

SOUTHERN PLANTER

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VOL. XX.

[JANUARY.]

No. 1.

PUBLISHED MONTHLY.

AUGUST & WILLIAMS, PROPRIETORS.

J. E. WILLIAMS, EDITOR.

# THE SOUTHERN PLANTER



DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

PRINTED AT RICHMOND, VA.,  
BY MACFARLANE & FERGUSON.  
1830.

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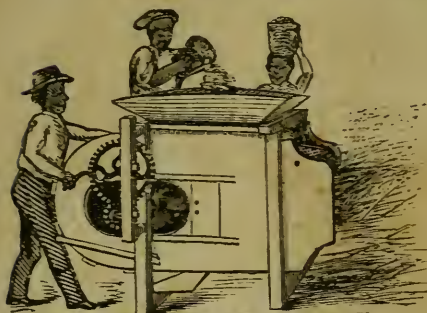
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the State.—SULLY.

J. E. WILLIAMS, EDITOR.

AUGUST & WILLIAMS, PROP'RS.

VOL. XX.

RICHMOND, VA., JANUARY, 1860.

No. 1.

## Slavery and Free Labor Described and Compared.

BY EDMUND RUFFIN.

(Concluded.)

SECTION VIII.—How the substitution of free labor for slave labor would finally operate on agricultural interests—High price of land, of itself, not a benefit to agriculture, and may be the reverse—Still greater evil in fluctuating prices.

But enough of reference to the incidental and minor question. I will now proceed to the consideration of the main proposition of the opposers of negro or personal slavery—which is (as enunciated above at home, and by thousands of anti-slavery authorities abroad), that the removal of negro slavery and slave labor will bring in a sufficient supply of free laborers—and that the change will operate speedily, greatly and profitably for the land owners, in raising the prices of lands. I deny the general proposition, and also each of its minor parts; and, so far as the present land-owners' interest are concerned, will maintain that the pecuniary evils of the change would scarcely fall short of the evil political and social results which have been previously and elsewhere asserted.

The same general positions were assumed by the English anti-slavery party, to advocate

and prove the expediency of the general emancipation of slaves in the British colonies. There, however, it was argued that the emancipated negroes would be more industrious when freed, and therefore their labor would be cheaper than the previous slave labor. The same reasoning was then used and believed in by every emancipationist in these United States—of whom there then were many in the southern States. Since the utter failure of obtaining labor from the emancipated slaves in the West Indies can no longer be denied, the opposers of slave labor can no longer promise free negro labor as a substitute. But, in this country, the old argument is still maintained, with the mere change of terms, of free northern and European labor being now promised as the substitute for the negro slave labor lost—and an improvement is claimed in the change, which, while retaining to the owners the high prices of their slaves, by selling them, will serve also to more than double the present price of their lands.

In reply to these assertions—first, let us inquire in what manner, and by what new inducements, the removal and scarcity of negro slave labor will operate to bring in free labor. That the removal of slaves, and a consequent greatly increased demand and price for hiring labor, will bring from



abroad some amount of the latter, is freely admitted. Also, that, in a very long course of years, the low prices of land, reduced to one-fourth or less of their present rates, may invite so many foreign and new purchasers as gradually to fill the country with new and small proprietors, who, with the aid of other mere hireling laborers, may even till all the land now under culture, or more. Further: the longer continuation of the (so-called) free labor system at a much later time, by reducing the extent of farms and creating greater demand for lots and residences by the then more crowded population, may raise the price of land to higher than the present or slave labor rates for land. All this may be admitted without strengthening the anti-slave labor argument in the least. For even if free labor shall be so invited, and shall, in a long course of time, become never so plenty and cheap—and if land shall finally be appreciated never so highly—the early, and also a long continued operation of the change will be to make labor much scarcer and more costly at first, and for a long time, and land must sink very low in price, and be reduced as much in extent of culture, before an important reaction can be expected, and before higher than the present prices of land will be caused by a new demand of immigrant or other buyers. If such final results are, indeed, to be deemed benefits in any aspect, it would be at least fifty years, and more likely more than a century, before they could begin to be realized, and very long after the present owners were dead, after having been utterly ruined by the removal of slave labor, or after they or their children had fled from Virginia to avoid the manifestly approaching ruin of all property-holders who remained.

If the mere removal and scarcity of slave labor would serve to invite enough of free and hireling labor from abroad, why is Maryland now so much wanting in labor of every kind? Why are our counties, which border on Pennsylvania and Ohio, (where slaves cannot be kept in safety, because of the danger of their loss by Abolition action,) so deficient in labor? There is in all Maryland, and these parts of Virginia, great demand for hireling labor, yet the supplies have not, by half, filled the void made by the removal or absence of slave labor. And the sufficient reason is, that the free labor that is offered, and which would come in any amount, if at high enough wages, is now dearer and less suitable than slave labor, costly and hazard-

ous as is the employment of the latter. Higher wages are required by white hirelings, and greater indulgences, while they are more intractable, less contented, and often more lazy, and always less serviceable and reliable than negro slaves. These are truths known to every experienced Virginia farmer. And to the experience of all such, whether on our borders nearest to the free labor and slave-stealing States, or in our interior counties, I appeal to sustain my position of the greater cheapness and economy of using negro slave labor in preference to free labor. There is no position, in regard to agricultural or political economy, which could be better sustained by reasoning and by evidence. But I will not occupy more time and space on this point, than to refer the decision to every farmer's experience and knowledge of the comparative prices charged for hireling and slave labor, and their respective advantages and disadvantages.

As I aimed to show, in a previous article, the actual and increasing operation of the too high price, and consequent removal of our slaves by sale to the South, is to reduce the price of land; and to prevent investments of capital in agriculture, until the price of land shall be enough reduced to compensate in its lower cost to the new purchaser the increased cost of his investment in slaves at their enhanced prices. As there is nothing in these changes, or their causes, to increase the amount or the prices of agricultural products, we may suppose that they will maintain the previous average rates. Then the gross income of the farmer will remain the same—while either the removal of labor, or the decline of land in price, or the certain approach, or even expectation of either or both, will serve to render the farmer's position uncertain, his prospects of the future still more doubtful—to discourage the effort to improve his land and his business, by presenting, plainly in view, the probability of his necessarily selling his land and removing with his negroes to a region where their productive or laboring value is equal to their market price. Under such circumstances of beginning actual loss, or prospective and much greater future loss, in his general business—when his slave-labor (as capital) costs him much more than he can afford to pay for or to retain as an investment, and when free hireling labor, even if to be obtained, would be certainly much dearer—could it be

possible that, thus situated, Virginia farmers could pay still higher prices for the free labor of white immigrants? If the farmer who is the best supplied with slaves, even now, cannot obtain fair profits from their labor (as the profits of invested capital), because of their high appreciation for sale, can others, having no slaves, afford to employ free labor at still higher rates?

But suppose, notwithstanding all these reasons and all losses, our farmers, deprived of slave labor, whether gradually or suddenly, would, by their necessity, be compelled to hire the free labor of immigrants, at any price required. At first, and during the greatest scarcity and demand, the price would be exorbitant. And should the high price serve to increase the supply of labor so as to bring it, within some eight or ten years, to fair and uniform rates for free labor, these rates, for the reasons stated, would still be higher than those of slave labor now. During all these changes, the farmers would have to bear either greater or less of annual loss, if counted on their original capital stock. But, in truth, under such circumstances, (as the price of wages would not fall below a fair rate so long as labor was truly free,) their other capital, land, must fall, until, whether to the original possessor or to a new buyer, the value of the whole capital was so reduced, that the reduced profits still offered a fair return for cultivation. This might take place, possibly, after many years of continued depression and loss to the occupants, and of the ruin of one or more of them in succession, before the prices of land were reduced to their lowest rates. Then, a new purchaser, who bought a farm for one-fourth (or it might be one-tenth) of its former price, might make a profit on his cheap land investment, even with having to pay the high price of free labor for its cultivation.

Next, let us inquire what would be the inducements that would operate to incite new purchasers of land in Virginia, and especially from abroad, whose increased demand for land shall serve (as promised) to greatly raise the price of lands. It is admitted that new purchasers may be so brought into the land market by prices being reduced sufficiently low, and by that inducement only. Passing by the universal ruin to be caused to the present and even later proprietors and successive generations by such a decline, so great and long continued, the

question occurs, how low a rate of price will serve to induce new buyers to occupy our reduced and partially abandoned and desolate fields? Let it be remembered that while the prices of land were sinking, and the owners, also, were being reduced to less labor, income and means to live, the lands would also, and necessarily, get into bad condition, and partly out of cultivation; the buildings would go to decay or utter ruin, and the whole face of the country would be generally becoming waste, desolate, and much of it returning to the original wilderness state, except that its prior fertility had been exhausted before its bad culture had been abandoned. Under the necessary conditions, the land now valued at \$20 the acre, would, probably, not be fit to yield a fair farming profit to a purchaser at \$4. And if to be bought at \$4, or even at half that price, there will still be no inducements for purchasers and new cultivators to come from abroad, so long as rich new lands in the West can be bought of the United States government at \$1 25 the acre; or be settled upon and occupied, and a preemption right thereby acquired for the occupant to buy at that low price, whenever the government shall subsequently order the sale of the territory.

Now, under these, or any possible conditions and results of the removal of all our slave labor, and the change to the free labor system, such as above described, would be the manner in which only could be finally reached the alleged benefits, promised by the anti-slavery school, of substituted immigrant free labor, and immigrant land buyers and farmers. The opposers of negro slavery and slave labor are welcome to my broad admissions, and to make the most of them for their cause and argument.

But my admissions of consequences, and the supposed progress of events, so far, have merely reached the supposed filling of the country with enough free labour, at the ordinary higher wages of free labour—and found enough purchasers for the land at greatly reduced prices. I am willing to extend the views to such far remote time as will serve to crowd the population, and thereby raise the prices of lands to any rates required for the opposing argument; and, in short, to admit that Virginia, in a very long course of time, may be brought to as near the present condition of Massachusetts as can be, in the entire absence of



all the government protection and bounties which have operated to build up for Massachusetts full one-half of the navigation trade, manufactures—the population, the extent and the demands of the towns, and the consequent high price of lands, and the general profits and wealth of the people. But putting aside these great advantages bestowed by the federal government, and which Massachusetts has fully enjoyed and profited by, and which Virginia has largely helped to pay for, but never can receive—let it be admitted that, under the then free labour system, Virginia may, in two or three centuries, become more populous, and the lands be raised to much higher prices than now—still there would not necessarily be a more prosperous, happy, or worthy community. Increased population and increased prices of lands, both are important benefits when resulting from the true and growing prosperity of a country. But either may be the accompaniment, if not even the result, of the privations or misery of the people. For a long series of years in recent times (preceding and up to the Irish famine, which operated to change circumstances,) Ireland increased more rapidly in population than any country of Europe—was more densely populated than any except Holland, Belgium, and some others of the most fertile and highly cultivated small Territories—the land was exceeded by no country in fertility, and its price, to the occupier and cultivator, was enormously high. The poor Irish peasant had to pay to his landlord, or more often to the “middle man,” more per acre for the annual rent of his potato patch and its wretched hovel, and to live on potatoes only, than would have bought the full property, in fee-simple right, of as much and as good land in the United States. Yet, with all the greatly lauded and coveted benefits of dense and rapidly increasing population and high-priced lands, Ireland was the most wretched country, with the most destitute and miserable people of all Europe, and, indeed, of the civilized world. The extreme case of Ireland never can be paralleled in America. But even that condition of dense population, high price of land, and low price of free labour, (improperly then so-called,) as is coveted by some persons as an improvement and blessing for Virginia, could only be reached through a long course of early loss to the property-owners, and of late

privation and suffering to the poor and more destitute inhabitants.

The high price of land, of itself, and considered in regard to the then present and future time only, is not a benefit to agricultural interests, nor the community—but the reverse. It operates to increase the cost of investment in agriculture without increasing the products, and, therefore, serves to lower the profits of, and so to discourage agriculture. The low price of lands, by the reverse operations, offers cheaper investments, consequent higher profits, and, therefore, greater encouragement to agricultural pursuits.

When lands rise in price, slowly and gradually, and the rise is based upon the improvement and increased capacity for production of the lands, such rise is the best indication of the sound prosperity of agriculture, and is also a stimulus to increased industry. But the attainment of the highest rate of price, (even in this beneficial manner,) however truly indicating a previous and past progress of prosperity of agriculture, is not an element of, or as a means for, future profit and prosperity, as would be low price of lands, supposing all other facilities for their use to be equal.

But of all evils of either high or low prices of land, none are so injurious to the owners, and to the agricultural and general interests of a country, as fluctuating prices—and are changes caused, not by any changes of the intrinsic worth of the land itself, or at all dependent on the will and action of the owners, but by artificial and extraneous circumstances. Such causes have operated most banefully in Virginia, especially in the great expansion of irredeemable bank issues in and after 1814—which caused apparent and great increase of the prices of land, which was, in fact, but the depreciation of paper money, and the stimulus of speculation thereby produced)—the succeeding collapse of bank and paper credit, and consequent extensive losses and bankruptcy of proprietors, and therefore great and undue depression of prices generally—and the great emigration from Virginia, and especially of slaves, caused by losses to proprietors, and invited by the higher profits of agriculture offered to them on the cheap and rich cotton lands of the new South-western States. After struggling through those opposite evils and fluctuations of too high and too low prices of



the pick; but at the depth of a foot it was found to be so wet and soft that a spade could easily be sunk to the entire depth of ten inches with little force. The ditches were made, and in less than the specified time a brave lot of water flowed in. The piece was thoroughly drained, and the result was an immense crop of corn. The field has regularly borne 60 or 70 bushels since. Corn was planted for a first crop in this and the preceding instances, because a paying crop is obtained in one year, whereas if wheat were sown, it would be necessary to wait two seasons. He always drains when the field is in grass, if possible, for the ditches can be made more easily; and spring is chosen that the labor may not be interfered with by frosts.

To show how necessary it is to avoid planting trees over drains, we quote a case in point. In a lot adjoining his house are four large elms, which are marked to be felled, and for the reason that the lot was formerly so wet that a pond of water stood upon it in winter, and throughout the season the children skated and slid upon it. It was drained, and all went well for a time; but after seven years Mr. Johnston found his drains did not discharge properly, and that in certain places the water came to the surface, so as to destroy or greatly lessen the crop above them. He could not account for the circumstance until he dug down to the drain at each of these spots, when, to his surprise, he found the tile [two four-inch tile, with a semi-circle of nine inch set on top of them,] completely choked with fibrous roots of the elm.

Mr. Johnston says he never saw one hundred acres in any one farm, but a portion of it would pay for draining. Mr. Johnston is no rich man, who has carried a favourite hobby without regard to cost or profit. He is a hard-working Scotch farmer, who commenced a poor man, borrowed money to drain his land, has gradually extended his operations, and is now reaping the benefits, in having crops of forty bushels of wheat to the acre. He is a gray-haired Nestor, who, after accumulating the experience of a long life, is now, at sixty-eight years of age, written to by strangers in every State of the Union for information, not only in drainage matters, but all cognate branches of farming. He sits in his homestead a veritable Humboldt in his way, dispensing information cheerfully through the agricul-

tural papers and to private correspondents, of whom he has recorded 164 who applied to him last year. His opinions are, therefore, worth more than a host of theoretical men, who write without practice. He says that the retrogression of our agriculture in the older States, is to be accounted for in our lack of drainage, poor feeding of stock, which results in giving a small quantity of poor manure, and in not keeping enough to make manure. He applies twenty-five loads of manure to the acre at the beginning of a rotation, and this lasts throughout the course. He learned from his grandfather that no farmer could afford to keep any animal that did not improve on his hands, and that as soon as it was in good marketable condition it should be sold and replaced by another. This theory he has always carried out, and, as a natural consequence, has always got higher prices for his beef stock, and a ready market in the dullest of times.

### The India Cotton Question.

The chimera of cotton supply from India continues to dance before the imagination of the Manchester men, and the idea seems to be adroitly kept alive by those who have an interest in fostering it, in face of the realities of the past. It is many years since the capacity of India to grow cotton for the European market fastened itself so firmly upon those who desired to be emancipated from dependence upon the United States, and above all upon "slave labor," for the most important material of human clothing. Great exertions have been accordingly made to stimulate a growth in India, but the results have been that machine-made goods have been introduced into India faster than the raw material could be drawn thence for the manufacture; in other words, instead of being a cotton producer, India has become a cotton consumer, as far as regards the European market. At times circumstances have for a year raised the quantity of cotton which India has been able to send to Europe, but the extra quantity has only been drawn from the accumulation of old stocks, to be succeeded almost invariably by a diminished quantity. Since 1820 there have been four periods in which the export of cotton from India to England have increased over the average of previous years. The first was in 1836, when speculation ran high and carried up prices. A reaction followed until

the China war in 1841, when Indian cotton was turned from that destination to England. Reaction again followed in 1851, the failure of the United States having sent prices up very high, made an opening for

that of India, and in 1857 the speculative action again brought out large quantities. These changes are expressed in the following table:

|       | Imported into Great Britain |                     | —Price—          |                               |
|-------|-----------------------------|---------------------|------------------|-------------------------------|
|       | From U. States.<br>lbs.     | From India.<br>lbs. | U. S.<br>d.      | Surat.<br>d.                  |
| 1834. | 269,336,320                 | 32,666,560          | 6                | 4 $\frac{5}{8}$               |
| 1836. | 281,181,180                 | 79,449,730          | 10 $\frac{1}{4}$ | 7 $\frac{1}{2}$ —speculation. |
| 1836. | 417,281,601                 | 33,232,612          | 7                | 5                             |
| 1841. | 336,647,793                 | 100,104,510         | 6 $\frac{1}{4}$  | 4 $\frac{5}{8}$ —war.         |
| 1846. | 352,855,160                 | 33,711,420          | 4 $\frac{3}{4}$  | 3 —Irish famine.              |
| 1850. | 493,153,112                 | 122,626,976         | 7 $\frac{1}{4}$  | 5 $\frac{1}{2}$ —short crop.  |
| 1852. | 765,630,544                 | 81,922,432          | 5 $\frac{3}{8}$  | 3 $\frac{1}{2}$               |
| 1857. | 654,758,008                 | 250,338,144         | 7 $\frac{1}{4}$  | 5 $\frac{3}{8}$ —speculation. |
| 1858. | 833,257,776                 | 132,722,576         |                  |                               |

This table shows how invariably after a rise in prices in Europe, caused by the shortness of the United States crop, in proportion to the demand; reaction followed in the India supply. In the year 1836 speculative high prices doubled the import from India. In 1852, a year of reaction, the receipts from India were hardly more than in the 16 years previous, while the United States supply was three times greater in 1852, at little more than half the price obtained in 1836. In the three years ending with 1857 there had been annually increased receipts of cotton from India; from 119 millions in 1854 it rose to 145 million, 180 million,

250 million pounds. In all the period from 1836 to 1858, the greatest exertions have been made to draw cotton from India, with what results the table shows. If we now take the quantities of cotton sent to India in the shape of goods, we may estimate the value of India as a source of supply. Inasmuch as that China is a large customer for India cotton, it makes but little odds whether the cotton is sent raw from India or in the shape of goods from Great Britain. The official tables in 1836 did not separate the quantities sent to China from those forwarded to India. The quantities were as follows:

#### EXPORTS COTTON GOODS FROM GREAT BRITAIN.

|       | To<br>India. | To<br>China. | Total<br>yards. | Equal to<br>lbs. cotton. |
|-------|--------------|--------------|-----------------|--------------------------|
| 1836. |              |              | 74,927,870      | 32,000,000               |
| 1846. | 196,140,700  | 73,671,889   | 269,812,589     | 108,000,000              |
| 1856. | 407,951,400  | 112,665,202  | 590,616,602     | 250,000,000              |
| 1857. | 469,955,011  | 121,587,515  | 591,545,526     | 200,000,000              |
| 1858. | 791,537,041  | 138,488,957  | 920,025,993     | 868,000,000              |

Thus in 1836, it appears, India supplied Europe with 35,000,000 lbs. cotton more than the weight India and China took in the shape of goods. In 1846, India and China took 75,000,000 lbs. more cotton than they furnished, and in the three years ending with 1858 they took in goods 878 million lbs. of cotton, and supplied 569 million lbs. of the raw material, leaving a net demand for the latter of 350 million lbs. This is rather a crab-like motion towards supplying England with raw cotton. If we try the United States by the same rule we find that the quantity of goods purchased from England rose from 50 million yards in 1856, to

150 million in 1858, or equal to 33,000,000 lbs. raw cotton, while the quantity of the latter sent to Great Britain rose to 550,000,000 lbs. From these facts it is evident that the market for goods in India and China outruns by far the capacity of India to supply the material. In fact, the increased growth of cotton in India has not sufficed to keep up with the local consumption. When we reflect that those cotton goods consumers are more than equal in number to the cotton goods consumers in Europe, and the quantity per head of that material which each consumes is also far greater, we cannot wonder that the machine products of Europe



rapidly supplant the hand products of the Asiatics, and that the field for such operations is almost limitless. It is like supplanting the silver of Europe with California gold. The operation is profitable and resistless, and while the substitution is going on, the aggregate demand increases in the double ratio of the enhanced numbers and wealth of the people. The Asiatic market for British cotton goods has risen from 15 per cent. of the whole exports in 1836, to 40 per cent. of the whole exports in 1858, while the material derived from them has fallen from 20 per cent. of her whole purchases to 13 per cent. in 1858. It must be a bold operation who, in face of these facts, continues to speculate upon a cotton supply from India. The course of events points soon to absorbing all the mill power of England in working up India cotton for India use, and possibly the transplanting of that mill power nearer to the crop and to the goods market.—*U. S. Economist.*

#### Change of Food for Cattle.

Nature seeks variety, and with almost as great pertinacity as she insists on progression.

