoid those diseases in summer and fall than the mountains, or even at the White Sulphur. For 8 years I resided in the vicinity of Old Point, and for the remainder of my life in Norfolk, thus affording me ample opportunity of ascertaining the fact in question. Since 1819, when the extensive public works were commenced, Old Point has contained quite a large population, made up of the Military and persons connected with the Engineer Department, to say nothing of other citizens and visitors. These have enjoyed, at all seasons, an unexampled share of excellent health.

The U. S. Government has, on several occasions, sent troops to Old Point from other stations to recruit their health, and with the desired effect. What induced this was, doubtless, the favorable reports of the Army Surgeons as to the sanitary character of the place. We cannot account for tastes nor can we control fashion; but it has always been a matter of surprise to me that visitors should leave the Point just at the time when it is most pleasant. The latter part of August and the whole of September are among the healthiest and most agreeable periods to remain at Old Point; for the air is bracing and yet mild during the day, and at night you sleep comfortably under a blanket. Hog fish and oysters are of much finer flavor than in July, and the fishing far better than in the extreme heat of the summer. No one within the broad limits of the Old Dominion can have failed to appreciate the beauty of our Indian Summer (so called). This, while it endures some few weeks in other localities, lasts the whole fall at the Point, commencing about the 20th of August. I can give no stronger proof of the earnestness and sincerity of my convictions on this head, than by declaring that if the authorities would grant me permission to erect a cottage on the beach, I would gladly avail myself of the privilege with a view to residing there all summer and fall with my family. But I will not enlarge on this topic. There is, and there can be, no dispute on the subject, since all who know the place will endorse every word I have uttered. The health of Old Point, and its exemption from the fall diseases of our climate, are facts too well established to admit of cavil or doubt, indeed, to quote the words of a conspicuous politician, it is a "*fixed fact.*"

Very respectfully, your obedient servant
F. MALLORY, M. D.

—

NORFOLK, Aug. 24, 1856.

Joseph Segar, Esq.: Dear Sir—Having spent my school-boy days in the immediate vicinity of Old Point, and somewhat familiar for many years with the hygeaic condition of the people—residents and guests, who annually assembled there—I am enabled to answer your enquiry with entire confidence in the correctness of my own conclusions. This experience has satisfied me that no locality, in our latitude, can be more healthy. Unconnected with "the main," save by a narrow strip of beach land, which is only partially covered with a stunted vegetation; its sources every where washed by the salt ocean wave, and without a single sunken spot where vegetable humus can gather, it seems to me utterly impossible that malaria can be generated there, or that noxious airs can reach it from my portion of the adjacent country. Come from whatever point of the compass the winds may, *they are sea breezes* still, and could scarcely waft a poisonous exhalation from the *distant* shores abroad.

In my estimation, fevers of a bilious, remitent or intermittent type might as soon be expected to originate on the highest peak of the Blue Ridge as on the clean, barren sand plane on which the Hygeia Hotel is built.

Yours, truly, J. J. SIMKINS.

—

HAMPTON, VA., March 30, 1857.

My Dear Sir—I have received your letter requesting my opinion of the general healthiness of Old Point Comfort, and particularly as to its exemption from bilious diseases.

In reply to your inquiry, it gives me pleasure to state, that I know of no place in Virginia with which Old Point Comfort will not, in that respect, favourably compare; and I do not remember *ever to have seen a case of bilious fever which originated at that place.*

Yours, respectfully,
WM. R. VAUGHAN, M. D.

Jos. Segar, Esq., Roseland.

—

ALEXANDRIA, Aug. 25, 1856.

My Dear Sir—In reply to yours of 20th instant, I can only say, that the healthiest spot I have ever known is Old Point Comfort; and this I say after a residence there of eight or nine years. A very mistaken notion prevails as to its health in August and the fall months, and there are persons who deem it unsafe to remain there at such times. My own experience teaches me that, for comfort and health, Old Point is far more desirable in August and the fall months than earlier. Fish and oysters are in greater perfection, and no climate can be purer or, more delightful, or healthier. At any season of the year, Spring, Summer, Autumn or Winter, I would as soon take my chance for health there as at the White Sulphur Springs, or any watering place in America.

Yours, very truly,
JAMES S. FRENCH.

Jos. Segar, Esq., Roseland, Eliz. City Co., Va.
May 57—5t

AGRICULTURAL SEEDS.

The Subscribers offer the following seasonable seeds, the growth of last year, and of unsurpassed qualities Dealers and others requiring large quantities, will be served at prices considerably below the rates quoted.