The continuous use of salt food, by man, produces scurvy, while the entire absence of either salt or animal food produces other classes of disease, and refuses to build up an organism capable of enduring disease.

All those things, which by analysis an animal is found to contain, must, of necessity, form of its food, or it cannot be perfect as an organism; therefore, no one kind of food can produce as perfect an animal, developing all its functions equally, and a variety is distinctly called for. The very instinct of an animal shows this fact. The cattle-breeders of England can scarcely be said to have succeeded, until after the introduction of the various root crops, and still we find many cattle-breeders in America, who have never raised roots at all, and who continue to feed their animals on hay and corn alone. The same area of land used by a herd of milch cows for pasture, when appropriated to a proper variety of crops, will cause them to furnish thirty per cent. more milk, and of a better quality, than when they are confined to the use of one or two kinds of food only. For the same reason that horses flourish best when traveling over an undulating country, rather than when perambulating the plains, viz., that

other sets of muscles are brought into action when they leave the dead level, and thus a single set of muscles is not called on to bear the whole fatigue. So with the variety of food: their digestive functions are in turn appealed to, and all the constituents required by the body are in turn furnished, so that a healthy result is the consequence. It is true, that cows fed on carrots give better milk in winter, than when fed on other kinds of food, but if fed on carrots alone, they soon lose their highest state of health.

Look at the cows in the distillery stables of New York, when they are fed altogether on swill, (the name given to that portion of the grain not transformed into alcohol by fermentation,) in a very short time the very membranes of the animal become so tender that they fall to pieces, and are generally diseased. Is this because the residuum of the still is not the proper food for cows? Far from it; no food is better, provided it be used in part, and not exclusively. Mr. John Wilson, at the Wallabout, had as fine cows, and in as fine condition, as any man in America, and with as profitable results; he fed them on the residuum of his distillery *in part*, but at the same time *in part* on various roots, hay, etc., and none of the difficulties arising from the exclusive use of swill, were to be seen with those cows. Carrots have a value far beyond that which can be attributed to the mere nutriment they contain; for, in addition to what they furnish in this way, they contain a quantity of pectic acid, and this carries the property of gelatinizing the vegetable and animal matters held in solution, and thus enabling the peristaltic motion of the intestines to seize hold of their contents, so that digestion of all matters of food is perfected by the presence of carrots. If the horse be fed in part on carrots, he ceases to evacuate the undigested shells of oats, bits of hay, etc. His dung is as homogeneous almost as that of a man, and it is for this reason that a bushel of carrots, and a bushel of oats, are better for the horse than two bushels of oats—not from the nutritious matter contained in the carrot, but in part from the power of the carrot to cause all the nutriment of the oat to be appropriated in the making of muscle, instead of part of it being evacuated in feces. This action is true in regard to all the vegetable substances which go to make up the variety of food

for animals: and the very instinct of every animal gives evidence of this truth.—*Working Farmer.*

### A Few Reasons Why Land Should be Improved.

More may be cultivated with the same hands, because tilled with less hard labor.

Briers and shrubs disappear, grasses appear.

Cattle damage the land and grass less, because they do not have to tramp so great a space to fill themselves.

Less land required.

Less fencing.

Less trotting after cows and horses.

Less work at the smith's shop.

Fewer whips worn out.

Stronger teams.

More manure and less need for it.

A stimulus to action.

A protection against winter's frost and summer's heats.

A good example to children and neighbors.

Keeps off sheriffs and buzzards.

Stops emigration.

Produces money for books, and time for reading.

Also, school houses and churches.

Produces time to travel, to lecture on economy, and preach the Gospel.

Produces sociability and hospitality.

Makes a paradise of a barren, plenty out of poverty, and a blessing out of a curse.

The barn is filled, the dairy is filled, the purse is filled, and the soul is filled with gratitude.

If the reader will reflect, he will discover that the number of good reasons why the farmer should improve his land is almost innumerable.—*From an Old Paper of 1804.*

### The Horse an Intellectual Being.

Dr. G. H. Sutherland of Dekalb, New-York, sent us a letter a few days since, in which among other things, he alluded to the importance of treating horses as "intellectual beings," and of trying the effect of "constant kindness" in training them, the result of which he believed would be the attainment on the part of the horse, to "an elevated position in the scale of intelligence, not only distinguishing themselves among their kind, but actually outstripping many

of their owners, as far as the nobler attributes are concerned." With this high appreciation of the capacity of the horse, the Doctor five years ago came into possession of a fine three-year-old colt, and he concluded to try the power of kindness in the endeavor to develop his mind. The result is given in the *St. Lawrence Republican*, in which paper a correspondent writes:

During my wanderings a short time since, I chanced to stop at Hermon. Hearing of Dr. Sutherland's learned colt, I had the curiosity to go and see him, and found him quite a prodigy in learning, besides being quite a curiosity. The Doctor calls him the "White Pilgrim." His color is light nankeen, white mane and tail, and white eyes. He is a splendid little horse. The Doctor tells me that he has owned him only six months—rode or drove him almost every day, (as his riding is considerable,) but still during that brief time he broke him to the saddle and harness, and taught him the different feats I saw him perform, such as standing upon his hind feet, jumping the whip, kneeling down, lying down, sitting up, and walking on three legs. He will unbuckle a common saddle-girth, and take off his own saddle; he will step up to his own master, make a very low bow, shake hands, take his coat, cap and mittens off and lay them away, and when told, bring them all back to him again. With cards he will tell his age, the days in the week, months in the year, &c. With the alphabet he will spell any simple word put to him. Spread out a number of playing cards and he will fetch the one called for. He will play a good game at *old sledge*, and beat you as often as you can him, and tell your fortune, if requested. He will waltz around his yard with quite as much ease and grace as some of our country gentlemen, and pass around a hat for a contribution at the close of a performance. He is a rare specimen of horse flesh, and his equal, I think, for beauty, activity and intelligence, could not be found, considering the labor performed by him and the short time he has been under discipline; and the Doctor certainly deserves the credit of being a "great Horse Man."

The Doctor, in the conclusion of his letter, says that until this season he never before undertook to train a horse for trotting, but that he now has a three-year-old mare he calls "Crazy Jane," out of Tom Jefferson's Black Hawk, her dam sired by George



Parish's imported St. Lawrence. With very little training she will make her mile in less than 3.30, over rather a poor track. Now, says the Doctor, "if trotting is a science that a horse can acquire by careful training, (like playing old sledge,) Crazy Jane will yet, if nothing befalls her, be one among many to demonstrate the fact that the horse has an intellect, or reasoning powers, equal if not superior to many of their brute owners, and that it can be developed and cultivated with as much certainty and profit as the minds of our children."

We look forward to the result of the Doctor's experiments with a great deal of interest; how much kindness will do to develop speed in horses is yet to be ascertained.

*Evening Post.*

*From the Country Gentleman.*

### Feeding Stock as a Branch of Farm Management.

A lecture delivered to the members of the Highland Society during the Edinburgh Show week.

Dr. Anderson said: The feeding of stock, and its relation to the general management of the farm, is a subject of the very highest practical importance, and one of those in which definite information is most essential; and yet there is probably no branch of agricultural practice in which more difference of opinion exists; so much so, that while one class of persons believe it to be a highly remunerative department of farming, others with equal confidence maintain that cattle are chiefly valuable as mediums for the manufacture of manure. Even regarding details much doubt exists, and there are really but few points in which absolute unanimity exists. Looking at the magnitude of these differences, it was not without some diffidence that I ventured to select it as the subject of my address on the present occasion. Those matters, however, in regard to which doubts and differences of opinion exist, are, on the other hand, specially suited to discussion, for it is incumbent upon us to sift our information, and to ascertain what can be relied upon and what requires to be elucidated by further experiment. When this is done, it appears that there are many points on which we are very imperfectly informed, and others on which statements of the most conflicting nature have been made; and the difficulty

of drawing conclusions is enhanced by individuals maintaining the exclusive excellence of the systems they themselves practice, and insisting that because they have been led to adopt a particular opinion, their neighbor who holds the opposite one must necessarily be wrong. A great point is gained when we admit that both may be right, and when we set to work cordially to trace out the cause of the discrepancy. All branches of agriculture are now going through this phase of their existence, and principles are being gradually established. The feeding of stock is exactly one of those subjects which can be most successfully advanced by studying the principles on which it depends; and, though these involve many most complex chemical and physiological questions, we have obtained some foundation on which to go. The food which an animal consumes is partly assimilated and partly excreted; but, if it be properly proportioned to its requirements, its weight remains constant, and hence we learn that the food does not remain permanently in the body. If, now, an animal be deprived of food, it loses weight, owing to the substances stored up in the body being used to maintain the process of respiration and the waste of the tissues. The course of events within the body is, so far as known, somewhat of this kind: the food is digested, absorbed into the blood, and deposited in the form of flesh and fat in the body, a certain quantity being consumed to support respiration. If the food be properly adjusted to the requirements of the animal, its weight remains unchanged; the quantity absorbed and that excreted exactly corresponds to one another; but, if we increase the food, a part of the excess will be deposited in the tissues and add to its weight. Now the quantity absorbed depends upon the state of the animal—a lean beast thoroughly exhausting its food, while when it is nearly fat, it takes only a small proportion. So, likewise, if the quantity of food be greater than the digestive organs can well dispose of, a certain quantity escapes digestion altogether, and is practically lost. The problem which the feeder has to solve is, how to supply his cattle with such food, and in such proportions, as to ensure the largest increase with the smaller loss. In solving this problem we must, in the first place, consider the general nature of the food of all animals, the constituents

of which may be divided into three great classes; the nitrogenous matters, which go to the formation of flesh; the saccharine and oily, which support respiration and form fat. It is sufficiently obvious that as the two great functions of nutrition and respiration must proceed simultaneously, the most advantageous food will be that which supplies them in the most readily assimilated forms, and in proper proportions. In regard to the first of these matters, it will be obvious that if two foods contain the same quantity of nutritive matters, but in one way they are associated with a larger quantity of woody fibre or other non-nutritious matter, the latter will have considerably less value than the former. The necessity for a proper balance of the two great classes of nutritive constituents is also sufficiently obvious; for if, for example, an animal be supplied with a large quantity of nitrogenous matters, and a small amount of respiratory elements, it must, to supply a sufficiency of the latter, consume a much larger quantity of the former than it can assimilate, and there is practically a great loss. We may determine the proper proportion of these substances in three different ways: 1st, we may determine the composition of the animal body: 2nd, we may examine that of the milk, the typical food of the young animal; and 3rd, the results of actual feeding experiments may be examined. The composition of the animal body is a subject on which, as it appears from the recent experiments of Lawes and Gilbert, great misapprehension has hitherto existed. It has always been supposed that by far the larger proportion consisted of nitrogenous matters; but that is quite an error, and, even on lean animals, the fat greatly preponderates over the lean. A lean sheep, for instance, contains one and a half-pound of fat for every pound of dry nitrogenous matter, and when very fat it may contain six times as much fat as lean. The inference obviously is, that the food must contain a very large quantity of non-nitrogenous matters. The milk, which contains a number of each of the three great classes of nutritive matters, also affords us instruction, although, of course, more especial as regards the feeding of young stock, when the conditions are different from those existing in the mature animal. But, however valuable the data derived from these experiments may

be, they are less important than those derived from actual feeding experiments. In fact, it by no means follows that the proportions in which the different substances are found in the animal are exactly those in which they ought to exist in the food. On the contrary, it appears that while one-tenth of the saccharine and fatty matters are assimilated by the animal, only one-twentieth of the nitrogenous compounds, and one thirty-third of the mineral substances in the food are assimilated by the animal. On the other hand, however, it must be remembered that the particular compounds also exercise a very different influence. Thus a pound of fat in the food, when assimilated, will produce a pound of fat in the animal; but it requires about two and a-half pounds of sugar or starch to produce the same effect. The broad general principle arrived at is, that we must afford a sufficient supply of readily assimilable food, containing a proper proportion of each class of nutritive substances. But there are other matters also to be borne in mind, for the food must not only increase the weight of the animal, but also support respiration and animal heat; and the quantity of food required for this purpose is large. It appears from Boussingault's experiments, that in a cow eighteen ounces of nitrogenous matters are required to counterbalance the waste of the tissues—a quantity contained in about ten or twelve pounds of wheat flour; and it is well known that an ox expires four or five pounds of carbon daily, to supply which one hundred pounds of turnips are required. We see from this the large quantity relatively to that used up which is required for the maintenance of these functions, and the importance of adopting such measures as, by restraining them within the narrowest possible limits, produce a saving of food. The diminution of muscular exertion, and keeping the animals warm, so that a small quantity of food may be required to act as fuel to maintain the animal heat, are the most important considerations. Although the presence of a sufficient quantity of nutritive matters is an essential qualification of all foods, their mechanical condition is not unimportant, for unless its bulk be such as to admit of the stomach acting upon it properly, there must be an appreciable loss; and there is no greater fallacy than to suppose that the best results are to be obtained by the use of



those which contain their nutritive matters in a very small bulk. As a practical question, the principles of feeding are restricted to determining how the staple food produced on the farm can be most advantageously used to feed the cattle kept on it, and on this point much requires to be said. It appears that they can best be made use of when combined with more highly nutritious food, such as oil-cake or rape; and when this is properly done, a very great advantage is derived. It appears from experiments that sheep, which, when fed on hay only, attain a weight of ninety pounds, reach a hundred when rape is added. The subject cannot be completed without referring to the value of the dung produced, which has been very variously estimated. The experiments referred to in the course of the address appear to show that, of food generally, about one-third to one-fourth of the money value, and seven-eighths of the valuable matter, appear in the dung. Dr. Anderson concluded by saying, that he had by no means attempted to exhaust the subject, but had given only a sketch, trusting that the observations of others might fill up the details.

### Marvels of Human Caloric.

The Eclectic Review declares that we are "all living stoves—walking fire-places—furnaces in the flesh," if those terms can be applied to an apparatus for the express production of human caloric. After stating the fact of the latent heat of the human frame, the writer says:—

Suppose it to be the month of January, when winter is presumed to be reigning in full vigor, and every inanimate object appears to have been drained of its caloric; still the human structure will exhibit a surplus of sixty-six degrees above the freezing point. Why is that? How does it happen while a bronze statue fluctuates in its temperature with every passing breeze, the living organism maintains its standard heat unimpaired, and preserves its tropical climate within, though the air should be full of frost and the ground enveloped in snow? It is manifest that we must have some power of "brewing" caloric for ourselves.

Assuming that our bodies are veritable stoves, the reviewer proceeds to explain whence we procure our fuel. Fortunately our coal and fire-wood, he adds, are stored up in a very interesting form. They are

laid before us in the shape of bread and butter, puddings and pies; rashers of bacon for the laborer, and haunches of venison, or turtle soup, for the epicure. Instead of being brought up in scuttles, they are presented in tureens, dishes, tumblers, or all of them in pleasant succession. In fact, whenever you send a person an invitation to dinner, you virtually request the honor of his company to take fuel; and when you see him enthusiastically employed on your dainties, you know that he is literally shovelling coke in his corporal stove.

All food must contain two species of elements, if it is to do its duty efficiently. There must be a portion which is available for the repair of the frame, which will remake it as fast as it is unmade, and which, therefore, is called the plastic or body-building materials. But there must be a certain quantity of non-azotized matter, that will combine with oxygen, in order that it may undergo combustion. If we take milk, the "model food" of animals, as a criterion of proportion, we shall find that three times as much of the latter is needed as of the former. For one pound of simply restorative provender, an energetic man requires four of digestible fuel. The ultimate form in which this fuel is burnt, is that of carbon, hydrogen, and sulphur; but proximately, we swallow it in the shape of fat, starch, sugar, alcohol, and other less inflammatory compounds. By far the most incendiary of these substances is fat; ten pounds of this material, imported into your stove, will do as much work—that is, will produce as much warmth as twenty-four of starch, twenty-five of sugar, or even twenty-six of spirits.

It is pleasant to observe how sagaciously the instinct of man has fastened upon the articles which will best supply him with the species of fuel he requires.

The Esquimaux, for example, is extremely partial to oil fare. He does not know why. He never heard of the doctrine of animal heat. But he feels intuitively that bear's grease and blubber are the things for him. Condemn him to dine on potatoes or maize, and the poor fellow would resent the cruelty as much as a London Alderman of the Old School, if sentenced to subsist on water gruel alone. And the savage would be perfectly right. Exposed, as he is, to the fierce cold of the northern sky, every object around him plundering him of his

calorie incessantly, what he needs is plenty of unctious food, because from this he can generate the greatest quantity of heat. On the other hand, the native of the tropics, equally ignorant of animal chemistry, eschews the fiery diet which his climate renders inappropriate, and keeps himself cool on rice or dates, or watery fruit.

*For the Southern Planter.*

### Farm Drainage.

Book-farmers and lovers of agricultural literature are indebted to Henry F. French, of New Hampshire, for a volume of very pleasant reading; and practical farmers, owners and tillers of the soil, are under still greater obligations to him—though it is probable they will be slow to acknowledge it, for they will be very slow in finding it out.

Thorough drainage, the removal of all stagnant water to a safe distance from the roots of cultivated plants, is the basis of good husbandry. Do what you will with water-logged land, it remains unimproved. How much of this or of any country is undrained by nature, and in need of art to remove surplus water, can be determined only by careful observation; and it is only within the last twenty or thirty years that all departments of the British government have become convinced of the immense advantages of draining; but they are convinced, so thoroughly convinced, that the legislation of that most conservative of nations has appropriated about twenty millions of dollars to agricultural draining. And as the law now stands in that country, a man's land may be drained, and a due portion of the expense charged to him against his consent. Such a large outlay of money, and an attack, apparently so radical, upon landed interests, by the most cautious, enlightened and practical of European States, is amply sufficient to draw the attention of proprietors in this country; and French has written the entertaining book, with the modest title which heads this notice, for the purpose of introducing to American farmers, in a plain and perfectly intelligible way, the system of complete drainage, which is the grand step made in the progress of agriculture in Great Britain.

He has done this so fully and fairly, that his book leaves nothing to be desired in the way of an elementary treatise. The histo-

ry, philosophy and practice of draining are all touched so gracefully, agreeably, and yet so PRACTICALLY, that we might well mistake Mr. French for a *blind-ditching* philosopher and tile-pipe layer combined, instead of conceiving him, as he is understood to be, a lawyer and judge.

The book has fun in it, too, as well as philosophy and hard licks—witness a quotation from p. 183, where he speaks of the importance of guarding the *outlets* of secret drains from the intrusion of outsiders—and be it remembered, that drains constructed of tile cannot be entered, except at the outlets, by anything larger than an earth-worm:

"There are many species of 'vermin,' both 'creeping things' and 'slimy things, that crawl with legs,' which seem to imagine that drains are constructed for their especial accommodations. In dry times it is a favorite amusement of moles, and mice, and snakes, to explore the devious passages thus fitted up for them, and entering at the capacious open front door, they never suspect that the spacious corridors lead to no apartments; that their accommodations, as they progress, grow 'fine by degrees, and beautifully less,' and that these are houses with no back doors, or even convenient places for turning about for a retreat. Unlike the road to Hades, the descent to which is easy, here the ascent is inviting; though, alike in both cases, '*revocare gradum, hoc opus, hic labor est.*' They persevere upward and onward till they come, in more senses than one, to 'an untimely end.' Perhaps, stuck fast in a small pipe-tile, they die a nightmare death; or, perhaps, overtaken by a shower, of the effects of which, in their ignorance of the scientific principles of drainage, they had no conception, they are drowned before they have time for deliverance from the straight in which they find themselves, and so are left, as the poet strikingly expresses it, 'to lie in cold *obstruction* and to rot.'"

But if the farmers of Virginia want to know all about the wonderful and indestructible value of drainage, they must get Judge French's book and study it carefully. It will "pay" in the pleasure of perusal—and those who never saw a draining tile, will understand how infinitely superior to all that has preceded it, is the modern system of *thorough drainage*.

GREEN SPRINGS.

Nov. 22d, 1859.



For the Southern Planter.

BALTIMORE, Dec. 7th, 1859.

Dear Sir,—In the September, or October No. of your journal, is an article copied from the "Country Gentleman," on the beneficial influence of droughts, which does not do me full justice, as in it I am only mentioned as having made some experiments to prove the facts stated in that article.

The truth of the matter is, that the whole idea, and all of its proofs, are exclusively my own. It was brought to my mind by observation, during the great drought of 1854, and I instituted at once a series of experiments, to show the *modus operandi* of the beneficial influence of droughts, which at once received the sanction and was adopted by the highest scientific minds in this country. Ministers of the Gospel alluded to it in their sermons as one more proof that God was ever kind, though we might seem to suffer from this Providence.

I send you, by this mail, my Fifth Report to the House of Delegates, with the request that, in your next number, you will copy the article entire, as found on page 56 of that Report.

With sincerest wishes for your prosperity in business,

I remain yours, very truly,

JAMES HIGGINS.

### Ultimate Benefits of Droughts, and the Mode in which they Act to Improve Land.

It may be a consolation to those who have felt the influence of the late long and protracted dry weather, to know that droughts are one of the natural causes to restore the constituents of crops and renovate cultivated soils. The diminution of the mineral matter of cultivated soils takes place from two causes:

1st. The quantity of mineral matter carried off in crops and not returned to the soil in manure.

2d. The mineral matter carried off by rain water to the sea by means of fresh water streams.

These two causes, always in operation, and counteracted by nothing, would, in time, render the earth a barren waste, in which no verdure would quicken and no solitary plant take root. A rational system of agriculture would obviate the first cause

of sterility, by always restoring to the soil an equivalent for that which is taken off by the crops; but as this is not done in all cases, Providence has provided a way of its own to counteract the thriftlessness of man, by instituting droughts at proper periods to bring up from the deep parts of the earth food on which plants might feed when rains should again fall. The manner in which droughts exercise their beneficial influence is as follows: During dry weather a continual evaporation of water takes place from the surface of the earth, which is not supplied by any from the clouds. The evaporation from the surface creates a vacuum, (so far as water is concerned,) which is at once filled by the water rising up from the sub-soil of the land; the water from the sub-soil is replaced from the next stratum below, and in this manner the circulation of water in the earth is the reverse to that which takes place in wet weather. This progress of the water in the earth to the surface manifests itself strikingly in the drying up of springs, and of rivers and streams which are supported by springs. It is not, however, only the water which is brought to the surface of the earth, but also all that which the water holds in solution. These substances are salts of lime, and magnesia of potash and soda, and indeed whatever the sub-soil or deep strata of the earth may contain. The water, on reaching the surface of the soil, is evaporated, and leaves behind the mineral salts, which I will here enumerate, viz: Lime, as air-slacked lime; magnesia, as air-slacked magnesia; phosphate of lime, or bone earth; sulphate of lime, or plaster of Paris; carbonate of potash, and soda, with silicate of potash and soda, and also chloride of sodium, or common salt. All these are indispensable to the growth and production of plants which are used for food. Pure rain water, as it falls, would dissolve but a very small proportion of some of these substances, but when it becomes soaked into the earth it there becomes strongly imbued with carbonic acid from the decomposition of vegetable matter in the soil, and thus acquires the property of readily dissolving minerals on which before it could have very little influence.

I was first led to the consideration of the above subjects by finding, on the re-examination of a soil which I analyzed three or four years ago, a larger quantity of a

particular mineral substance than I at first found; as none had been applied in the meantime, the thing was difficult of explanation until I remembered the late long and protracted drought. I then also remembered that in Zacatecas and several other provinces in South America, soda was obtained from the bottom of ponds, which were dried in the dry, and again filled up in the rainy season. As the above explanation depended on the principles of natural philosophy, I at once instituted several experiments to prove its truth.

Into a glass cylinder was placed a small quantity of chloride of barium, in solution; this was then filled with a dry soil, and for a long time exposed to the direct rays of the sun on the surface. The soil on the surface of the cylinder was now treated with sulphuric acid, and gave a copious precipitate of sulphate of baryta.

The experiment was varied by substituting chloride of lime, sulphate of soda, and carbonate of potash, for the chloride of barium, and on the proper re-agents being applied in every instance, the presence of those substances was detected in *large* quantities on the surface of the soil in the cylinder. Here, then, was proof positive and direct, by plain experiments in chemistry and natural philosophy, of the agency, the ultimate, beneficial agency, of droughts.

We see, therefore, in this, that even those things which we look upon as evils, by Providence are blessings in disguise, and that we should not murmur even when dry seasons afflict us, for they too are for our good. The early and the latter rain may produce at once abundant crops, but dry weather is also a beneficent dispensation of Providence in bringing to the surface food for future crops, which otherwise would be forever useless. Seasonable weather is good for the present, but droughts renew the storehouses of plants in the soil, and furnish an abundant supply of nutriment for future crops.

I am happy to state that Prof. Henry, of the Smithsonian Institute, has fully endorsed the above views.

If the effect of this had only been to teach men patience under seeming evils, and to add another proof to the goodness of our Creator, I should have been amply rewarded for all sacrifices that I have endured in my present position. If I could teach mankind to be patient under present

evils, in the certain anticipation that they will bring to them ultimate good, then would I be contributing much to the cause of human happiness. Apart from this view of the case, however, the above facts have a great practical bearing on the operations of farming. In soils that have an impervious sub-soil, and from which the water runs off and does not soak through, it is apparent that no benefits can arise from droughts; if the water does not soak through a sub-soil in wet, it cannot arise in dry weather, and this being the case, nothing can be brought up from below; the cultivators of such soils will endure all the evils of drought on present, and derive no benefit from them on future crops. He, therefore, is taught to loosen and break up those impermeable sub-soils by means of draining, deep plowing, and sub-soiling, when these sub-soils contain nothing injurious to vegetation. It teaches the cultivator of the soil that he should so prepare it as to reap the advantage of his labor in a good season, and when a drought comes, he will be comforted by the reflection that its future benefits will compensate him for all his present losses.

*For the Southern Planter.*

### Tobacco the Bane of Virginia Husbandry.

(CONTINUATION OF NO. 5.)

It may be confidently asserted that tobacco stands convicted of every attribute that constitutes an idol—an idol, as already shown, of the most demoralizing, and otherwise most extensively injurious character to be found in the history of our fallen race. Its evils were early detected, and although exposed by all the influence of royalty\* and edicts of arbitrary governments, denouncing the penalty of death† against offenders—even these potentates, backed by the unanswerable arguments in support of their cause, availed nothing in staying the progress of the vice of tobacco-using—proving that in the designs of an overruling Providence—apparent present evils were being made subservient to producing ultimately, greatly overbalancing good. Mysterious are the ways of Providence! and in no part of the divine economy does He appear more mysterious than in making the wrath of man to praise Him.

\* Witness King James' Counterblast.

† The Ottoman Sultan, capital punishment.



But as to the extent of the tobacco idolatry—the millions of men who worship in its world-wide temple—the millions of money expended to produce and consume the incense offered upon the altars of this modern God, prove the truth of the assertion, that all other idolaters are small in comparison with it. It undeniably consumes more of the treasure of the earth for its support than is expended for all the Christian, benevolent, and educational institutions of the age, until it has become so interwoven in the very texture of society, as to stand pre-eminently the master vice of our sin-ruined world.

If the charges made against tobacco be sustainable, how can it be otherwise accounted for, that natural human beings become its votaries—its deluded victims—its abject slaves—but by diabolical fascination? A further question may be asked—how could such a loathsome evil, poisoning the bodies and destroying the souls of men, have attained to such an overmastering power in all the earth? the only true solution to be given, is the fallen state of man:

"God made man upright, but he has sought out many inventions."

"Man is as prone to evil as the sparks fly upwards."

But in the present moral enlightenment of the world, and this progressive age, why do not Christians rise up and protest against the degrading and disgusting idolatry? Simply because the idol has an overwhelming majority enlisted on his side, and it is to be feared only for the want of faith and moral courage on the part of the followers of the Great Captain of salvation.

In the gloomiest day of the history of our holy religion, 7,000 men were found who had not bent the knee to the idol God of the day—and shall there not be found among the millions of professing Christians of our day, a sacramental host of Gods elect—a band of volunteers to rally to the summons of the Almighty conqueror—and range themselves under the standards inscribed by his own finger with such inspiring mottoes as

"Come out from among them and be ye separate."

"Ye shall not follow a multitude to do evil."

"Ye cannot serve God and Mammon."

What boots the superior number of the enemy against the host of the Almighty, who can make one to chase a thousand, and has already made proclamation that his warriors elect, bearing the ægis of faith, shall "put to flight the army of the aliens."

All things indicate that the crisis has arrived when the conflict with this army of new idolaters already begun, must wax hotter and hotter to the end—for it is in manifest accordance with God's word, that every form of idolatry must fall, before Christ's kingdom can come upon the earth. And what Christian whose eyes are not "holden" may not see that this most universal of all idolatries, has been Providentially permitted in mercy and divine goodness to offer a new text to show who "will come out from among them," and stand on the Lord's side—by abandoning a monstrous evil—by a simple act of self-denial, far easier than giving up father or mother, sister or brother, house and lands, or a right hand, or a right eye, as in duty bound under our covenant with God; but herein by a new and glorious dispensation, nothing is required to be given up but a morbid, unnatural appetite, with its legion of concomitant evils, to be replaced by innumerable present blessings, and in the future an eternal weight of glory. "How wonderful is the goodness of God, His ways past finding out."

It is freely granted that the cultivation of tobacco, in the last preceding ages, was the best practical course of opening a wilderness and subduing the earth for the purposes of wholesome agriculture; but that mission of tobacco has been fulfilled, and the country well-nigh destroyed by its impoverishing effects upon the soil, thus showing a necessity for a change of the fatal culture which produces only a deleterious, demoralizing drug, for a course which produces the wholesome necessities of life.

We have not yet presented a tythe of the evils to be subdued, and the benefits to be won by the anti-tobacco warfare. If any human mind has yet fully comprehended, surely no one has as yet fairly shown the length and breadth and depth and height of the gigantic evil. Tobacco stands convicted by the unanimous verdict of its own devotees, that in the end it does them no good—but on the contrary, much harm. And here, finally, it may be well, before dismissing the subject, to exhibit the protean monster in some of the features

in which he mars the image of God in his creature man, although become so familiar to us as hardly to be recognized as the offspring of their true parentage. Nevertheless, it may be for the good of some to be told again that the discoloured skin and stained teeth, nervous tremor, dyspepsia, a species of salivation both filthy and disgusting—and a tainted breath, which sooner or later make the man a moving mass of offensiveness in the nostrils of the uncontaminated—and how much more so in His, who is of purer eyes than to behold iniquity—all, all these awful effects are the work of tobacco, seen every where around us, and known of all men.

Who would dare to impugn the wisdom and economy of God's Providence, in tolerating for a time and for temporary good purposes, that which may now be demonstrated to be an unmitigated evil. This, it is humbly conceived, may be in strict keeping with the principles of the divine government, for He who sees all things from the beginning to the end, carries on his government of the Universe by machinery too vast for the limited comprehension of short-sighted mortals—the light revealed by the progress of Christian morals must be our polar star.

If this skeleton sketch of the mammoth subject of the day shall bring out abler minds to do justice to it, I shall be content. That it must sooner or later be called up to the public attention is manifest, for while the world is so fully taken up in the tobacco-sin, it may be confidently asserted it cannot be evangelized. But it is announced in His word that the world shall be evangelized, and consequently all sin and idolatry, and everything inconsistent with His purity, shall fall before the sovereignty of His immaculate truth.

JOHN H. COCKE.

### Feeding Stock.

Omnibuses constitute one of the convenient institutions of London as many other large cities. The London Omnibus Company use no less than 6,000 horses. In feeding so large a number of animals it is important to establish that method that will sustain the animals best on the smallest amount of food, or at the least cost. In order to determine this fact, the Company have made the experiment of feeding 3,000 of the horses on bruised oats, cut hay and straw, (for the British term of

bruised, we Americans would understand it as ground in one of the numerous stock mills now in use). The other 3,000 were fed in the usual way on uncut hay and whole oats, the horses doing their own grinding and cutting.

The allowance, according to the first system: bruised oats, 16 lbs.; cut hay, 7½ lbs., and cut straw, 2½ lbs. The allowance, according to the second: unbruised oats, 19 lbs.; uncut hay, 13 lbs. The bruised oats, cut hay, and cut straw, amounted to 26 lbs., and the unbruised oats, &c., to 32 lbs. The horse which had bruised oats, with cut hay and straw, consumed 26 lbs. per day, and it appears it could do the same work as well, and kept in as good condition as the horse that received 32 lbs. per day. Here is a saving of 6 lbs. per day on the feeding of each horse receiving the ground oats and cut hay and straw. The advantage thus gained, the Company estimate at 5 cents a day on each horse, amounting to the handsome sum of \$300 per day to the Company on their entire stock of 6,000 head.—*Ohio Valley Farmer.*

*From the Country Gentleman.*

### EVENING DISCUSSIONS IN AGRICULTURAL HALL.

THURSDAY EVENING, Oct. 6.

### Manures--Soiling.

The attendance, this evening, was large, and the discussion animated. Dr. CRISPELL, of Ulster Co., occupied the chair.

In opening the discussion, T. C. PETERS, of Genessee, spoke of the importance of having land in as fine a tilth as possible before the application of manure was made. He was followed by Judge LELAND, of Saratoga, who stated that in his opinion, manure spread in the fall was better than to have it lay in heaps until spring. Upon his land, which was a clayey loam with a subsoil of granite, he had received no benefit from plaster. Judge BLODGETT, of Lewis, remarked that he did not believe in applying manure before the ground was in a fit state to receive it, and thought a hard soil would obtain no benefit from a surface application of manure. In regard to pasture land, he said that the natural sod was better and more productive than if once broken, as it was difficult to restate them. Meadow lands, if deeply tilled and the manure plowed under, give an inducement for the roots of the plants to penetrate the soil, which which they would not have if the soil was hard and unyielding. He believed in top-dressing meadows *after* the land had been properly seeded down, by a good coat of manure plowed under to begin with. He thought all depended upon a good soil and a fine tilth. His land was a vegetable loam, with a hardpan at the bottom.



L. F. ALLEN, of Black Rock. Every farmer should be allowed to tell his own story in his own way, for there are various causes which influence his circumstances, both natural and artificial, such as soil and climate, near or remote from market, &c., which he himself best knows, and which others are entirely ignorant of; and no man's system of farming should be condemned by another, simply because it does not apply to *his* individual circumstances. Hence we see that men of good judgment and careful experience differ widely, each in his own way. If a farmer hears another farmer say what *he* knows to be best, how can the former practice what the latter teaches? Soils need different treatment, and that treatment which one person gives his land and which succeeds, may not succeed with another. Doubtless some soils when once laid down, are better to be kept so; others need to be often plowed up. In good dairy regions of England, pastures have laid, since the conquest, with a surface manuring, and now produce better than ever. The soils of Westchester have never been moved, and are now better than ever before. In the southern counties, three-fourths of the land has never been plowed either in mowing or pasture, and their meadows now yield three tons per acre. These meadows also show at the present day, the cradle-knolls of centuries ago, and the owners of these farms will not let the sod be broken upon them. They know very well that there is a rich vegetable deposit of leaves that has constituted a humus in the soil, which if once broken is lost forever.

The PRESIDENT stated that it was proposed to introduce the subject of soiling, in connection with the one then under consideration, and as Hon. Mr. QUINCY was again present, in behalf of the farmers of New York, he would call upon the gentleman to give some additional facts and details in regard to the system which he had alluded to the evening previous.

Hon. JOSIAH QUINCY, Jr., of Massachusetts, took the stand, and was loudly cheered. The substance of his remarks were as follows:

In connection with the subject of soiling, one of the first questions asked is, how much land does it require to keep a cow? I have learned that one square rod of grass, barley, oats, or corn, is sufficient for the food of a cow a single day. The best fodder for the purpose of soiling is grass, oats, Indian corn and barley. My system is this: I use grass until July; about the 5th of April, oats are planted at the rate of four bushels per acre; they are also planted on the 20th of April, and the 1st of May. This lasts through July and August, and corn so planted will remain succulent for about ten days. The southern variety of corn is then sown in drills, in the quantity of three bushels the acre, which furnishes food for September and October. Barley is then planted ten days apart, which lasts till vegetables come

on. In winter the feed consisted of hay, cotton-seed meal, and roots—[Mr. QUINCY here spoke of the advantages arising from this system, which he alluded to in his remarks the previous evening, and continued.]—The great increase in the soiling system is as seven to one; that where only one cow was kept without this practice, seven can be kept by it, and I have demonstrated that one acre of land in a good state of cultivation, will afford sufficient food to keep three cows through the season. [Here the gentleman alluded to the manner of using liquid manure, as practiced by Mr. MECHI in England, which consists of a series of pipes in the ground, through which liquid manure is forced by means of steam power—which has before been described in the Co. Gent.—and he also spoke of the system of manuring in Scotland, by which their lands have been made to produce from five to seven crops in one year, and further remarked.] It has been well said that there are three important elements, or principles, which constitute a good farm; the first of these is manure, the second is *manure*, and the third is *MANURE!* I place but little confidence in patent fertilizers, so great is the adulteration in most kinds, but strongly urge each farmer to raise his own manure upon his own farm. Muck I use as an absorbent, by placing it in a gutter in the stable for my cows, which gutter is eighteen inches wide and four deep. There is a cellar under the stable, into which the manure passes. I am sorry to say that I keep only about twenty cows;—in the morning and evening these are let out in the yard, where they remain a few hours, as it is not necessary that they have a great amount of exercise. My cows are perfectly healthy, having never lost an animal, and this system appears to agree perfectly with their health and comfort in every respect. They do not suffer from drouth or loss of pastures. The mowing is usually done in the morning, and the cows are fed five times during the day. I think one man would be employed half of his time in feeding twenty cows, if the fodder was not too remote from the stable. One other advantage of the soiling system was, that it added in importance and numbers to the list of farmers in our country. Mr. QUINCY then concluded:—

The temperature of the ocean is always the same, and has the same influence upon the surrounding atmosphere—so it is with the farmers of America. From their quiet and retired homes they are the men who, in peace or war, are ever ready to serve their country when she calls. I have always had for my neighbor a family who has occupied as prominent and honorable a position in American history as any other. One of this family, one hundred years ago, kept a school in Worcester, then considered an inland town. I need not add his name was JOHN ADAMS. Later in life I once asked him when he thought the bond

was severed between England and this country—if at the signing of the Boston "Port Bill," or the meeting at Independence Hall in Philadelphia? "Oh, no!" he answered, "for when I kept school in Worcester, and heard the FARMERS talk, then I knew that separation must take place." [Cheers.] And so let it be now, and let the farmers prove, by their love and adherence to the common good of our country, that they have not degenerated, but that the same blood flows in their veins now that warmed the hearts of the farmers of the Revolution. [Cheers.]

Mr. GEDNEY, of Westchester.—I draw out my farm manure in spring, and then turn it under for corn, after which wheat is sown with top-dressing of bones. I keep 20 cows, from which I save, in one year, about 100 hogsheds of liquid manure, by means of a series of spouts and a large tank constructed for the purpose. The liquid is pumped from the tank, and sprinkled upon the land as a top-dressing. In six months it will increase the product of grass, per acre, three-fourths. Keep my cows up in stables all summer—i. e., at night.

Mr. STEWART, of Hamburg, Erie Co.—For three years I have practiced soiling, and find it a benefit both to land and animals. In the course of my experiments, I have found that one acre cut is equal to four acres in pasture. The manure that is saved by this system more than pays all the expenses attendant upon it; and the saving in fences would, in most localities also pay all expenses. The increase in the value of the animals is also about five-fold. I practice feeding cut straw, steamed and mixed with one pint of corn-meal to the bushel. This, I find, makes better feed than an equal amount of timothy. I think one man can care for fifty cows, and milk ten of them in addition, if the feed is close by. By this method I make \$500 per year more than by the old system of pasturage. For feed I use roots till 20th of May, and then cut clover until after haying. Have raised corn, and consider it the best fodder for the purpose, as it comes nearest to grass. I have also found that butter made from it will keep longer than that made from any other feed. For winter, I mix carrots and oil-meal with cut straw, and give three bushels per day to each cow. Food is steamed before it is given out.

Mr. GEDNEY, of —, considered one acre sown with corn in June, equal as food for milch cows to ten acres of rowen. Had found no advantage from using steamed provender.