Best quality Red Top Turnip	75 cts.	per lb.
Red Top Strap Leaf do	75 "	" "
Large White English Globe do	50 "	" "
Do do do Norfolk do	50 "	" "
Long White Tankard do	75 "	" "
Yellow Stone do	75 "	" "
Yellow Aberdeen do	75 "	" "
Best American Improved Ruta Baga do	75 "	" "
Imported do do	50 "	" "
Do Purple Top do	50 "	" "
And 12 other fine varieties of Turnips from 50 cts. to $1	00 "	" "
Early Scarlet Horn Carrot 50 cts. to	1 00 "	" "
Improved Long Orange do 50 cts. to	1 00 "	" "
Long White do	75 "	" "
White Sugar Beet do	50 "	" "
Yellow do do	50 "	" "
Long Red Mangel Wurtzel do	50 "	" "
Yellow Globe Wurtzel do	50 "	" "
Fine Mixed French Grass Seed for Lawns	$5 00	per bush.
And other Mixtures for Lawns $3 and	4 00 "	"

Also the finest qualities of Red, White, Dutch, Lucerne and other Clovers—Timothy, Red Tops, Blue Grass, English and Italinn Ray Grasses, Orchard—Sweet Scented Vernal—the Fescues, and other Grasses, with a large and complete assortment of VEGETABLE, FLOWER and FIELD SEEDS of the best qualities at reasonable rates.

JAMES M. THORBURN & CO.,
15 John Street, New York.

☞ Catalogues on application.
May 57—2m

PORTABLE GAS APPARATUS.

HAVING received the exclusive agency for the State of Virginia from the Maryland Portable Gas Company, for the sale of their machines, we are now prepared to contract for their erection.

The machine is remarkable for its extreme simplicity, its safety and economy; one half a cent per burner for an hour's consumption, is a large estimate for this Gas, while in illuminating qualities it is not surpassed by the Coal Gas of any city in the Union. It is well adapted for Private Houses, Factories, Schools, Colleges, Churches and watering places, and provides, what in cities is considered an indispensable luxury, a good gas light, at much less expense than is paid for Oil or Candles.

Any information on the subject may be obtained by addressing STEBBINS & PULLEN,
May 57—1y 101 Broad St., Richmond, Va.

W. W. DINGEE & CO.,

RE manufacturing for the present season, ne and two horse Railway Powers and Thresh- Our powers are longer than formerly—the cogs e pinions are chilled, which prevents them wear- The band wheel goes on either side of the Pow- the platform has a covering of inch borders, and Power is mounted on a pair of wheels for conve- ce of moving. Our Threshers are overshot, the der is entirely of iron, and will last a life time in tant use. The boxes have self-oiling cups, which the journals constantly oiled, thus preventing ing and consequent wear. The wheels and gear e horse power are oiled by a similar device. The er is driven by the main belt, and takes less than the power used in the old method. The shaker ys fits on the power, and may be used for ma- es requiring slow motion as a Corn Sheller or a w Cutter. Our two-horse Machine, with 3 hands, pable of threshing 175 bushels of Wheat per day. complete two-horse Machine will consist of a le railway power, 29 inch cylinder thresher, a er, 30 feet of India Rubber Belting, Fixtures for ing Clover Seed, hooks for fastening the Thresher e floor, a pair of self-feeding oil cans for the pow- wrench, oil can, and covers for oil cups. Price 5, delivered in Baltimore. With the one-horse hine will be sent a 24 inch iron cylinder thresher all the fixtures enumerated above. Price $125, vered in Baltimore. *All work warranted.*

or further information, address W. W. DINGEE & , YORK, PA., and secure circular.

ay 57—6t

WHEAT FANS.

Doyle's Patent Grain Cleaner!

SIXTEEN PREMIUMS!!

HE Double Screening Separator has added s list of Premiums, the first Premium at the Vir- a Agricultural Fair, Richmond, Va.; also at Pe- burg and Fredericksburg Va., and Washington, at Knoxville, Tennessee. This Improved Fan patented April 20th 1852, and has become very ular wherever it is known, proving by its utility in editiously cleaning all kinds of grain, to be the Grain Cleaner now in use. Those in want of a good would do well to call at Doyle's & Sullinger's tory, in Fredericksburg, Va., and examine for them- es.

hese Improved Fans will be furnished to any nt within fifty miles of the Factory, and further by lroads and Steamboats. Communications address- o the undersigned at Fredericksburg, Va., will be mptly attended to.

lay 57—6m DOYLE & SULLINGER.