Mr. GEDDES made some interesting statements, in which he said that each farmer must adapt his own plans to his own case. If I improve the system of agriculture, and the product of my farm, under my own management, that is my aim and end. If you, under a different treatment, become successful, and im-

prove your farm thereby, I am not to point out to you a different mode.

Several others present gave their views; which proved nothing more than that each one has his own opinions in regard to soils and their management, and to manures and their application.

As the vote of adjournment was made, SOLON ROBINSON rose and requested the farmers present to adjourn to their own homes and school districts, establish a "Farmer's Club," and maintain the same by active talk and discussion upon topics regarding their avocation. In no other way could so much valuable knowledge be gathered up.

### Salt as a Manure.

The following questions were addressed to the editor of the *N. E. Farmer*: How salt is to be applied to the soil, whether it should be mixed with barn manure or sown broadcast? If mixed with manure, in what proportion? If sown, how much to an acre, at what season, and what kind of soil is most benefitted by it? Would it be advantageous to use it when barley is to be grown? How would it affect pasture land? And further, would solicit the opinion of some experienced on the profit likely to accrue from purchasing salt at twenty cents a bushel, for agricultural purposes.

Would you consider it profitable to buy air-slacked lime, at eight cents a bushel, to put on the land?

To these questions the editor replies: We have often used salt as a fertilizer, but have not followed the experiments with sufficient accuracy to make them worthy of note. So we refer to others, and find plenty of evidence that salt may be used as a fertilizer where it can be obtained at low rates, where it is dirty or in a damaged state so as to make it unfit for common purposes.

Salt renders dry loam more susceptible of absorbing moisture from the air, and this is of great importance, because those soils which absorb the greatest proportion of water from the atmosphere, are always the most valuable to the cultivator. On heavy undrained soils it would not act beneficially.

When sprinkled slightly over manure heaps it checks the escape of the carbonate of the ammonia, and tends to prevent undue fermentation. It not only acts on vegetation as a stimulant, but serves as a direct constituent or food to some kinds of plants.

Applied to grain crops on light soils, at the rate of 500 pounds to the acre, salt in-



creases the produce of seed, and very much improves its weight to the bushel, and its quality. On grass lands and clover, salt has a good effect, rendering the herbage more palatable to stock.

Mangold wurtzel, manured with salt mixed with farm-yard dung, at the rate of ten or twelve bushels, or even more, an acre, grows luxuriantly. It would, undoubtedly, be useful on a barley crop, because the soil adapted to the crop is the kind of soil most benefitted by salt.

We do not doubt but that salt at twenty cents, and air-slacked lime at eight cents per bushel, would be profitable on lands where they are actually needed.

### Animal Food---Vegetable Food.

BY J. T. MOUNDVILLE.

The experience of prize fighters certainly does not favor the notion that a purely vegetable diet is most favorable to the development of bodily vigor. On a day appointed, two of these professors of pugilism agree to fight for a sum of money, and, of course, he who can bear or inflict the most punishment, or can keep on his legs the longest, is declared the winner, provided he has taken no unfair advantage of his opponent. It is generally known that long before the day of battle, these men are subject to a system of training as regards both diet and exercise; and the diet which they, by long and accumulated experience, have found most favorable to the development of bodily vigor, consists mainly of the lean parts of fresh meat, chiefly mutton, and not by any means of vegetables exclusively. Now to win one of these battles, a man must have great muscular power, great activity, great powers of endurance and indomitable energy and pluck, and the use of animal food is proved by them to be highly favorable to the development of these important qualities, for however brutal may be the exercise of this power by these men, yet it must be admitted that these are highly useful and desirable qualities to be possessed by the great mass of mankind, who have to win their daily bread by bodily labor.

It is customary in England to hold fairs at stated times for the sale of stock and other farm products, and at these fairs, farm hands and mechanics assemble from the country around, and by way of amusing themselves, usually get up some sort of ath-

letic games, foot races by men being one. It is known for weeks beforehand, that Tom Jones is going to run Bill Smith, and the discussions which ensue as to the relative merits of the men and the anticipation of the good time they will have at the fair, no doubt tends to lessen their toil.

Now it so happens that a man is at present doing some work for me who was remarkable in his youth for his swiftness of foot, and ran for several prizes. I learn from him that the runners had to go through a process of training similar to that of the prize fighters, as regards exercise and diet. The chief food consisted of the lean parts of legs of mutton, and their drink, tea, made of fresh lean beef, put into cold water and simmered two or three hours, all fat which floated on the surface being carefully skimmed off; and their vegetable food consisted of dry bread toasted, and but very little of that. The evidence afforded by the experience and practice of these men, also goes to prove that the use of animal food is favorable to the development of great bodily vigor, of great muscular power, activity and bottom.

The men who have made the British railways are remarkable among the working men of that country for the great amount of severe labor they are able to accomplish, and for the great amount of animal food they consume. They work by the piece or job, and, of course, the more wheeling and shoveling they do, the more wages they receive. A neighbor of mine belonged to this class in England, and conversing with him some time ago about their liberty, and especially about their mode of living, he told me it was common for a man to buy fourteen or fifteen pounds of beef on a Saturday night for his week's supply of animal food, and that it not unfrequently happened that the beef had all vanished before the week was ended, and that they had to apply to their grocer for a supplement of bacon to carry them through. But it may be said, if these men, subsisting largely on animal food, were able to accomplish such feats in fighting, running and digging, there is no proof that other men employed at the same kind of work, but living on purely vegetable diet, were not able to do as much work, or more. Well, it so happened that an English contractor undertook to make a French railway, and he took with him a number of "navies," and employed French

laborers as well, but it was soon found that the Frenchmen were not capable of getting through anything like the same amount of work. This coming to the ears of a French physician, who was somewhat incredulous, he proceeded to make personal inquiries, to ascertain the truth of the matter, and found the fact was so. He then inquired how both parties lived, and he admitted the mystery was at once solved. The Frenchman's bread and fruit, and his cooked dishes ingeniously contrived to tickle the palate, and economize nutritious but costly food, was considered but sorry fare for men who had to endure such severe labor, compared to the substantial diet of the English navy.

This reminds me of a paper read before the Horticultural Society of London in 1831, by its President, Andrew Knight. It is on a peculiar mode of cultivating the potato, and in a few prefatory remarks, Mr. Knight contends that potatoes, with a small quantity of meat, will afford better and more healthy food than bread in any quantity, and in support of his opinion, refers to the injurious effects of "a purely vegetable diet" on the health of the French peasantry. They are a very temperate race of men, and they possess the advantage of a very dry climate. Yet the duration of life amongst them is very short, scarcely exceeding two-thirds of the average duration of life in England, and in some districts much less. Dr. Harkius, in his medical statistics, states upon the authority of M. Villermé, that in the department of Indre, one-fourth of the children born die within the first year, and half between fifteen and twenty, and three-fourths are dead within the space of fifty years. Having inquired of an eminent French physiologist, M. Dutrochet, who is a resident of the department of Indre, the cause of this extraordinary mortality, he stated it to be their food, which consists chiefly of bread; and of which he calculated every adult peasant to eat two pounds a day, and he added, without any leading question from me, or in any way knowing my opinion on the subject, that if the peasantry of his country would substitute (which they could do) a small quantity of animal food with potatoes, instead of so much bread, they would live much longer and with much better health. I am inclined to pay much deference to M. Dutrochet's opinion, for he combines the regular medical education with great acute-

ness of mind; and I believe him to be as well acquainted with the general laws of organic life as any person living; and I think his opinion derives some support from the well-known fact that the duration of human life has been much greater in England during the last sixty years than in the preceding period of the same duration.

In the London Agricultural Gazette of the 24th of January last, is the report of the address delivered at a meeting of a farmer's club, by one of England's best farmers, Mr. Grey, of Dillston, in the county of Northumberland. He took a retrospective view of the progress that had been made in farming during the present century, and among other subjects, referred to the improved condition of farm laborers. "Since I recollect," said he, "it was hardly the case that the laboring population of this country were able to indulge themselves by eating butcher's meat at home. The father of a family thought himself well off if he could feed one or two pigs, and exceedingly well off if he could maintain a cow; but you now see the butcher's shop in every village, and the butcher's cart dispensing joints of meat at every cottage door as you go along the road. Such is the difference in the way of living;" and he adds, like a truly benevolent and sensible man, "I am sure you will all rejoice with me in thinking that it is so." But farm hands are not equally well cared for in all parts of England. Some of the southern counties, as Wilts and Dorset, have long had notoriously bad reputation for the low wages they pay their hired men. A Wiltshire parson, seeing there was so much difference in the statement of Mr. Grey and the actual state of things in his neighborhood, wrote to the *Times*, requesting information as to the wages paid the Northumberland workmen, which enabled them to live in such luxurious style. This elicited from Mr. Grey additional facts illustrating the influence of diet in the development of bodily vigor. He mentions a striking example of the inefficiency of southern laborers, whose low wages would oblige them to live chiefly on bread and the produce of their gardens. A relation of his, who had large sums to pass through his hands, superintending works of land improvement, was brought into communication with parties in the southern counties, who complained of want of employment and low wages among their pea-



santry; which led to his offering to find work for one hundred of them if they were sent to Northumberland with tools for draining, at which men were making from 17s to 21s per week at piece-work, according to capacity and application. A party of these men were provided with money for their journey and the purchase of tools, and on arriving at their destination, were lodged and set to work, but the poor fellows proved to be so wanting in method *and in power*, that few of them could make more than half the wages the men of the north country gained. With men so fed and children so reared, the race, as Mr. Grey remarks, "must be physically and mentally deteriorated." On the other hand, men well fed and strong, like the Northumberland workmen, "apply themselves to their work with vigor and energy; *they require the support of meat as well as bread, and can afford to eat it.*" Like a well fed team, they feel well; go to their work with light hearts, contented and happy: conscious that their strength is equal to the labor required of them, and that the wages they receive will be a fair compensation for work done. Such men are the parents of robust and healthy children, who, sharing in their father's generous diet, without sharing, in their early years at least, in his arduous toil, grow up strong and healthy, and finally attain a stature and proportions rarely met with in districts where a low rate of wages and a consequently inferior diet prevails. We need not, therefore, be surprised to read further, a fact which vegetarians will do well to ponder over. "I have seen it stated that the regiment of Northumberland Militia require more standing ground than any other regiment, *because the men have broader shoulders.*" Hence the force and meaning of that proudly defiant taunt of Mrs. Barbauld, who, as a set off to more luxurious products of southern parts, says:

"But men are ripened in our northern sky."

Wisconsin Farmer.

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Live so that when death comes you may embrace like friends, not encounter like enemies.

Reform those things in yourself that you blame in others.

### Dairy Management in Scotland.

SIR JOHN SINCLAIR has stated that "it is supposed that the same quantity of herbage that would add 224 lbs. to the weight of an ox would produce 900 English gallons of milk." Now, if we reckon 6 oz. of butter to be the average weight obtained from a gallon of milk, we will get 337 lbs. of butter from the same quantity of herbage as was supposed to produce 224 lbs. of beef. If the hypothesis of Sir J. SINCLAIR be correct, there can be no doubt that it is the interest of the farmer to adopt the dairy system in preference to the feeding of cattle. But even granting that the difference between the production of beef and butter is not so great as stated by him, yet it is generally admitted that there is a considerable margin in favor of butter, particularly when we take into account the relative price of the two at the present time.

The importance of the subject being admitted, we may inquire shortly as to what kind of feeding is best adapted for producing the largest yield of butter. AITON, in his *Agriculture of Ayrshire*, published about the beginning of this century, tells us that the winter food of the dairy stock at that time was the straw of oats, or, toward the muirish parts of the country, the hay of bog meadow, frequently but ill preserved. "For a few weeks after they calved, they were allowed some weak corn and chaff, boiled, with infusions of hay; and by way of luxury, a morsel of rye-grass or lea-hay once every day; and of late years, by some farmers, a small quantity of turnips in the early part of the winter, and a few potatoes in the spring, have been added." The effect of such feeding on the animals is apparent when they are turned out on the grass in summer; "many of them are so dried up and emaciated that they appear like the ghosts of cows, their milk vessels are dried up, and it is not till they have been several weeks on the grass that they give either much milk or that of a rich quality." The summer feeding was generally pasture; and though a much better system of feeding has been practiced throughout the country since the introduction of turnip husbandry, yet an approximation to that described by Mr. AITON will be found in some of the upland districts.

Farmers have now, however, a great variety of food from which they can make a

selection; and the problem to be solved now is not how a sufficiency of one particular kind of food is to be gathered together to keep the cows in life for a considerable period of the year, but rather what variety of food, or, better, what mixture of varieties, how much, and in what state (raw or cooked), will prove most profitable for the production of butter. The mainstay of the dairy farmer now as formerly in summer is grass; in winter, however, there has been a great improvement in the feeding of the cows, from the use of turnips and other roots, as well as many other substances, such as beans, draff or distillers' and brewers' grains, linseed and rape cake, &c. Even now in summer, in some districts, it is found advisable and profitable, where butter is wanted more than milk, to give the cows some nourishing food, in addition to the pasture, at the very height of the season. Draff and bean meal are the two substances more generally used in such circumstances.

If the production of butter is to be the main object of keeping a dairy, there are two things to which the farmer should pay particular attention: the kind of cows he keeps, and the feeding. When we speak of the feeding, we mean not merely the quality of food the farmer purchases, but of what is grown on his farm. It is well known that the grass and turnips on some farms will produce far more butter from the same quantity of milk than those grown on others. We have known cattle fed on turnips alone from particular farms made fat in the same time as similar animals fed on turnips with the addition of two or three pounds of linseed cake each per day, the treatment and housing of the animals being alike in both cases. Certain fields will give a larger proportion of butter to the milk than others on the same farm. A farmer, therefore, should be guided, not only by the locality, but by the farm, in determining what department of the dairy he should turn his attention to.

Without referring at all, at present, to the kind of cow most profitable for a butter dairy, we pass on to a consideration of the kinds of food that may be used most profitably for the production of butter. The great authority on this subject is Mr. HORSFALL, who has laid the public under great obligations to himself for the publication of his experiments and views on this interesting question. His method of feeding is the following:

In May, his cows are turned out on rich pasture near the homestead. Toward evening they are housed for the night, when they are supplied with a mess of a steamed mixture, to be afterward described and a little hay each morning and evening. During June, mown grass is given to them instead of hay, and they are also allowed two feeds of steamed mixture. This treatment is continued till October, when they are again wholly housed. After this they receive steamed food *ad libitum* three times per day. After each meal, cabbages are given, from October till December; kohlrabi till February; and mangles till grass-time—the supply of each of these varieties of green food being limited to 30 or 35 lbs. per day for each cow. Four lbs. of meadow hay are also allowed after each meal, or 12 lbs. per day for each cow, and water is placed before them twice a day, of which they partake as much as they feel inclined for. The steamed food spoken of above consists of “5 lbs. of rape-cake, 2 lbs. of bran, for each cow, mixed with a sufficient quantity of bean-straw, oat-straw, and shells of oats, in equal proportions, to supply them three times a day with as much as they will eat. The whole of the materials are moistened and blended together, and, after being well steamed, are given to the animal in a warm state. The attendant is allowed 1 lb. to 1½ lbs. of bean-meal per cow, according to circumstances, which he is charged to give to each cow in proportion to the yield of milk, those in full milk getting 2 lbs. each per day, others but little; it is dry, and mixed with the steamed food on its being dealt out separately.” This is certainly high feeding, but it is amply repaid by the results; for, while cows fed in the ordinary way seldom produce milk which yields more than 1 oz. of butter to every quart, Mr. HORSFALL's milk gives upward of 1½ oz. for every quart. It is also an important part of his system never to allow his cows to fall off in condition. He considers the maintenance of the condition essential to a large yield of milk. There can be no doubt of the soundness of this opinion. A cow low in condition can not give the same quantity of milk, as much of the nourishment of the food is drawn off to make up the condition of the animal. And when a very lean cow is put on rich food, it is some weeks before the full benefit of the food can be obtained in milk, for the reason stated above. Another useful deduc-



tion made by Mr. HORSFALL for his experiments is, that albuminous matter is the most essential element in the food of the milk cow, and that any deficiency in the supply of this will be attended with loss of condition, and a consequent diminution in the quality of the milk.

In Scotland, bran is not very often used as an ingredient in any mixture of food for milk cows; but it will be seen from the foregoing that it forms an important part of Mr. HORSFALL's mixture. Some time ago we came upon the following extract, we believe from the *Irish Farmers' Gazette*, which gives some valuable hints as to the use of different substances in the feeding of milk cows:

"In reading over the experiments on feeding in STEPHENS, a difference of opinion exists as to the comparative fattening qualities of linseed-cake, bean and other meal; and in the *Report of the Larne National Agricultural School for 1853*, 1 lb. of beans is said to be equal in fattening qualities to 30 lbs. of turnips, and nearly 3 lbs. of oat-meal. I tried the bean-meal one season, at the rate of 3 lbs. a day, boiled, for each milk cow, with mangel, turnip, and hay. By February, one of them was fat, but I may say dry; and the others with about half the quantity of milk they had when commencing. I tried oat-meal for two winters, the same quantity in the same way, and each cow gave three times the quantity of milk and butter, and turned out full better the following summer. I tried the same quantity of yellow Indian meal last winter, and I think it good for both milk and butter. I tried bran for three winters, at the rate of 4 lbs. every night for each cow. It was equal to the oat-meal, while using, and my cows turned out better the following summer than on any other feeding. The bran not only keeps them healthy, and gives them a greater relish for their food, but there is some combination of qualities in it beyond what any writer I have seen attributes to it."

The state in which the food is given has also a great effect in the production of both milk and butter. We have observed more than once that the yield of butter and milk is never so great when we give cows boiled turnips, with beans boiled quite soft among them, as when they get the boiled turnips and the same weight of beans made into

meal and mixed raw with them. Again, there is more milk, and no taste of the turnip in it, when the turnips are pulped and mixed with cut straw or chaff and fermented, than if the same weight of turnips are given whole and raw. In the *Journal d'Agriculture Pratique* we read a short notice on this subject, by M. LEJEUNE, a director of the Agricultural School at Thourout, in Belgium. The facts he reports are not to be regarded as experiments instituted to test any theory, but are merely extracted from his accounts, and show the importance of attending to the mode in which food is given to milk cows. In February, 1855, the milk of eight cows was selected for experiment. The cows were fed in the following manner: Each cow got per day 4.4 lbs. of meadow hay, 13.2 lbs. straw, 4.8 lbs. linseed-meal, 11.5 lbs. of beet-root, and a cooked mash consisting of 5.5 lbs. of turnips, 2.7 lbs. of beet-root, 1.2 lbs. linseed-meal, 3.2 lbs. of rape-cake, 1.1 lb. of grain dust, 1.1 lb. of mixed meal, about 1½ oz. of salt, and 6 gallons of water. From this very watery diet a large quantity of milk was obtained, 16 quarts of which gave 1 lb. of butter. In the month of February, 1856, the calculation was made from the milk of ten cows, eight of which were those with which the observations were made in the previous year. The nutritive value of the food detailed above was calculated to be equivalent to upward of 30 lbs. of good meadow hay per head. The food given in 1856 consisted of oat-straw, beet-root, the meal of rye, oats, and buckwheat, linseed-cake, rape-cake, and the dust of wheat or bran, given in such proportions as to make the equivalent value of the day's feed equal to a little more than 31 lbs. per head of hay. None of it was cooked, and the beet-root was reduced to small pieces sprinkled over the meal. There was not the same quantity of milk, but the proportion of butter was much larger, being 2 lbs. of butter for every 20 quarts of milk. The cows, with the exception of the food, were managed in the same way in both years, and there were more newly-calved cows in 1855 than in 1856.—*The Farmers' Notebook in the Journal of Agriculture.*

OLD RADISH SEED.—A correspondent of the *Prairie Farmer* says that radish seed that has been kept six years or more, will produce radishes of a better quality than new seed.

*From the Working Farmer.*

### Experiments--Importance of.

Farmers often find fault with those who experiment. They say of a neighbor sometimes, "he is rather experimental;" but they should remember that every new truth is an experiment, to all those who have not tried it. Some one must be the first to vary from the trodden path, or we should still use a crooked stick instead of a plow. There is a class, however, who, upon hearing of any novelty in agriculture, at once try it, not on a square yard, but on their whole crop; such men are not worthy of being styled experimenters. But should a farmer, at this day, call himself practical and judicious in his calling, who, after having heard that in many sections of country corn is cultivated flat, without hilling, and that potatoes are so cultivated, still continues to hill both without trying the experiment of flat cultivation even on a single hill, can such a man be rated as judicious? Is such a man to be called a practical farmer? Is he practical, who allows Lima beans to travel around a pole fifteen feet high, when the pinching off of the vine at five and a half feet high will produce double the crop of beans, and particularly before frost? Should he not try the experiment and see how it will answer? Many permit melons, cucumbers, etc., to run over the entire area of their soil, in long, single vines, while others, by pinching off the runner-buds, after the third rough leaf has formed, get their fruit early and of double size. Why should not this experiment be tried and adopted, if found true? Gooseberries mildew all over the country, but some have saved them by cutting every branch that is within five inches of another, and by mulching the surface with salt hay, or other cheap refuse material; is this not a fair experiment to try?

It has been frequently asserted, that properly under-drained sub-soiled lands never suffer from drought: who cannot name many farmers who lose their crops from drouth, at least once in ten years, and still have never experimented to know whether they can under-drain and sub-soil their land, for one-tenth the value of their crops, or whether such sub-soiling and under-draining will save them from drouth entirely? And those who doubt this fact, should they not make the experiment, or visit the farms of those who have, to know of its truth?

Thousands of acres of peach trees are grown by those who have never tried the shortening-in process, and can never tell whether they will bear for a series of years longer for such practice, or not. Is it not a fair experiment to try this on a single tree at least? Are there not thousands of farmers in the United States who have never tried any other fertilizing material than barn-yard ma-

nure? Should they not satisfy themselves by the experiment, whether or not others may not be more cheaply used, and produce more profitable results?

Continually we hear it said, that those who surface-plow five or six inches, have another farm under it which they have not developed. Should not such farmers experiment with the sub-soil plow to know if this be true or false? A bushel of carrots and a bushel of oats, are said to equal in effect, when fed to a horse, two bushels of oats. Now, as sixteen times the number of bushels of carrots can be raised on an acre, than can possibly be grown of oats, should not those farmers, who have never raised carrots, try the experiment, and thus ascertain if these assertions are true? Those who use hoes, and forks, etc., for cleansing row crops of weeds, have heard that the horse weeder would do the work of forty men with hoes, and that many have repudiated the use of the hoe altogether for root crops, why should they not try this experiment? It is said that one mowing machine will do the work of twenty men with scythes, and that one thrashing machine will do the work of a hundred men with flails; should not those who at present use flails, visit farms where mowing machines and thrashing machines are used, to ascertain if that experiment will not warrant them in the purchase of such tools?

Those who use barn-yards open and exposed to the winds and rains, and who permit the washings to run off to creeks and streams, have doubtless heard that with manure sheds, and properly arranged tanks retaining the drainage of the manure heap, and pumps, obtain better results than by the open barn-yard practice; should they not carefully review the operations of these experimenters, rather than satyriize that of which they have no knowledge? Experience is said to be the mother of wisdom—experiment is the father of truth.

**KIDNEY-WORMS IN SWINE.**—The *German-town Telegraph* says, this disease may generally be known by the animal appearing weak across the loins, and sometimes by a weakness in one or both hind legs. As soon as these symptoms appear, give the animal corn that is soaked in lye of wood ashes, or strong soap-suds, and at the same time rub the loins with turpentine. An Ohio farmer cures this disease by giving one ounce of copperas, daily, for six or eight days, dissolved in warm water, and mixed with two quarts of corn meal and dish-water.

**HEAVES IN HORSES.**—It is said, in a recent number of an agricultural paper, that a quart of a decoction of smart-weed, given every day to a heavy horse, will cure the heaves. We doubt it; but there is no harm in trying.



For the Southern Planter.

### Advice to Young Farmers.

I long ha'e thought my youthfu' friends  
A something to have sent you,  
Tho' it should serve na'e other end  
Than' just a kind memento:  
But how the subject theme may gang  
Let time and chance determine,  
Perhaps it may turn out a sang,  
Perhaps turn out a sermon.

'Tis the most difficult thing attempted,  
Mr. Editor, in these days of book-making  
and essay-writing, to say anything which  
will be read, and read with interest, or profit  
by the reader.

There seems to be a perfect mania pervading the people now-a-days for seeing themselves in print, and not satisfied with seeing themselves in the periodicals of the day, each one must write a book. The result is, that having to search so much chaff for a grain of wheat, men will not read at all, or if they do, it is of that sort which profiteth not. "Hence these tears," hence proceed our difficulties. One can never be certain he has any thing to say that will attract, or satisfied that he has said "that any thing" concisely enough!

To have an interesting subject, and to treat that subject as forcibly as is consistent with perspicuity, seems to be the grand desideratum of the times. Brevity then shall rule in the suggestions I have to make to our young farmer friends.

Leisure has been wanting hitherto, but for some time I have been intending to address an article, or it may be, a series of articles to this class of our community, which they might, if the papers proved worthy of it, take as a sort of "*vade mecum*," or pocket companion, and we know not a better medium through which to speak to them than your excellent "*Planter*." As the new year is about to commence, we had quite as well begin now and do what we may for the advancement of the interest upon which depends the lawyers, the doctors, the merchants, and all the interests of the land in which we live.

And first of the government needful to be exercised in the *successful* conduct of a farm.

In speaking of this branch of our subject, we suppose ourselves to be addressing neither "old fogies" nor "Young Ameri-

ca"—neither those who are satisfied to do a thing because their "Faders did so before them," nor those who imagine they have learned all that can be learned. Let our young friends read, remembering that the distinguished Patrick Henry once said, that "he had never conversed with a sane man from whom he could not extort a new idea."

The young farmer must, in his "set out," be assured that he is qualified to govern himself. No man can govern others, who has never learned to govern himself. If he has failed to learn—this—*emphatically—the art of the farmer's life*—he had better hire out and rent out, and go to school to learn it. Better put himself on board a man-of-war and learn how to obey, or in other words, bring his will into subjection—learn to keep all his passions under. Let him ponder the proverb, "Better is he that ruleth his spirit than he that taketh a city." Unless our young brother has learned this—*the art*—we can tell him on the threshold of his operations, that his business will be conducted with a great outlay of time and money, and wear and tear of health and comfort. Let him first, himself, learn what obedience is, and then, and not till then, is he qualified to command it. We know, from long experience, that this is indispensable to good management, hence we dwell upon it!

The young farmer should be careful that the order he issues is reasonable—that it is given in such manner as may not be misunderstood, but when that order is given—although in itself of minor importance, its execution should be as inexorably fulfilled as if the fall or rise of his whole estate depended on that order. If an order of this kind be neglected, those of great importance will be neglected also. Our friend will be surprised to see with how little trouble—with what comfort to himself and to those under him, his business will be conducted if this rule is *rigidly* adhered to. Let the order be a reasonable one, but let the want of obedience to it be punished, though the "Heavens fall."

A very sensible old lady used to say, "I make it a rule to whip my children and servants for—*accidents*?" The consequence is, that accidents rarely happen at my house." She thought, it should rather be written carelessness!

The good managers will see to it, however, that these corrections are administered

calmly, dispassionately. They must govern themselves. Obedience—prompt and implicit obedience—to orders, covers almost all the ground of a well disciplined household! The knowledge of the laborer, of the fact, that no disobedience, or those things called accidents, will be allowed to go unwhipt of justice, will not only be insurance against these things occurring, but will, after a few years observance of the rule, render the laborer habitually careful, and promptly obedient, and bring along with it its own reward to the governor and the governed—all goes on pleasantly, and with a harmony that is perfectly delightful.

The judicious manager will never tempt those under him to depart from the truth, by asking questions of them as to the execution of orders. He should be especially careful, in this regard, as to the youngers of the family. If he sees that mischief has been done,—orders disobeyed, thefts committed, or anything wrong, he should never accuse them, indiscriminately, of having committed the wrong, but he should cultivate and foster the truth by every means in his power. There is a great deal of force in that saying of Jerry Sullivan's, who, when questioned by his master as to some of his duties—always said to him, "Ask me na' questions and I'll tell ye na' lies." When, however, by strict investigation the defaulter is found out, let the falsehood be punished as relentlessly, or more so, than disobedience, or anything else pertaining to the household delinquencies, and in a short time he will perceive that, contrary to the received theory, his servants will be as truthful and free from pilfering as white persons can be. Ask no questions, however, and make no accusations, that you are not fully prepared to prove. We are not told whether Abraham whipped his household for disobedience, or for accidents—but we do know that he was called "the friend of God" because he "governed his household."

#### FARM HOUSES,

From stable to dwelling inclusive, are most important adjuncts to the farmer's establishment, and should not be passed over in these suggestions. If we were called upon to select any one thing, to the exclusion of all others, for the improvement of a farm, it would be the arrangement of the dwelling and grounds immediately surrounding. A man may have improved his grounds at

large to the capacity of fifty bushels to the acre—he may have the fat cattle "upon a thousand hills"—he may have everything else apparently thrifty about him, but if he lives in one of those long, tall, narrow, disproportioned wooden, or brick buildings, such as our fathers, some of them, thought were the ultimatum of architectural proportions and beauty, and which their children have been imitating ever since for the forcible reason, that "their Fathers did so before them"—if a man lives in such a house, with a crooked rail fence around a yard without grass, without trees, without shrubbery of any kind, and without a neatly inclosed garden, well tilled and manured—we speak the sentiments of the sensible and refined every where, when we say, that farmer friend of ours knows but little of the real enjoyment of life, and but little of the fact that, so far as the increased value of his "place" is considered, he is literally spending his labor in vain. A neat, tasteful arrangement of houses and enclosures about the dwelling, are, nine times in ten, the things which render the farm valuable in the sight of those whose high estimation of such property we desire. These are the things, the others being not altogether neglected, by which the farmer's estate is increased greatly over that of the man who labors exclusively for the money he puts into his pocket each year.

If our young friend has his farm already supplied with buildings of this kind, when he takes possession, the best that he can do for bettering his condition and renovating them, after counting his means, should be to pay an architect, if he himself should not have the skill, a hundred or more dollars, according to the service rendered, to plan such improvements as shall be commensurate with his means. These architects are generally men of acknowledged taste and judgment; and being, as they are, daily engaged in business of this kind, they are far better fitted for the work than those of us who build but once in a lifetime, and who see the errors we make only too late to correct them. This hundred or more dollars will soon come back to them, in comfort and convenience, and if they should want to sell, in the increased value of their farm.

The kitchen should be near to, but not so near the dwelling as to endanger their burning each other. It should be furnished with all the improved apparatus for cooking.



A young cook, not an old one, should take the position. The old ones are all "old fogies," and can never be taught to cook with a fire anything short of that which will roast them while it roasts the meats. An old cook can never be taught the neat, tidy ways which may be practiced, with but little trouble, under the modern system of stoves and boilers, and galvanized safes, &c., &c. The kitchen should be sacred ground to every foot but that of the cook and mistress. 'Tis said, that "every man must eat his peck of dirt," but we are sure, from the amount of filth that is suffered to accumulate about most kitchens, that we eat that amount annually. Cleanliness is more needed about that department than any other on the premises of a well regulated homestead. This cannot be attained if any other than the cook is suffered to set foot there, and that, not for sleeping, or sitting, but exclusively for culinary purposes.

The negro cabins should be built on a southern slope, as near as possible to wood and water, but especially the latter. The neatest and most eligible, and at the same time the cheapest, that we have seen, are those built after the following manner. Sills, 36 by 16, should be framed together, so that after leaving 4 feet for a double rock or brick chimney, the rooms may be 16 by 14. Corner posts may be used or not, according to the pleasure of the builder. The house being only 7 or 8 feet pitch, the weatherboarding of perpendicular plank 1 inch thick, with breakers of the same thickness  $\frac{1}{4}$  inches wide, nailed at the top to a plate 2 inches thick by 4 wide, will be ample support to the roof, which should be flat as possible, to turn the water readily. The weatherboarding, with these strips or breakers, should be nailed carefully to the sills at bottom, and the plates at top, with 12 penny nails, and the weatherboarding should, none of it, be more than 10 to 12 inches wide, as wider than that the sun will be apt to warp and draw the nails loose. "As paint," 'tis said, "costs nothing," we would advise that the weatherboarding be rough-dressed and painted, both of which operations may be performed by such a hand as can be obtained for \$16 or \$18 per month. Each room should be ventilated by an opening of 4 by 4, filled with small glass, with strips nailed over it, to keep the unwary from breaking it. These houses will cost from \$75 to \$100. If they should

be found too cold, it may be remedied by nailing four or five dollars worth of course oznaburghs over the inner wall and painting it. These houses will last a lifetime, with once covering. They are entirely substantial and permanent. The houses of western Texas, are, most of them, constructed after this plan, and are considered as permanent as any, and we all know the terrible hurricanes they are subjected to in those southern climates. These cabins should be raised a foot or more from the ground, in order that the filth generated about the houses may be carefully got up once or twice a year. Every family of negroes should have a little enclosure around their cabin, which they should be diligently encouraged to cultivate and manure. They should be required to do this as regularly as to do the work of the master. It will greatly conduce to make them orderly and caretaking, and followed up with the master's watchful attention for a series of years, it will profit both master and man far more than on the first blush will appear.

There is an old adage, to the effect, "Keep a thing seven years, and if you have no use for it then, throw it away." This adage the negroes pursue most literally, as it regards their old shoes, old coats, old pants, shirts, and everything belonging to their dress; all these are thoroughly worn and soiled, and then thrust into the loft—into "chists," as they call them—boxes, barrels, or corners of their rooms—where they will lie until they become almost a putrid mass, to generate disease of every character. The most cleanly of them will do this, to the detriment of health and comfort, and the enlargement of the master's doctor's bill. The judicious master will go around, once or twice a year, and have all these things committed to the fire, and will, once a year, use a *barrel of lime and a white-wash brush*, costing in all \$2, upon the inside, and thus save the visits of the doctor and the health of his negroes.

#### STABLES, COW HOUSES, &c.

The e should be most carefully located, on as level a surface as possible. A never-failing stream of pure water, either in the manger of the horse, or in the stable-yard, is indispensable. The good manager will have had reference to this in the location of his dwelling. Whether this arrangement has been made or not beforehand, when the

stable or cow houses come to be built, such a location should be sought for them as will insure to the stock an abundance of the best of this indispensable requisite to their good keeping. Unless they be placed where they can help themselves to good clean water, you may in vain expect to have a team in good condition. Negroes and overseers cannot be made to understand these things. Hence, interest, as well as the convenience of the master, demands that water be placed in connection with the stables.

The construction of these buildings are of great moment. They may be so constructed as to be a great convenience, and on the other hand so built as to be a continual annoyance. We give our experience in this kind of building—as we speak experimentally chiefly—in all these things which we are now writing for our young brethren. Supposing we were going to provide stabling for from six to ten horses—we would have the dimensions 32 by 33 feet from out to out—this would afford 10 stables 12 feet long and 5 feet wide in the clear, the horses being arranged with their heads on each side of a plank floor passage 6 feet wide, in which their chop is cut and mixed, and transferred directly to their troughs without the trouble of going out of the stable. In this passage, also, may be placed boxes for holding meal, or barrels for soaking grain, not one bushel of which should be fed without either grinding or soaking. But to the building—we would have locust posts set in the ground (and white oak, if locust could not be procured,) 2½ to 3 feet deep, 8 feet pitch, with a plate on top of them 6 by 8 inches, upon which the roof rests. These posts should be 8 feet apart, and consequently, there being 4 rows of them, the number thus set into the ground will be 20. Besides the stables below, this roof will afford a large and commodious receptacle for storing such provender as the master may wish to cut for mixing with meal for his stock. The sides should be watherboarded perpendicularly with inch plank 10 to 12 inches in width, precisely in the way indicated in building negro cabins—with the addition of studding put into the posts horizontally, so that the plank will come FLUSH on the posts—and so that it can be nailed every two feet of its length. If this watherboarding were rough-dressed, and, as “paint costs nothing,” if it were painted, it would be far better! All these things would

be rendered better still by the master's having a good halter chain *permanently* attached to each stable, and requiring that no horse should be put into them without being fastened by them. If “what is worth doing at all, is worth doing well,” then attention to these things is decided economy. We hope our young brother will take a smoke at this stage of our lecture, and wait with patience for what we have to say further to him in the next number of our excellent farmer's book. L. M.

*For the Southern Planter.*

### Capital and Enterprise—the Bases of Agricultural Progress.

FROM THE FARMERS' CLUB OF NOTTOWAY.

We use the word capital to embrace every thing from the legitimate use of which, the individual so using it, may reasonably calculate on receiving a remunerating return in revenue or interest on the amount vested; and the word enterprise to express whatever constitutes good husbandry.

The capital invested in agriculture, in our community, may be divided into lands, labour and money. The relative proportion of these three elements, in a judicious investment, is, probably, one of the most difficult problems which the agriculturist has to solve, and in the practical adjustment of which, it is believed many errors are committed. With a majority of farmers, the error consists in too large investments in lands; arising heretofore, from the low estimate placed on them, in the exhausted condition in which they were left to us by our predecessors, their remoteness from markets, the ease and cheapness with which they were acquired, and the avaricious propensity of our nature to “add field to field, and house to house, more from a desire to occupy, than an ability to use them.

The relative proportion of real, personal and chattel estate, varies materially in different countries, and even in the same community. In England, where calculation and skill have attained to nearly a perfect standard, it is considered, the capital employed, (in which is always included the stock), should be from seven to nine times the amount of the rents. This would appear to be a great disproportion, even in view of the fact that lands are high and labor cheap; but the cost of stocking the



farm, draining the lands, the purchase of costly fertilizers and other incidental expenses, consequent on a high state of agricultural improvement is very great; and that, probably a large amount of the English farmer's profits are derived from the sale of stock, &c., rather than from the great staple crops of the farm, may justify this investment.

In Virginia, where every farmer has a fee simple estate in the lands which he cultivates, and that too with his own labor, where lands are cheap and labor dear, a vast disproportion in the relative investments exists, and the difference is found adverse to the English rule. From the best information I have been enabled to obtain on the subject, it will be found that there is but little difference between the investments in land, and all other taxable property, held by the Virginia farmers; nearly one half of his capital being locked up in land, while the English farmer has six eighths or eight ninths of his capital at his own disposal, for stocking and improving his farm, or for speculation and other profitable investments.

Labor is an important item under the head of capital. Without the application of labor to our lands, they would be valueless, it is the judicious use of labor that renders them productive and valuable. The earth spontaneously produces but few of the necessities and still fewer of the luxuries of life; and it is wisely ordained, that "man in the sweat of his face shall eat bread till he return to the ground." Now, as of old, the wheat and the tares grow together; the thistle and the corn occupy the same space whether on the hill top or in the valley; and the vine and the bramble everywhere contend for the mastery; all making heavy and constant demands on the labor and energy of man, to subdue and cultivate the earth. If the sentiment be true, as it has been beautifully expressed, that "the price of liberty is eternal vigilance," it is no less true, that the price of agricultural success, is ceaseless, untiring, well-directed labor.

We do not propose to discuss the mooted question, as to the relative value of free and slave labor; with the one we have no experience; with the other, we are familiar, and can duly testify to its adaptation to our wants, and appreciate its advantages, socially and politically. In agricultural pursuits, it is admitted much depends on the quality of the labor employed; still more on the

quantity and skill by which it is directed, for it cannot have escaped the notice of the most superficial observer, that the same number of laborers of equal physical ability will accomplish much more work in a given time, under the supervision of a judicious manager, than when directed by one inexperienced or indifferent to the means and appliances by which the labor may be performed in the best manner and at the least expense of muscle and sinew.

The present unprecedented high price of labor, is, perhaps, one of the principal hindrances to agricultural progress, and is a subject demanding the attention of political economists. In populous communities, where farming is the principal pursuit, there is generally a just relation between the price of land, labor and produce; nor can this relation be long disturbed from any cause, whatever, without producing monetary derangement and general embarrassment. The connection between the three and their mutual dependence is so great, the one on the other, that one cannot suffer without injuriously affecting the whole.

The high price of labor in this community, is due to several causes, some of them favorable, some unfavorable to our local and individual interests. Since the construction of our railroads, the price of lands has advanced from thirty to fifty per cent., during the same period the price of labor has advanced one hundred and fifty per cent. and the price of our staple crops, although above an average price, (and would be considered amply remunerating under the old order of things), has not advanced in the same ratio with land and labor; especially when you add to the actual cost of that labor the further incidental charges of costly fertilizers, dear provisions and high taxes. Hence the farmer, in this section, cannot judiciously increase his labor as his necessities demand; because his net profits from that labor do not justify the investment and cover the risk of loss from death and other casualties. Again, the price of labor is not regulated by the returns of that labor as applied or employed on the worn out and exhausted fields of Eastern Virginia, but by the higher and more remunerating returns of labor in the rich alluvial valleys of the South and Southwest, and in the more valuable staple crops of cotton, sugar and rice.

Another cause of the high price of labor, is due to the increase of the precious metals

and an abundant circulation. This also acts unfavorably and unequally on us; we are not so much benefitted by this increase of the circulating medium as our more favorably situated neighbors of the south, because their fertile lands and valuable staples enable them to derive a revenue from their labor greater than any thing we can calculate on; hence we cannot compete with them in the use and application of that labor, and are driven, by force of circumstances, out of the market; for as sure as water seeks its level, so certainty will labor seek its best returns, and money its highest profits.