A DESIRABLE FARM FOR SALE.

THE Subscriber offers for sale a desirable m in Cumberland County, on Willis' River, at nton, ten miles above Cartersville. It contains 228 es, of which 135 are open, and 93 in woods. The d is in a good state of improvement. There is on place an abundance of plant land, water, and tim- ; a good landing with very good navigation, a IST AND SAW MILL within one fourth of a e of the house.

he Improvements consist of a Dwelling with 5 ms and 2 Porches, Kitchen, Icehouse, Stables, To- co Barn, sufficient to cure 10,000 pounds, Negro ins, &c.

t will be sold on a credit of 1 and 2 years with in- st from date of sale.

or further information apply to

N. AUGUST,
Agricultural Registry Office.
No. 153 Main Street.
lay 57—tf Richmond, Va.

C. S. WAINWRIGHT'S

FIRST PUBLIC SALE OF

THOROUGH-BRED NORTH DEVON CATTLE.

To be held at "The Meadows," on the 17th day of June 1857.

THE subscriber intends holding his first public auction of North Devon Cattle on the above mentioned day, at his residence, "The Meadows," 4 miles north of Rhinebeck station, on the Hudson River Railroad. The animals to be sold will number between 20 and 25 head, males and females, from calves to full grown; all of which have been either bred or imported by himself, and have perfect Herd book pedigrees. As a lot, he believes he may say with truth, they are fully equal to any ever yet offered to the farmers of the U. S. Among the number will be the imported bull May-Boy (75), and the imported cows Nonpareil (924), and Moss-Rose (904).

Catalogues containing full pedigrees and all necessary information are now ready, and will be sent, on application, to all desiring them. The subscriber will be happy to have gentlemen visit his herd at any time

All the sales will be *bona fide*, and no animals on the Catalogue will be disposed of until the auction.

C. S. WAINWRIGHT,
"The Meadows," near Rhinebeck, N. Y.
May 1857—2t

S. McGRUDER'S SONS,

COMMISSION MERCHANTS.

RICHMOND, VA.

Pay particular attention to sales—Corn, Wheat, Flour, Tobacco, &c. Aug. 56—1y

1,000 Bushels Clay and Shinney Peas for Sale.

PLANTERS wishing a supply had best forward their orders promptly.

THOS. BRANCH & SONS,
May 1—3t Petersburg.

VALUABLE TIMBERED LAND FOR SALE.

I offer for sale **Seven Hundred and Thirty-Two** and one-quarter (732¼) acres of valuable timbered Land, lying immediately on the Norfolk and Petersburg Railroad in the county of Sussex. The whole tract is in original growth of Pine and Oak, principally Pine, and offers great inducements to Lumber getters.

Terms liberal. For further particulars apply either by letter or personally, to

WM. C. JONES,
May—4m Surry Court-House P. O., Va.

REAPING MACHINES.

Persons wishing Hussey's or McCormick's Reapers for the coming harvest will please order early.—McCormick's Reaper is warranted to cut 1½ acres an hour, and to save three-fourths of the wheat scattered by ordinary cradling.

April 3t. H. M. SMITH.

JOHN MORTON, Florist,

West end of Grace Street, RICHMOND, VA.

Roses, Camelias, Ornamental Trees, Evergreens, Shrubs, Grape Vines.

☞ Bouquets tastefully arranged. Sep 1y

MITCHELL & TYLER,

DEALERS IN

Watches, Clocks, Jewelry, Silver and Plated Ware, Military and Fancy Goods.

RICHMOND, VA.

Sept 1856—1y

3,100 Acres of Albermarle Land for Sale.

The undersigned offers for sale privately, on accommodating terms, the several farms described below. If not sold by the 1st of September next, they will then be sold at public auction. Possession given in time to seed a wheat crop.

140 acres of land, a part of the Bloomfield farm, adjoining the lands of Peter McGehee and W. W. Gilmer, one-third Ivy Creek Low-Grounds, and 15 acres of pillaged wood-land. Price $60 per acre.

Yates', a part of Bloomfield, adjoins the D. S. farm, is within five miles of the University, contains 400 acres, one-fourth well-timbered, and can be had cheap at $33 per acre.

Vernlem, Miss E. D. Gooch's farm, adjoins Bloomfield and the lands of R. W. N. Noland, contains 920 acres, 600 of which are cleared, has on it a handsome new dwelling, with nine large rooms, just finished, and all necessary out buildings. Price $33 per acre.