Another cause of the high price of labor, is the heavy emigration of our citizens to the South. This restless spirit of our people has been very unfavorable to the prosperity and progress of the Old Dominion, by abstracting a large per centage of our white population and a larger number of our best laborers; by increasing the price of those remaining; and at the same time throwing large quantities of land into market, in a community where labor is dear and land cheap, and population sparse; where numbers, capital and enterprise are so much wanted to develop the boundless resources of national wealth so profusely lavished on Virginia by nature.

From the records of our office, the increase of the white male population in the county, over sixteen, during the last decade, amounts to only sixteen, (to say nothing of females of which the returns give no account,) and the increase of tithes and under tithes, for the same period to only five hundred and eight, making, in the aggregate, only five hundred and twenty-four.

In 1848, the tax on all property, other than lands, amounted to nineteen hundred and sixty-six dollars and eighty-four cents. For the same year, to wit, 1848, the tax on land amounted to twelve hundred and forty-nine dollars and thirty-seven cents.

In 1858, tax on all property other than land amounted to \$8,946, and the land tax amounted the same year to \$7,639 dollars; amounting in the aggregate to \$16,585. Thus we see, that during the last ten years our population is only a little more than stationary, that during that period, taxation has increased between six and seven hundred per cent., and that we have not two dollars for one, vested in all other species of

property over and above that which is vested in land.

This small increase in population for the last ten years, a period exempt from the horrors of war, pestilence and famine, and under other circumstances highly favorable to rearing and sustaining a dense population, can only be accounted for by the volunteer emigration of the white population and the deportation of the slaves.

Another cause of the advance in labour, is the employment of a large number of slaves on our rail-roads and other internal improvements and the mechanical trades. This is impolitic; they could in a majority of instances be more profitably employed on the farm; besides they are occupying situations more appropriately belonging to that class of citizens who are dependant on their labour for theirs and their family's support; thus compelling them to seek employment in other communities.

Experience, it may be said, is the basis of good husbandry; but that man will be most likely to succeed in his vocation, whatever it may be, whose mind is well stored with the kindred and necessary sciences, by which he will be enabled, from the deductions of reason, to arrive at correct conclusions, and who possesses the energy of body and mind to execute what his judgment assures him is right; he will adopt the best means to attain his object, and apply them in the most economical way.

We would, in the first place, recommend a judicious division and investment of the capital employed: believing that too large a portion thereof is vested in land, and is idle and unproductive, whereby the farmer is crippled in his operations. The surface cultivated is disproportionate to the labour employed, which necessarily leads to a hurried, slovenly cultivation, the bane of good husbandry, having respect to the quantity rather than quality of work done. We would suggest the propriety of reducing the area of our fields, extending our rotation, the liberal cultivation of clover and other grasses and ameliorating crops, by which our stock will be improved in quality and increased in number, and be made auxiliaries in the improvement of our lands.

We have no means to suggest by which the number of our labourers may be increased, and labour cheapened; but they may be rendered more efficient, by a more systematic application of their labour in all



our operations, and by the substitution of machinery and animal labour when applicable. Every farmer should be a good financier and practical economist, husbanding all his resources and personally directing the operations of his farm. This implies a practical if not scientific knowledge of his business, without which he is ever liable to imposition. How can he without this knowledge ascertain whether a sufficient amount of work has been performed, or whether it has been faithfully executed? It is by personal effort, directed by scientific knowledge, that the greatest achievements have been made in all the industrial pursuits of man, and agriculture is no exception to the rule. Here we would advocate the establishment of agricultural schools, colleges, societies and clubs, as the best means of enlisting the united effort and influence of practical and scientific men in the advancement of our cause, for without concert of action no great progress can be expected in this or any other human enterprise.

Fertile lands and valuable money staples are the inducements to emigration and deportation; to counteract these tendencies we must increase the productiveness of our lands, and improve the quality of our staples; give employment to our floating population, so as to keep them at home, and more thoroughly identify them in their feelings, associations, and interests, with the land and home of their fathers. Our object should be to retain our present number, and, for the future, to guard as much as possible against the operation of these causes which have favoured emigration.

The letter of our constitution ignores whatever savors of politics; we can no more than allude to the African slave trade. The introduction of the Chinese coolies, if practicable, would be impolitic. The introduction of a third order would be injurious, if not hazardous, to our domestic institutions, and we have seen nothing but evil resulting from the employment of the lower order of European labourers on our farms, and associating with our slaves. Virginia must be her own nursery; she can and will annually send forth labourers into her harvest fields, equal to her greatest necessities, in defiance of Northern abolitionists and underground rail-roads.

A. A. CAMPBELL.

*For the Southern Planter.*

### On Tobacco Culture.

FROM THE FARMERS' CLUB OF NOTTOWAY.

In discharge of my annual obligation, I propose to discuss a question which has engaged my consideration for some years. *Viz: How is it that so many persons, with the same or inferior facilities, have made so much more tobacco than myself?* After due allowance for deficiency in judgment, management and attention, there remained much which defied solution. I was inclined to ascribe it somewhat to a degree of hard-driving, barbarity, &c., which I did not desire to know. But there were persons similarly successful, whose judgment, humanity and propriety precluded such a belief, and induced the conclusion that some skill and management not formerly exerted were auxiliary to such results.

I heard a gentleman possessing the above attributes, with thankfulness, piety, &c., declare that he did not believe his hands worked any harder in making his increased crops, than they did to produce his previously deficient ones, and any new systems or aids become objects of interesting consideration, which I propose to discuss, not so much from my own experience, as from the materials I have collected from others. It must be admitted in the commencement, that a proper use of guano and other fertilizers for tobacco is the chief foundation of this increase, commencing even in the plant beds. Formerly we were restricted to the land; we would clear our second year's ground, and what we could manure from farm yards not exceeding 40,000 to 50,000 hills per each department, or 120 to 150,000, per 15 to 20 hands, leaving a small space for wheat, except by using the entire corn shift.

According to the present plan of using the old land with fertilizers you can prepare in hills or beds with the plow for 200,000 tobacco plants more easily than you could clear the 40,000 new ground hills and make them up. Here, with the increased quantity and forwardness of the plants, you have a wonderfully increased facility in the commencement. The difficulty has generally been in the worming and suckering. I don't see well how the impediment of suckering can be much diminished, except in a way I would not de-



sire to imitate. But in the worming skill and system may afford assistance.

Formerly it was the practice in worming to turn over and examine each leaf, whether there were indications of injury or not, which required so much time and delay as to expose the latter portion of the crop to very great depredation. It is said that by passing over the crop, only noticing the evidences of the worm, you can get over the crop so much more frequently as to place a larger surface under much better control.

In the housing of a large crop to the hands, there must necessarily be much labour and attention, employing a portion of the night. The number and convenience of barns, afford assistance here. In the curing of the crop, I believe much labour can be saved, as the use of fires can be dispensed with to some extent, except when likely to injure. In the stripping of the crop, a good, comfortable room with a stove and glass windows convenient to dwellings is particularly useful, especially in bad weather.

In the hanging up and striking down of the crop, small sticks, not much larger than the little finger, two and a half feet long, and hung up in the direction of the tie-poles, on two of the usual sticks across the poles, are very useful. When the bundles have been straightened and pressed hard, they can be hung up by passing these little sticks under the head without opening the leaves, which is otherwise very tedious; and in striking down, these little sticks need not be removed during that operation, at least when expedition is important to secure the order.

As another facility, it is important that the hands should be well fed and clothed, and their food prepared for them without interruption, and the increased crop justifies and affords the observance, apart from humanity and interest, for there can be no greater extravagance and wastefulness than a restriction in the food and clothing essential to the performance of proper service.

In the prizing of a large crop of tobacco, a screw would no doubt justify its cost, and afford a facility. It cannot be doubted that the convenience of rail-roads in conveying off our crops, rather than the former plan of injuring the plantation teams in that operation, may be enumerated in the elements of increased products.

It may be also observed, that this largely increased surface in tobacco is sufficient for a respectable wheat crop, without the use of corn land, which, devoted to oats, allows a diminution of the surface for corn, and leaves more labour for tobacco.

The use of oil in the preparation of the tobacco crop, is of somewhat modern origin. Some doubted the propriety of thus imparting a fictitious appearance of richness, until it was said to be recommended by the tobacco buyers themselves. I have never used it but once to the extent of keeping the hands sleek, instead of gummed up while handling it,—and it is thus certainly useful.

My object has been to point out and propose for discussion these modern improvements in the production of this crop, the increase of which may have been erroneously to some extent, ascribed to over-working of the hands employed. There can be no doubt that if this increased product should be the means of increased comfort to the labourers, as both interest and humanity should prompt, it may prove a development of the resources of our country, enhancing to its value, and promotive of other beneficial consequences.

E. G. BOOTH.

#### The Use of Quails.

Wm. Norton, an intelligent, observing farmer boy, who makes his home in the southern part of Illinois, has recently been studying the habits of the quail, or, incorrectly "partridge," and gives the following testimony to the Cincinnati Artisan:

"He observed a small flock commencing at one side of the field, taking about five rows, following them regularly through the field, scratching and picking about every hill, till they came to the other side of the field; then taking another five rows on their return, thus continuing, till he thought they were certainly pulling up the corn. He shot one, and then proceeded to examine the corn ground. On all the ground that they had been over, he found but one stalk of corn disturbed; that was scratched nearly out of the ground, but the kernel was still attached to the stalk. In the caw of the quail he found but one cut worm, 21 striped vine bugs, 100 chinch bugs, that still retained their individuality, a mass apparently consisting of hundreds of chinch bugs, but not one kernel of corn.

## VIRGINIA STATE AGRICULTURAL SOCIETY.

The eighth annual meeting of the Virginia State Agricultural Society, was held at Temperance Hall, in the City of Petersburg, on Tuesday evening, the 1st of November, 1859.

The President, Edmund Ruffin, Esq., called the meeting to order, when the annual address "on the Rise, Progress, Present Condition and Future Prospects of the Society," was delivered,

BY THE HON. WILLOUGHBY NEWTON.

*Mr. President and Gentlemen:*

Nothing but an imperious sense of duty could constrain me to appear before you this evening.

The Executive Committee having failed, after repeated efforts, to obtain a speaker for the occasion, have, at the eleventh hour, pressed me into the service.

I am required to perform the delicate and responsible task of addressing this large and enlightened audience with such hurried and imperfect preparation as could be made, in the short intervals of leisure which a practical farmer may command in the midst of seed time, with all its engrossing cares.

Respect for myself, as well as for you, would compel me to decline this call, however urgent, if I could do so with propriety. But when I remember how intimately I have been connected with the Society, from the first moment of its existence; that I presided with the anxiety of a parent at its birth, and have watched with the deepest solicitude its progress to the present day; when I reflect that, though, from my local position, it has been in my power to render very little service, I have yet been constantly honored with one of its chief offices, and am justly responsible, with my colleagues, for the administration of its affairs, I feel that the task, however onerous, cannot be declined. For, if I, upon whom it has so many claims, should, in this hour of its extremity, falter in its support, who could be expected to stand forth as its champion and defender?

Impressed with the belief that this is a crisis in the fortunes of the Agricultural Society of Virginia, I shall not, as is usual on such occasions, occupy your attention with a dissertation on practical or scientific agriculture, or with speculations on any of those political or philosophical questions, which may be regarded as intimately connected

with the interests of our profession. However important and interesting such themes, the period requires the consideration of other subjects of more urgent and vital concern.

The occasion naturally invites us to review the history of the Society, including its rise and progress, present condition and future prospects.

In mariner's phrase, we should "take an observation," and endeavor to ascertain whether we have departed from our true course, and what storms and shoals and breakers now threaten the successful prosecution of the voyage of our noble ship.

I hope to be pardoned by our friends of the Union Society, for speaking on a subject in which they may seem to have no peculiar interest, for I flatter myself that even those among them who are citizens of a sister State are not indifferent to whatever concerns the welfare of Virginia. And I know full well, that those who owe allegiance to our good old Commonwealth, are keenly alive to the interests of that noble institution, which has not only greatly advanced the material prosperity of her people, but has reflected on the State the highest honor and renown.

The events to be passed in review are too recent to form the subject of impartial history, and delicacy would forbid the detail of transactions, many of the principal actors in which are still living, and here present, if it were not necessary, in order to remove misconceptions and prejudices, which not only greatly impair the usefulness of the Society, but which, if permitted to continue and increase, may be fatal to its very existence.

In the remarks which I shall make, I shall avoid, as far as may be consistent with a proper defence of the Society, all those points of controversy in which there has been division in our councils, and shall endeavor to do ample justice to the disinterested zeal of the noble spirits who have contributed, by their efforts, to the success of this glorious enterprise. And I shall be particularly careful not to imitate the example of some military leaders, who, having by their united efforts achieved a splendid victory, disgrace the arms of their country by an ungenerous contest among themselves for preeminence in skill or valor in the battle.

The Virginia State Agricultural Society is now in the eighth year of its existence,



and the history of similar institutions, throughout the world, presents no instance of a success at once so rapid, complete and brilliant. Its true history is almost as marvellous as an Eastern tale.

On the dark and gloomy night of the 19th of February, 1852, there assembled in the hall of the House of Delegates, in the capital of Virginia, a small body of zealous and enlightened farmers, to make a last effort to form a State Agricultural Society.

The humble individual now before you had the honor, by previous invitation, to address that enlightened and patriotic assembly. In the course of his address, which will be found in the first volume of the transactions of the Society, he urged such arguments as occurred to him in favor of its establishment, and foreshadowed its character in the following words:

"The society which we propose to establish, is to be as broad and comprehensive as the Commonwealth itself. Every section and interest of the State will here be represented. The grower of wheat, on the banks of the Potomac, will here meet the planter of tobacco from the distant Roanoke; and the tiller of corn, who greets the first beams of the morning sun from the golden waves of the Atlantic, will hail his brother, who catches its parting ray as it is reflected from the glassy bosom of the beautiful Ohio."

The meeting entered fully into the spirit of the speaker, and the convention, numbering only seventy on the first day, continued its sessions from day to day until the society was organized, the principles of its constitution settled, and its Executive Officers elected. The venerable man who now presides over the society, and who, for so many years, has devoted his talents and learning and energy to the service of the farmers of Virginia, was elected, by acclamation, its first President. He entered at once upon the active discharge of his duties, and has continued to devote himself to the service of the society with a laborious industry, an ardent, enlightened and disinterested zeal which has no parallel, except in the devoted service to British agriculture, of his great prototype Sir John Sinclair. I have no record of the names of the gentlemen who participated in this first meeting, all of whom are entitled to honorable mention.

Of those who took an active part in its proceedings my memory recalls the names of

Randolph, Minor, Noland, Gilmer and Frank G. Ruffin, of Albemarle; Seddon, Morson, and Sampson, of Goochland; Booth and Irby, of Nottoway; Peyton, Richardson and our worthy Secretary of the city of Richmond; Morriss, of Amherst; Dew and Boulware, of King and Queen; Grattan, of Rockingham; Nelson, Ruffin and Brockenbrough, of Hanover. As a part of the history of the times I think it highly desirable that the names of all the members of this convention should be preserved in the archives of the society, and I trust it will be in the power of the Secretary to procure a record of them.

Few in numbers and with very inadequate means, the society proceeded in a hopeful spirit, to fulfil its mission, which was declared, in its constitution, to be "to improve and advance the condition of agriculture, horticulture, and the auxiliary mechanic arts." The Executive Committee met from time to time, and were diligently employed in collecting information for publication in the transactions, and in doing all, within their power, to secure the permanency, and usefulness of the society.

In the course of a short time they had prepared and reported a constitution for the society, remarkable for its clearness and comprehensive brevity; and a scheme of premiums which has been the basis of all our Fairs. A large amount of valuable matter had been contributed, chiefly by the President himself, to our annals, and on the 16th day of December, the society again assembled in general meeting, at the Capitol. Interesting and instructive addresses were delivered by the President, and Mr. F. G. Ruffin.

The members had in this time increased to 339, and the funds in the treasurer's hands amounted only to \$268.00. The President, admonished, as he supposed by declining health, and approaching infirmity, resolved, to the great regret of the Society, to resign his office, and was chosen first Vice President. Philip St. George Cooke, Esq., was unanimously elected President.—In the prime of manhood, with a princely fortune and a large heart, which makes wealth a blessing, by the generous liberality with which it is dispensed for noble objects, he was just the man for the crisis.

He entered upon the discharge of the duties of his office with ardent and enlightened zeal, and in a neat and highly appro-



priate address on taking the chair for the first time, in the meeting of the Society on the 10th day of March, 1853, pledged his best efforts to the cause.

This pledge was most faithfully redeemed, by the devotion of his time, his talents and his means, without stint or grudging, to the furtherance of the great objects of the Society.

It affords me the more pleasure to pay this merited tribute to our former President, because whilst he was in office, it was my misfortune to differ with him in opinion in regard to measures which he deemed important, and pressed upon the adoption of the Society with his characteristic ardour and perseverance.

It may be said of him with entire truth, that in or out of office, he is a gentleman, without fear and without reproach.

The meeting of the 10th of March was deeply interesting. Mr. B. Johnson Barbour made an eloquent and most felicitous address. Mr. Harvie, of Amelia, at the instance of the Executive Committee, offered a series of resolutions, in which it was recommended that a Fair should be held in the ensuing fall, and calling upon the members to guarantee such amount, as might be indispensable to hold the first exhibition.

This appeal was promptly answered by J. Ravenscroft Jones, of Brunswick, an early, constant, and most judicious friend of the Society, who came forward and pledged his county for a liberal sum, and invited other gentlemen to do likewise. His example was speedily followed. Mr. Harvie pledged himself to be one of twenty who would become life members; his proposition was accepted, and in the course of the evening \$1,800 were secured for the object contemplated. Thus encouraged, the Executive Committee proceeded to make all necessary arrangements for the Fair. The President, carrying out the spirit of a resolution adopted at the first meeting of the Society, on the motion of Mr. Minor, of Albemarle, appointed with the approbation of the Committee, General Wm. H. Richardson, and his son, agents to canvass the State, procure new members, and to excite an interest in behalf of the Society and the approaching Fair. These gentlemen performed their duties with fidelity and zeal, and to the entire satisfaction of the President and the Committee. By their exertions, a number of new members

were added to the Society, its finances improved, and a general interest awakened throughout the Commonwealth, which contributed greatly to the success of the grand exhibition. The Councils of the city of Richmond were appealed to for aid and co-operation, and they promptly came forward, and with a liberality and public spirit which does them immortal honor, tendered to the Society the beautiful and commodious grounds which they occupied, embracing every accommodation, and which had been improved and adorned at the expense of the city, with all the embellishments which the highest art, or the most cultivated taste, could suggest.

The Railroad and other transportation companies met the wishes of the Society, with a promptness and liberality which demonstrates that corporations are not always soulless.

It was obvious that the public sympathies were enlisted, and that the farmers of Virginia were at length aroused to their true interests.

Under the happiest auspices, the glorious morning was ushered in, that was to reward, with brilliant success, the long and disinterested labors of their friends.

As if moved by one impulse, the whole people of the State seemed to be crowding to the capital. Each successive train came freighted with peaceful farmers, and poured them in masses on the city, like the armed hosts of Napoleon on the plains of Italy. Steamboats and stages, omnibuses and hacks, private carriages, buggies, sulkeys, and neighing steeds, with their gallant riders, all served to swell the anxious throng. The day was bright and beautiful, and the sun shone as if from an Italian sky.

The long streets and broad avenues of the city were early filled with the interested multitude of every age, and sex, and calling, pressing to the Fair.

And the noon of that day witnessed a spectacle which, in moral sublimity and simple grandeur, far surpassed the most brilliant pageants of the old world. The great heart of Virginia exulted that day. Not over the exhibition of her material wealth, as displayed in the extent and variety of implements and machinery, the products of the workshops of her own artisans; not in the rich products of her gardens, orchards and fields, nor in her fine cattle, and sheep, and swine, and horses unsurpassed—

these were all worthy of the highest admiration. But it was not these that caused a thrill of joy to pass through every heart. It was, that Virginia, the glorious mother of us all, had that day, for the first time in her history, called together, around the family altar, her children from the remotest boundaries of her territory, to recognize the ties of kindred and affection, and to pour forth with one heart, their gratitude to God for the goodly heritage he has given us. Who that had the privilege to witness that brilliant scene, can ever blot it from his memory? My pulse, even now, beats quicker, as in memory I recall the cordial grasp with which I greeted old friends, whom distance had severed for years, and the greeting, scarcely less cordial, with which I met for the first time, hundreds as strangers, whom I now recognize as friends.