Higginbotham, the property of Dr. W. F. Gooch, is a beautiful farm of 468 acres, adjoining the lands of R. W. N. Noland and Peter McGehee, and has on it an ample supply of wood and buildings. Price $33 per acre.

These four tracts of land, all lie within less than two miles of Woodville Depot, on the Central Railroad, in a refined neighborhood, and convenient to Charlottesville, the University, and to Bloomfield Male Academy; which, in future, will be conducted by Messrs. W. LeRoy Brown, and W. W. Tebbs, and will be one of the very best preparatory Schools in Virginia.

Richards', lies on the Blue Ridge, on both sides of the line, between Albemarle and Rockingham, a little North of Brown's Gap, and contains over 1,100 acres of valuable land, only 100 acres of which are cleared. Price $5 per acre.

On the 1st of September the undersigned, at Bloomfield, will commence to sell, at public auction, all the personal property, except the negroes, belonging to the above mentioned farms.

Post Office, Woodville Depot, Albemarle county, Va. P. H. GOODLOE.

June 1857—tf

Botetourt Land for Sale.

The subscriber wishes to sell some TWO OR THREE THOUSAND ACRES of Land lying in the vicinity of Fincastle on CATAWBA CREEK and the North Fork, one of its tributaries. The Land will be divided into five or six parcels, each with a good supply of water, timber, and arable land.

One Division will embrace the

CATAWBA MILLS,

now in good repair, with an ample supply of water, in a good neighbourhood for custom, and for the purchase of wheat.

Another parcel will include an excellent

DWELLING HOUSE,

with eight rooms, Kitchen, and a large Barn, Stables, &c.

A good DWELLING HOUSE, with four rooms; a large Barn with Stables sufficient for stabling 40 head of Cows, with water-power for SAW and CHOPPING MILL, will be included in another subdivision.

On the other subdivisions there are no improvements of any value, but each will include fine and *never failing Springs*, excellent Timber, and as GOOD TOBACCO LAND as is to be found in the County.

As the subscriber is anxious to sell, he would like all in search of land, to see him before purchasing elsewhere.

For further information, address

CARY BRECKENRIDGE, Fincastle.

June 1857—tf

THE SUBSCRIBER having discontinue the Grocery business, will from this date devo his attention exclusively to the Commission busine for the sale of all kinds of Country Produce, Whe Corn, Tobacco, &c.; also, to the Purchase of Guan Groceries, &c.

He has associated his nephew, W. G. MILLE with him, who will give his particular attention to t sales of Tobacco.

He will also take this opportunity for returning l heartfelt thanks to his many friends for the liberal p ronage extended to him for so long a time, and hop by strict attention to business to merit a continuan of the same. ALEX. GARRETT.

Office for the present at his Old Stand.

June 1857—1y 40 Main St

AGRICULTURAL WAREHOUS

THE Subscribers continue to manufacture at tl large New Factory on Cary Street, between and 10th, all kinds of Agricultural Machines and plements of the latest and most approved patte which will be made of the best materials and of su rior workmanship. They are now prepared to rec and execute orders for the same.

They ask attention to "Cardwell's double and gle geared Horse-Powers and Threshers," which h taken a premium at every Fair at which they h been exhibited, also to "Croskill's Clod Crush "Manny's Patent Reaper and Mower" the best in Horse Raker, Corn Shellers from $10 to $35. Wh Drills, Straw Cutters, Rick's patent iron Beam Plo of various sizes, Seymour's and Sage's Patent Br Cast Sowing Machines, Fan Mills, various patte Corn Planters, Hay Presses, Grain Cradle, and alm every other machine and implement required by Pl ers. BALDWIN, CARDWELL & CO.

April, 1857. Store 148, Main S

City Savings Bank of Richmon Chartered in 1839.

Continues to receive deposits, on which interes paid at the rate of 6 per cent. per annum, if remai on deposit six months, and 5 per cent. for shorter riods. HORACE L. KENT, Pres

ALEX. DUVAL, Sec'y.

H. BALDWIN, Cashier.

DIRECTORS.

John N. Gordon, Samuel Putney, I. Davenport, Chas. T. Wortham, Hugh W. Fry, Wellington G din. April 185

Reese's "Manipulated" Guan For Tobacco.

This Guano has been used with *unequalled re* on *Tobacco*. Both theory and experience show be peculiarly adapted to that plant.

JOHN S. REESE & CO.,

No. 10 Exchange Building, Baltimore, M

April 1857—3t

MACFARLANE & FERGUSSON

BOOK, JOB, FANCY and ORNAMENT

PRINTERS.