I survey again, in my mind's eye, the moving panorama. The brave men and fair women of Virginia, mingling in free, refined and unrestrained intercourse. The chivalry and the beauty of the State met together. The spacious avenues crowded with moving processions of both sexes, with joy beaming from their countenances, and exchanging a nod of recognition, a kind word or a smile of welcome. I see again the seats of the spacious amphitheatres, one above another, filled with every form of female loveliness and beauty, resembling the rich profusion and variety of choice flowers in a well-arranged conservatory. Again, I behold around the course the impenetrable wall of human beings, who watch with excited interest the eager contests of the high-mettled steeds, and ever and anon rend the air with shouts of triumph, such as may be supposed to have been heard of yore at the Olympian games, when some dexterous wrestler tripped his adversary or some gallant horseman or dashing charioteer passed his rival in the race.

These are scenes which, in all their freshness, can never be repeated. It was our first great State exhibition, and added the charm of novelty to all its other attractions. It was acknowledged on all hands to be a brilliant success. It gave unalloyed satisfaction to our own people, and intelligent observers pronounced it unequalled in this country and unsurpassed in the world.

Our own President justly pronounced it "a pageant and a triumph, such as Rome

herself, in all her glory, would have been proud to have witnessed."

The night of the 1st of November presented, if possible, a scene of more thrilling interest than the brilliant spectacle of the day. The vast crowd had quietly retired from the grounds, and the young and the old, the grave and the gay, returned to the city to indulge, according to their respective tastes, their feelings of gratulation in the merry dance, or social party, or animating conversation. At night the Society assembled in Metropolitan Hall, which was procured and brilliantly lighted for the occasion. The worth, and wealth, and intellect of Virginia were there. Mr. Harvie, of Amelia, came forward and offered a series of resolutions calling for individual subscriptions for the permanent endowment of the Society. These resolutions were advocated in a few earnest remarks by the mover and another member, and were responded to by the assembly with the utmost enthusiasm. Farmers and merchants, mechanics and professional men—all vied with each other in the liberality of their contributions, and in the course of the evening more than \$40,000 were subscribed. The scene was repeated the following night, and the contributions swelled to about \$50,000.

Up to this period, all went merry as a marriage bell. But the Society was now rich, and we had to encounter the dangers of prosperity.

Heretofore all services had been gratuitously performed, and there was no competition for place. Now we had a lucrative office to bestow; we were cursed for the first time with patronage, and patronage always engenders parties, and parties engender strife.

The appointment of Secretary was made by the Executive Committee, and as happens in all such cases, one party and his friends were well pleased with the result, whilst another party and his friends were equally dissatisfied. The wound, though seeming slight at first, continued to rankle and fester, until at the next meeting of the Society it threatened its dissolution.

The Executive Committee in the meantime proceeded quietly in the discharge of its duties, collecting interesting materials for its transactions, and making provision for the next annual exhibition. The second Fair, to the astonishment of all, was a more magnificent pageant than the first; larger



numbers were in attendance; the exhibition in every department was more extensive, and pronounced superior; and the officers of the Society had again the satisfaction of seeing their labours crowned with complete success.

The public press had undertaken to avenge the wrongs of the gentleman whose high claims to the office of Secretary had been reluctantly passed over, by the Executive Committee, for reasons entirely satisfactory to them, in favour of another. The Committee was denounced as an odious oligarchy, and excited appeals made to the members to reform the government of the Society. In the midst of this excitement, the night arrived for the annual election of officers. The African church was crowded to its utmost capacity—every seat and aisle was jammed with excited human beings, and hundreds failed to gain admittance.

It was obvious, that in such a body there could be no deliberation; there was no possibility of taking a vote, and a scene of wild excitement ensued which beggars all description. The fierce Democracy of Baltimore, New York, or even Paris in revolutionary times, have rarely been more excited on questions of the deepest interest.

The election, which could not be made in the usual manner, was carried by a sort of *coup d'état*, which could only be justified by the extreme necessity of the case, and the old officers were proclaimed duly elected. Delicacy would have constrained the gentlemen elected to decline these irregular appointments, but they had no alternative but to accept, or to dissolve the Society. It was now conceded on all hands that something must be done to avoid the recurrence of such scenes, and to provide for the orderly election of the Executive Officers. Provision for an electoral college, or for conducting the election by ballot on the Fair Grounds, would have met the difficulty.

But the success of the Society had been so astonishing, numbering now ten thousand members, and having a permanent endowment of fifty thousand dollars, that over-sanguine gentlemen began to indulge most extravagant ideas as to its true mission.

If not the State itself, it was at least an important power in the State, and only required proper organization to direct public

sentiment and control the legislation of the Commonwealth.

The idea of a Farmers' Assembly was suggested, not only to act as an electoral college, but as a sort of *imperium in imperio*, to legislate for the interest of agriculture, and by its dignity and influence to prescribe terms to the law-making power.

In vain it was urged in opposition to this scheme, that it was visionary and impracticable—that there could be no regular elections where there was no organized constituency, and that the Farmers' Assembly would expire by the default of the farmers to make elections. No, it was replied, it cannot fail, and the success of political conventions and ecclesiastical assemblies was appealed to as a conclusive argument by the friends of the measure—forgetting that political parties have immense patronage to bestow, and that each separate church congregation is an organized constituency that can at any moment appoint deputies to ecclesiastical assemblies.

A very intelligent committee was appointed to reform the government, and at the next annual meeting of the Society made a report of the present constitution; which, after protracted debate, was adopted. The Select Committee, foreseeing the probability of the failure of the Farmers' Assembly, very wisely made provision in the constitution for remitting all its powers to the Executive Committee, with power to perpetuate itself by filling vacancies in its own body.

Notwithstanding the unpleasant excitement at the last annual meeting, the success of the third exhibition of the Society was scarcely less complete than of the two which had preceded it. The fourth annual meeting was to test the untried experiment of a Farmers' Assembly. The Executive Committee had made every arrangement deemed necessary to its success. The State was divided into districts, and Commissioners of election appointed pursuant to the constitution, and the farmers urged to send their representatives to the Assembly. The novelty of the scheme attracted some attention, and few of the elections went by default.

On the 28th of October, 1856, at 10 o'clock in the morning, the Farmers' Assembly met for the first time in the Hall of the House of Delegates. The body was respectable in numbers, and more than re-



spectable in talents and character. Among its members were some of the foremost men in the Commonwealth—statesmen, lawyers, farmers, men of the largest experience, of the highest intellectual endowments, and of incorruptible integrity. It was organized by the unanimous election of a distinguished statesman to the Chair. The President of the Society delivered his first annual message, embracing as many and important recommendations as are usually contained in a message of the President of the United States.

It was obvious at a glance to the most careless observer, that an Assembly thus called together for a very limited time however enlightened, was entirely incompetent to consider the grave and important subjects referred to them.

A few unimportant resolutions were offered and adopted, and every subject requiring deliberate consideration, was referred to the Executive Committee. The members proceeded quietly to discharge their duty as an electoral college; the speaker delivered a short valedictory, the Farmers' Assembly adjourned and its high prestige was gone.

At the next annual meeting of the Society, the Farmers' Assembly convened for the second time, with its number somewhat reduced—elected the same distinguished gentleman speaker—passed through the same round of abortive resolutions—elected the Executive officers, and quietly adjourned, perhaps for the last time. At the next meeting, it failed for the want of a quorum, and I think it now quite certain, that it will never meet again, except, perhaps, as an electoral body.

President Cocke, at this meeting, declined a re-election, and the veteran, who had so long and so efficiently served the Society, was again placed at its head by the unanimous vote of the Farmers Assembly: and I am most happy to see him here to-night, ready and willing, like the illustrious Scotchman already referred to, to devote, as I trust, the long remnant of a green old age, to the disinterested service of his country.

The fourth and fifth annual exhibitions were held at Richmond with gratifying success. Yet it was obvious that these spectacles, from their frequency, had lost much of their interest.

Indeed, it may be gravely questioned, whether sound policy does not require that

these exhibitions should be held at much longer intervals.

The improvements in agriculture during a single year are scarcely appreciable, and the annual exhibitions present little that is new, to interest. The Olympian games were, in some respects, not altogether unlike our agricultural shows. They were held every fifth year, and so great were their attractions, that they continued for centuries to draw not only from all Greece, but from the neighboring countries and islands, vast crowds of admiring spectators.

Complaints began to be made of the failing interest of the Society, or of the inefficiency of the executive government. Cavillers who had never taken the trouble to look into the transactions, and to see what a vast amount of valuable and interesting information had been collected and diffused, asked, are these annual pageants to be the only results of the liberality of the farmers of Virginia, in the endowment of the Society? Like Naaman, the Syrian, they required some great thing to be done.

Why, they asked, does not the Society employ its vast funds to establish an agricultural school, or endow a professorship at the University? In a word, why does it not do something worthy of itself, and of the farmers of Virginia.

The invested funds of the Society represent an annual income of about \$3,000; a sum, which any man of the least practical intelligence will see, is barely sufficient to keep up the organization of the Society, and to defray such contingent expenses of the annual Fairs as may not be provided for by receipts from other sources. But has the Society not accomplished something? Is it nothing to have added to the agricultural literature of the country contributions of great learning and ability, and in practical usefulness unsurpassed? Is it nothing to have infused new hope, energy, power and intelligence into the whole farming class? Is it nothing to have more than doubled the value of the lands of the Commonwealth, and the revenues of both State and people? And by the profits of improved agriculture, to have added vastly to the value of her slaves and of all other property? Is there nothing in the impulse given by its influence to education, both private and public, by diffusing among the schools and colleges, and among the people themselves, larger views and higher aspirations? Is there nothing

in the high moral and social influences of the frequent re-unions of our people from distant quarters of the Commonwealth, at the annual exhibitions? Macaulay, in the celebrated third chapter of his history, contrasts, in a philosophical spirit, England at the close of the reign of Charles the second with England in his own times. The state of the arts, sciences, government, society, commerce, manufactures and agriculture, all pass in review. The improvements in agriculture had been such, he represents, that in little more than a century a fourth part of England had been turned from a wild into a garden. If the Virginia State Agricultural Society were, this day, to cease to exist, the future historian, although he might not say with Macaulay, that during its brief existence it had converted one fourth of the State from a wild to a garden, he would want the philosophical spirit of that distinguished writer, if he did not refer to its establishment as an important epoch in her history. Truth would compel him to say, it found her agriculture languishing and depressed, and left it flourishing and profitable. It found her farmers dispirited and restless—it left them hopeful, buoyant and content. It found agricultural science a sealed book, except to the educated and learned; it left its great principles familiar as household words to the masses. It found her implements of agriculture, and her domestic animals, so mean and wretched as to be a by-word and reproach; it left them so excellent as to excite universal admiration. It found improved culture confined to a few individuals and localities; it left it universally diffused.

It found her farmers dispersed and isolated—it left them united as a band of brothers. It found her people of all classes separated by local divisions and prejudices, and strangers and aliens to each other; it gathered them like an ancient patriarch, under the family tent, henceforth to be kindred and friends.

These are some of the beneficent results that the impartial historian must attribute to the establishment of the Agricultural Society of Virginia.

Whether it shall continue to dispense similar blessings to our posterity, depends upon the spirit with which it shall be sustained by the united agricultural interests of this great Commonwealth. It represents no local interests—it makes no sectional appeal—it is the Agricultural Society of the STATE,

and rests upon the broad foundation of the entire Commonwealth. It cannot be denied that it is *now* encompassed with many difficulties.

The Executive Committee have thought that the Capital of the State is the proper place for holding the meetings of a State Society, and have been sincerely desirous to continue them in Richmond. Owing to some misunderstanding between the city council and the executive committee, the details of which need not here be examined, they found it impossible, consistently with a sense of duty, to hold the last annual exhibition in Richmond, and as you are aware, it was held in this city with entire satisfaction to all parties.

The event is too recent to require any very extended notice, but it would be unpardonable not to refer with grateful emotions, to the cordial courtesy with which we were received by the officers of the Union Society, and to the generous, refined and elegant hospitality, extended to us by the warm hearted people of the city of Petersburg.

The citizens of Richmond, as was perhaps natural, took umbrage at the action of the Executive Committee in removing the exhibition, and there were found among them a sufficient number ready to fan the flame, until the city was wrought into high excitement.

In this state of feeling, it was determined to establish a rival Society; I say rival, because the organization of the Central Society, confined to no locality, stretches from the mountains to the sea, and it cannot be disguised, it aspires to the character of a State institution.

It is impossible for two State Agricultural Societies to exist in the same Commonwealth, as it is for two kings to reign in the same kingdom. King Monmouth and King James could not both exist in England. The Pretender was put down, though the Prince of Orange soon stepped in, and founded on the ruins of both factions, more stable and beneficent institutions.

A lesson of wisdom may be learned from these historical incidents.

Let there be an end of strife—let Richmond be again generous and magnanimous, forgetting her mere local interests in the larger and more comprehensive interests of this glorious Commonwealth, the prosperity of which must advance her own glory as the capital of the State. Let the Central



Society confine itself to some locality, and instead of aspiring to be the rival of the State Society, and seeking to expel it as a stranger and an alien, let it be subsidiary to it, in the accomplishment of its beneficent objects. The State Society has all the elements of its usefulness still unimpaired; its organization is complete, its funds intact, and although the Farmers' Assembly, as was anticipated, has proved a splendid failure, its old constitution, under which it achieved all its triumphs, is in full force, and nothing is wanted but the cordial co-operation of the farmers of Virginia, to enable it to advance steadily in its course of usefulness and distinction.

It would have afforded me great pleasure, in this hasty and imperfect sketch, to include the names of those who, by their labors or their means, have contributed to advance the objects of the Society. But this was impossible. The orators who at our annual exhibitions have delighted and instructed us by their learned and eloquent discourses, and the members of the Executive Committee, now no longer in office, who have rendered most laborious and efficient service, are entitled to our lasting gratitude. Their labors are recorded in the imperishable annals of the Society, and their names will go down to posterity among the benefactors of their race.

I have now, Mr. President, given a brief outline of the history of the Society, of its past achievements, and present condition.

Its future, farmers of Virginia! rests with you. To you, and to the enlightened friends of Agriculture throughout the Commonwealth, the Executive Committee now make their appeal. If the arduous labors of conducting the administration of its affairs shall again devolve upon them, they ask the support of your generous confidence. They have no personal feelings to gratify, and no private interests to serve.

I might appeal without arrogance to their past services and personal characters, as a sufficient guarantee of their fidelity, but the absence of all unworthy motives gives assurance that their trust will not be betrayed.

Let no local interest, or personal feeling, or idle clamor, disturb your judgment. Let that noble State pride which gave birth to the Society, still animate your actions.

Remember that this is the Society of no

clique, or party, or section, or city, but of the great Commonwealth of Virginia.

Banish your apathy and indifference, and come, with generous aspirations, to the cordial support of those who will continue to devote with energy and zeal, their time and talents to your service.

Thus sustained, the Virginia State Agricultural Society will continue to advance in its career of usefulness, and will dispense its blessings to our children's children, and remain to our latest posterity, a monument of the wisdom and munificence of its founders.

## PREMIUMS AWARDED

AT THE

## SEVENTH ANNUAL EXHIBITION

OF THE

Virginia State Agricultural Society,

HELD AT PETERSBURG,

ON THE

1st, 2nd, 3rd and 4th November. 1859.

EXPERIMENTS, BRANCH I. and

WRITTEN COMMUNICATIONS, BRANCH II.

By the rules of the society, have been referred to the Executive Committee, to be reported on at their quarterly meeting in January.

BRANCH III. CLASS 1st.

*Thoroughbred Horses.*

|  |                       |
|--|-----------------------|
| 73. To J. M. Garland, for the best Stallion, "Deucalion,"            | \$50 00               |
| 74. To Thomas D. Walton, for the 2d best, "Mohican,"                 | 25 00                 |
| 76. R. R. Beazley, for the best Brood Mare,                          | 25 00                 |
| 77. Wm. C. Scott, for the second best, "Pauline."                    | 12 50                 |
| 78. R. R. Beazley, for the third best, "Lady Merritt,"               | CERTIFICATE OF MERIT. |
| 83. John Eubank, for the best filly, 2 years old, "Ellen Perry,"     |                       |
| 84. John Eubank, for the best filly, 1 year old,                     | 7 50                  |
| 85. To R. R. Beazley, for best Foal dropped since 1st January, 1859, | 5 00                  |

BRANCH III. CLASS 2ND.

*Horses of General Utility, or for Useful and Ornamental purposes combined.*

|   |         |
|---|---------|
| 86. To J. A. Dyer, for best Stallion, "Washington Bay," | \$50 00 |
| 87. To T. F. Epes, for 2nd best Stallion, "Mark,"       | 25 00   |

|   |                       |
|---|-----------------------|
| 89. To John Dyer, for best Brood Mare, "Sally,"                         | 25 00                 |
| 90. To L. G. Simonson, for 2nd best Brood Mare, "Gold-pin,"             | 12 50                 |
| 91. To Wm. C. Archer, for 3rd best Brood Mare, "Molly,"                 | CERTIFICATE OF MERIT. |
| 92. To Wm. B. Irby, for best 3 year old colt, "Floyd,"                  | 15 00                 |
| 93. To John W. Dyer, for best 2 year old colt, "Yellow Jacket,"         | 10 00                 |
| 94. To H. M. Fowlkes, for Best 1 year old colt, "Hampton,"              | 7 50                  |
| 95. To John Eubank, for best 3 year old filly, "Ellen Carter,"          | 15 00                 |
| 96. To Robert Berry, for best 2 year old filly, "Nina,"                 | 10 00                 |
| 97. To D. Dyson, for best 1 year old filly, "Fanny Fly,"                | 7 50                  |
| 98. To John R. Woods, for best Foal dropt in 1859.                      | 5 00                  |
| 99. To G. W. Mowry, for best pair Matched Horses,                       | 25 00                 |
| 100. To Abraham Johnson, for 2nd best pair Matched Horses,              | 10 00                 |
| 101. To D'Arcy W. Paul, for best single harness horse, "Black Bill,"    | 15 00                 |
| 102. To J. T. Stover, for second best single harness horse, "Champion," | 10 00                 |

## BRANCH III. CLASS 3RD.

*Quick Draught Horses.*

|   |                       |
|---|-----------------------|
| 103. To H. J. Smith, for best stallion "Kossuth," certificate of continued superiority, having taken the first Premium at four different Exhibitions. |                       |
| 104. To S. W. Ficklin, for second best "Black Hawk,"  | \$25 00               |
| 105. Wm. Watts, for third best, "Defiance,"   | CERTIFICATE OF MERIT. |
| 106. To J. R. Allen, for best Brood Mare, "Lady Clifford,"  | 25 00                 |
| 107. To S. W. Ficklin, for second best "Dun Mare,"  | 12 50                 |
| 109. To John Rowlett, for best 3 year old colt, "Upright,"  | 15 00                 |
| 110 To ——— Howlett, for best 2 year old colt, "Jack Clifford,"  | 10 00                 |
| 111. To E. T. Dillard, for best 1 year old colt, "Sigourney,"   | 7 50                  |
| 112. To John R. Woods, for best 3 year old filly,   | 15 00                 |
| 113. To S. W. Ficklin, for best 2 year old filly, "Lady of the Lake,"   | 10 00                 |
| 115. To Virgilius Archer, for best Foal dropped in 1859,  | 5 00                  |
| 116. To D. T. Harvey, for best pair Matched Horses,   | 25 00                 |
| 118. To J. H. Norton, for best single harness Mare, "Nannie Bell,"  | 15 00                 |
| 119. To T. Tench, for second best, "Lady Suffolk,"  | 10 00                 |

## BRANCH III. CLASS 5TH.

*Heavy Draught Horses.*

|   |         |
|---|---------|
| 120. To R. W. N. Noland, for best Stallion, "Welbourne,"            | \$50 00 |
| 121. To J. A. Weston, for second best Stallion, "Norman Messenger," | 25 00   |
| 122. To G. S. Ayre, for best Brood Mare, "Betty,"                   | 25 00   |
| 124. To Wm. B. Irby, for second best, "Sally Eubank,"               | 12 50   |
| 128. To T. E. Dillard, for best 1 year old colt,                    | 7 50    |
| 129. To Charles L. Peyton, for best 3 year old filly, "Georgeanna," | 15 00   |
| 131. Thomas Perkinson, for best one year old filly, "Rose,"         | 7 50    |
| 132. To G. S. Ayre, for best Foal dropped 1859,                     | 5 00    |
| 133. To J. Carrington, for best pair Horses,                        | 20 00   |

## BRANCH III. CLASS 5TH.

*Saddle Horses.*

|   |       |
|---|-------|
| 135. To B. W. L. Blanton, for best Stallion, "Young Red Eye,"         | 50 00 |
| 138. To Thos. E. Friend, for best Brood Mare "Lady,"                  | 25 00 |
| 143. To Henry F. Davis, for best one year old colt, "Thom Telegraph," | 7 50  |
| 144. To Henry F. Davis, for best 3 year old filly, "Annettee Thom,"   | 15 00 |
| 148. To B. W. L. Blanton, for best saddle horse, "Grey Sanford,"      | 20 00 |
| 149. To D. Newton VanLear for 2nd best, "Billy,"                      | 10 00 |
| 150. To Albert Aiken, for best Poney, "Grey Bill,"                    | 5 00  |

## BRANCH III. CLASS 6TH.

*Mules and Jacks.*

|  |       |
|--|-------|
| 151. To R. A. Young, (agent for Purser Johnson,) for the best Jack "Maltese,"        | 50 00 |
| 152. To T. E. Dillard, for second best, "Red Eye,"                                   | 25 90 |
| 153. To Wm. H. Griffith, for best Jennet, "Mary,"                                    | 25 00 |
| 154. To Sharpe Carter, second best,  | 10 00 |
| 155. To C. B. Turner, for best pair of Mules owned and worked one year by exhibitor, | 15 00 |
| 156. C. B. Turner, for best team of 4 Mules owned and worked 1 year by exhibitor,    | 25 00 |

## BRANCH III. CLASS 1ST.

*Durham Cattle.*

|   |         |
|---|---------|
| 161. To D. B. Sanders, for best bull; over 3 years old, "Highlander," | \$50 00 |
|---|---------|



|  |                       |
|--|-----------------------|
| 162. To A. M. Young, for second best,  |                       |
| "Gambier,"   | \$25 00               |
| 163. To S. W. Ficklin, third best,   |                       |
| CERTIFICATE OF MERIT.  |                       |
| 164. To S. W. Ficklin, best cow,   |                       |
| "Victoria 2d,"   | 50 00                 |
| 165. To D. B. Sanders, second best,  |                       |
| "Hawthorn,"  | 25 00                 |
| 166. To D. B. Sanders, third best,   |                       |
| "Clarissa Brown,"  | CERTIFICATE OF MERIT. |
| 167. To D. B. Sanders, best bull, between 2 and 3 years old, "Valentine,"            | 40 00                 |
| 170. To A. M. Young, for best bull, between 1 and 2 years old, "Judge Douglas,"      | 25 00                 |
| 171. To D. B. Sanders, for 2nd best,   |                       |
| "Van Thromp,"  | 12 50                 |
| 172. To D. B. Sanders, for best heifer, between 2 and 3 years old, "Marion Harland," | 25 00                 |
| 173. To D. B. Sanders, for 2nd best,   |                       |
| "Alverda,"   | 12 50                 |
| 174. To D. B. Sanders, for best heifer, between 1 and 2 years old, "Molly May,"      | 25 00                 |
| 175. To S. W. Ficklin, for second best,  |                       |
| "Red Rose,"  | 12 50                 |

## BRANCH III. CLASS 2ND.

*Devon Cattle.*

|   |                       |
|---|-----------------------|
| 177. To S. T. C. Brown, for best bull, 3 years old and upwards, "Defiance,"         | \$50 00               |
| 178. To H. J. Strandberg, for second best, "Richmond,"                              | 25 00                 |
| 180. To H. J. Strandberg, for best cow, 3 years old and upwards, "Matilda,"         | 50 00                 |
| 182. To S. T. C. Brown, for 3rd best,   |                       |
| "Cherry,"   | CERTIFICATE OF MERIT. |
| 183. To H. F. Davis, for best bull, between 2 and 3 years old, "Billy,"             | 40 00                 |
| 184. To S. S. Bradford, for 2nd best,   |                       |
| "Henry Clay,"   | 20 00                 |
| 186. To H. F. Davis, for best bull, between 1 and 2 years old, "Thom,"              | 25 00                 |
| 187. To H. J. Strandberg, for second best, "Enterprise,"                            | 12 50                 |
| 188. To S. T. C. Brown, for best heifer, between 2 and 3 years old, "Blossom,"      | 25 00                 |
| 189. To Dr. T. J. Wooldridge, for 2d best, "Rena,"                                  | 12 50                 |
| 190. To S. T. C. Brown, for best heifer, between 1 and 2 years old, "Mole,"         | 25 00                 |
| 191. To H. F. Davis, for second best,   |                       |
| "Nelly,"  | 12 50                 |
| 192. To J. M. Venable, for best calf, under 1 year old, "Pinkey,"                   | 10 00                 |
| 180½. To F. J. Carson, for best imported cow, 3 years old and upward,               |                       |
| "Penelope,"   | 50 00                 |
| 188½. To F. J. Carson, for best imported heifer, between 2 and 3 years old, "Lady," | 25 00                 |

## BRANCH III. CLASS 3RD.

*Ayrshire and Alderney Cattle.*

|   |         |
|---|---------|
| 193. To J. B. Crenshaw, for best Ayrshire bull, 3 years old and upwards,  |         |
| "Lord Mar,"   | \$40 00 |
| 194. To David Dunlop, for 2nd best,                                       |         |
| "Little Jack,"  | 20 00   |
| 196. To Peyton Johnston, for best Alderney cow, 3 years old and upwards,  | 40 00   |
| 197. To A. Tarpin, for second best,                                       |         |
| "Mocking-Bird,"   | 20 00   |
| 204. To S. W. Ficklin, for best Alderney bull, between 1 and 2 years old, |         |
| "Martin,"   | 20 00   |
| 196½. To A. Turpin, for best Ayrshire cow, three years old and upwards,   |         |
| "May Queen,"  | 40 00   |
| 196¾. To A. Turpin, for best imported Alderney, 3 years old and upwards,  |         |
| "Ladyship,"   | 40 00   |

## BRANCH III. CLASS 4TH.

*Grade Cattle.*

|  |         |
|--|---------|
| 209. To Paschal Buford, for best cow, 3 years old and upwards,     | \$40 00 |
| 210. To Crouse & Irvine, for second best,                          | 20 00   |
| 211. To S. W. Ficklin, for third best,                             |         |
| CERTIFICATE OF MERIT.  |         |
| 212. To S. W. Ficklin, for best heifer, between 2 and 3 years old, | 12 00   |
| 213. To S. W. Ficklin, for 2nd best,                               | 8 00    |
| 215. To Jas. Walker, for best heifer, between 1 and 2 years old,   | 12 00   |
| 216. To Reuben Andrews, for second best,                           | 8 00    |
| 217. To Paschal Buford, for best heifer calf, under 1 year old,    | 5 00    |

## BRANCH III. CLASS 5TH.

*Dairy Cows.*

|  |       |
|--|-------|
| 218. To S. T. C. Brown, for best cow for dairy, "Delight," | 40 00 |
| 219. To Crouse & Irvine, second best,                      |       |
| "Star,"  | 20 00 |

## BRANCH III. CLASS 6TH.

*Working Oxen.*

|  |         |
|--|---------|
| 220. To Crouse & Irvine, for best, over 4 years old, | \$30 00 |
| 221. To James Walker, for 2nd best                   | 15 00   |
| 222. To H. F. Davis, for best, under 4 years old,    | 30 00   |

## BRANCH III. CLASS 7TH.

*Fat Cattle.*

|   |         |
|---|---------|
| 224. To Crouse & Irvine, for best pair aged steers, | \$50 00 |
|---|---------|

|  |         |
|--|---------|
| 226. To Crouse & Irvine, for best pair under 4 years old.    | \$50 00 |
| 227. To Crouse & Irvine, for second best,                    | 30 00   |
| 228. To Crouse & Irvine, for best pair cows or heifers,      | 50 00   |
| 229. To Crouse & Irvine, for second best,                    | 30 00   |
| 230. To Crouse & Irvine, for best fat cow, over 4 years old, | 25 00   |
| 231. To Crouse & Irvine, for second best,                    | 15 00   |
| 232. To Crouse & Irvine, for best fat heifer,                | 25 00   |
| 233. To Crouse & Irvine, for second best,                    | 15 00   |
| 234. To Jas. Walker, for best single fat steer,              | 25 00   |

BRANCH III. CLASS 8TH.

*Fat Sheep and Swine.*

236. To Wm. C. Rives, for the best pen fat sheep, four or more,

\$10 00

237. To M. P. Bell, for the best pen of fat hogs, seven in number,

10 00

BRANCH III. CLASS 1ST, &C.

*Fine-Wool Sheep—Merino.*

239. To S. S. Bradford, for best native ram,

\$20 00

240. To S. S. Bradford, for 2d best,

10 00

241. To S. S. Bradford, for 3d best,

10 00

| CERTIFICATE OF MERIT.  |       |
|--|-------|
| 242. To S. S. Bradford, for best pen native ewes, three in number, | 20 00 |
| 243. To S. S. Bradford, for 2d best,                               | 10 00 |
| 245. To S. S. Bradford, for best pen ewe lambs, four in number,    | 10 00 |
| 246. To S. S. Bradford, for best pen ram lambs, four in number,    | 10 00 |
| 247. To S. S. Bradford, for best pen grade ewes, three in number,  | 20 00 |
| 248. To S. S. Bradford, for 2d best,                               | 10 00 |
| 250. To S. S. Bradford, for best pen ewe lambs, four in number,    | 10 00 |
| 288. To S. S. Bradford, for best imported ram,                     | 20 00 |
| 289. To S. S. Bradford, for 2d best,                               | 10 00 |
| 290. To S. S. Bradford, for best imported ewe,                     | 20 00 |
| 291. To S. S. Bradford, for 2d best,                               | 10 00 |

BRANCH III. CLASS 3RD, &C.

*Middle-Wool Sheep—South-Down.*

252. To Thos. L. Parish, for the best South-Down ram,

\$20 00

253. To Richard Irby, for 2d best,

10 00

| FIFTH CLASS.   |         |
|--|---------|
| <i>Oxford-Downs.</i>   |         |
| 264. To Wm. C. Rives, for best ram,                          | \$20 00 |
| 265. To Wm. C. Rives, for 2d best,                           | 10 00   |
| 267. To Wm. C. Rives, for best pen of ewes, three in number, | 20 00   |
| 268. To Wm. C. Rives, for 2d best,                           | 10 00   |
| 271. To Wm. C. Rives, for best pen ram lambs,                | 10 00   |

| SIXTH CLASS, &C.   |         |
|--|---------|
| <i>Oxford-Down Grades.</i>                               |         |
| 275. To Wm. C. Rives, for best pen ewe lambs,            | \$10 00 |
| 296. To Wm. C. Rives, for best imported Oxford Down ram, | 20 00   |
| 297. To Wm. C. Rives, for 2d best,                       | 10 00   |
| 298. To Wm. C. Rives, for the best imported ewe,         | 20 00   |
| 299. To Wm. C. Rives, for 2d best,                       | 10 00   |

BRANCH III. CLASS 7TH.

*Long-Wool Sheep.*

276. To Thomas G. Baylor, for best Cotswold ram,

\$20 00

279. To Dr. John R. Woods, for best pen of Cotswold ewes,

20 00

283. To Dr. John R. Woods, for best pen ewe lambs,

10 00

| CLASS 8TH.   |       |
|--|-------|
| 284. To Thomas G. Baylor, for best pen grade ewes, | 20 00 |
| 287. To Thos. G. Baylor, for best pen ewe lambs,   | 10 00 |

BRANCH III. CLASS 1ST.

*Swine—Large Breed.*

310. To S. W. Ficklin, for best boar over two years old, "John,"

\$20 00

311. To Peyton Johnston, for second best, "Sir John,"

10 00

312. To Peyton Johnston, for best boar, one year old, "Peyton,"

15 00

313. To S. W. Ficklin, for 2nd best,

8 00

314. To Peyton Johnston, for best breeding sow, two years old, "Mrs. Ginte,"

20 00

315. To R. M. Poole, for second best, "Mary,"

10 00

316. To S. W. Ficklin, for best sow under 18 months old,

15 00

317. W. H. Griffith, for second best,

8 00

318. To S. W. Ficklin, for best lot of pigs under five months old,

10 00

319. To Wm. H. Griffith, for 2d best,

5 00



## BRANCH III. CLASS 2D.

*Swine.—Small Breed.*

|   |         |
|---|---------|
| 321. To Peyton Johnston, for second best boar, two years old, "Duke," | \$10 00 |
| 322. To Dr. J. E. Williams, for best boar, one year old, "Rhinebeck," | 15 00   |
| 323. To Dr. J. E. Williams, for 2nd best, "Jack Turpin,"              | 8 00    |
| 324. To Peyton Johnston, for best sow, two years old, "Princess,"     | 20 00   |
| 325. To Peyton Johnston, for second best, "Dutchess,"                 | 10 00   |
| 326. To R. M. Poole, for best sow under 18 months old,                | 15 00   |
| 327. To G. M. T. Bass, for 2nd best, <i>Chester and Suffolk</i> ,     | 8 00    |
| 328. To Daniel Dyson, for best lot of pigs, ten weeks old,            | 10 00   |
| 329. To James F. Devlin, for second best, eight weeks old,            | 5 00    |

## ADDITIONAL PREMIUMS ON PREMIUM ANIMALS.

|  |                       |
|--|-----------------------|
| 332. To S. W. Ficklin, for the best stallion of any breed on exhibition, "Black Hawk," | CERTIFICATE OF MERIT. |
| 333. To T. W. Dyer, for best brood mare, "Sally,"                                      |                       |
| 334. To Thomas G. Baylor, for the best ram,  |                       |
| 335. To Samuel S. Bradford, for the best ewe,  |                       |
| 336. To S. W. Ficklin, for the best boar,  |                       |
| 337. To S. W. Ficklin, for the best breeding sow,                                      |                       |

The Committee having heard that objections were raised to their acting as judges on Cattle, declined acting in relation to them, and hence there is no award. The contest was very close between "Black Hawk" and Mr. Noland's horse "Melbourne." Such members of the Committee as were interested in animals submitted for the premiums, withdrew when these animals were under examination.

## BRANCH III. CLASS 1ST.

*Poultry.*

|  |        |
|--|--------|
| 343. To Waverley Rowlett, for best Black Poland,       | \$2 00 |
| 344. To Waverly Rowlett, for best White Poland,        | 2 00   |
| 347. To Waverly Rowlett, for best Spangled Hamburg,    | 2 00   |
| 348. To Archer Martin, for the best White or Red Game, | 2 00   |
| 350. To Archer Martin, for best Virginia Game,         | 2 00   |

|   |        |
|---|--------|
| 351. To R. W. Flowers, for the best Black Syrianish,  | \$2 00 |
| 353. To Archer Martin, for the best Wild Indian Game, | 2 00   |
| 354. To H. Bissett, for best Sumatra Game,            | 2 00   |
| 356. To Mrs. J. E. Williams, for best Bolton Greys,   | 2 00   |
| 357. To W. Hurt, for best Seabright Bantams,          | 2 00   |
| 358. To Waverly Rowlett, for best Java Bantams,       | 2 00   |
| 360. To Waverly Rowlett, for best Jersey Blue,        | 2 00   |

## CLASS 2ND.

*Turkeys.*

|   |        |
|---|--------|
| 361. To W. Archer, for best pair of common, | \$2 00 |
|---|--------|

## CLASS 3RD.

*Geese.*

|   |        |
|---|--------|
| 364. To J. T. Devlin, for best pair of common,    | \$2 00 |
| 366. To A. Turpin, for best pair of China,        | 2 00   |
| 367. To A. Turpin, for best pair of Bremen,       | 2 00   |
| 368. To A. Turpin, for best pair of Poland,       | 2 00   |
| 369. To A. Turpin, for best pair of African Swan, | 2 00   |

## CLASS 4TH.

*Ducks.*

|   |        |
|---|--------|
| 370. To Waverly Rowlett, for best Poland, | \$2 00 |
| 373. To W. Flowers, for best common,      | 2 00   |

## CLASS 5TH.

*Variety.*

|  |         |
|--|---------|
| 375. To A. Turpin, for greatest variety of poultry by one exhibitor, | \$10 00 |
|--|---------|

## BRANCH IV.

## AGRICULTURAL IMPLEMENTS.

## CLASS 1ST.

*Ploughs, Cultivators, &c.*

|   |         |
|---|---------|
| 376. To George Watt & Co., for the best 3 or 4 horse plough,  | \$10 00 |
| 377. To Williams, Collins & Co., for the best 2 horse plough, | 8 00    |
| 378. To E. Whitman & Co., for the best single plough,         | 5 00    |
| 379. To P. H. Starke, for the best shovel plough,             | 5 00    |

|   |        |
|---|--------|
| 380. To E. Whitman & Co., for the best sub-soil plough,   | \$5 00 |
| 381. To George Watt & Co., for the best new-ground or coalter plough,                                 | 5 00   |
| 382. To P. H. Starke, for the best hill-side plough,  | 5 00   |
| 383. To P. H. Starke, for the best cultivator for corn,   | 5 00   |
| 384. To P. H. Starke, for the best cultivator for tobacco,  | 5 00   |
| 385. To P. H. Starke, for the best cultivator for two horses,   | 5 00   |
| 386. To P. H. Starke, for the best wooden frame harrow,   | 6 00   |
| 387. To E. Whitman & Co., for the best iron-frame harrow,   | 6 00   |
| 388. To Uriah Wells, for the best drain and furrow plough for opening and cleaning out water furrows, | 10 00  |

## CLASS 2ND.

*Drills, Broadcasters, &c.*

|  |       |
|--|-------|
| 389. To — Cahoon's Patent, for the best broadcasting or drilling machine for sowing grain or grass seed, | 20 00 |
| 390. To E. Whitman & Co., for the best wheat drill,  | 20 00 |
| 391. To E. Whitman & Co., for the best broadcasting machine for sowing guano,                            | 20 00 |
| 392. To E. Whitman & Co., for the best lime spreader,  | 20 00 |
| 393. To A. P. Routt, for the best corn planter,  | 10 00 |
| 395. To E. Whitman & Co., for the best attachment to drill for drilling guano,                           | 15 00 |

## CLASS 3RD.

*Wagons, Carts, Harness, &c.*

|   |       |
|---|-------|
| 397. To J. Van-Pelt, for the best wagon for farm use, | 10 00 |
| 404. To E. Whitman & Co., for the best ox yoke,       | 2 50  |

## CLASS 4TH.

*Rollers, Clod Crushers, and Farm Gate.*

|   |       |
|---|-------|
| 405. To E. Whitman & Co., for the best smooth roller, | 10 00 |
| 407. To E. Whitman & Co., for the best clod crusher,  | 10 00 |

## CLASS 5TH.

*Horse Powers, Threshers, Separators, &c.*

|   |       |
|---|-------|
| 409. To J. W. Cardwell & Co., for the best sweep horse power, Petton's Patent,      | 25 00 |
| 410. To J. W. Cardwell & Co., for the second best sweep horse power, Double-Geared, | 10 00 |

|   |         |
|---|---------|
| 411. To J. W. Cardwell & Co., for the best threshing machine, Staple-Tooth, | \$20 00 |
|---|---------|

|   |       |
|---|-------|
| 412. To J. W. Cardwell & Co., for the best machine for threshing, cleansing and separating wheat at one operation, Guiser's Patent, | 30 00 |
|---|-------|

|  |       |
|--|-------|
| 413. To M. S. Kahle, for the best machine for gathering clover seed, | 20 00 |
|--|-------|

## CLASS 6TH.

*Straw and Root Cutters, Corn Shellers, Mills, &c.*

|   |       |
|---|-------|
| 415. To R. St. Clair & Co., for the best hay or straw cutter for horse power, | 10 00 |
|---|-------|

|   |      |
|---|------|
| 416. To E. E. Platt, for the best hay or straw cutter for hand power, | 5 00 |
|---|------|

|  |       |
|--|-------|
| 418. To E. Whitman & Co., for the best corn sheller for horse power, | 10 00 |
|--|-------|

|   |      |
|---|------|
| 419. To E. Whitman & Co., for the best corn sheller for hand power, | 5 00 |
|---|------|

|  |       |
|--|-------|
| 422. To E. Whitman & Co., for the best corn and cob crusher, | 10 00 |
|--|-------|

Mr. G. B. Griffin exhibited a hay and straw cutter, for hand power; very little inferior to Mr. E. E. Platt's, to which the premium was awarded.

## CLASS 7TH.

*Fan Mill, Hay Press, Ditching Machine, &c.*

|   |  |
|---|--|
| 425. To J. Montgomery & Brother, for the best fanning mill, |  |
|---|--|

## CERTIFICATE OF CONTINUED SUPERIORITY.

|   |         |
|---|---------|
| 426. To E. Whitman & Co., for the best hay press, | \$15 00 |
|---|---------|

|  |      |
|--|------|
| 430. To E. Whitman & Co., for the best steel spade fork, | 2 00 |
|--|------|

|  |      |
|--|------|
| 431. To E. Whitman & Co., for the best horse rake for hay, | 5 00 |
|--|------|

|   |      |
|---|------|
| 432. To H. Whitman & Co., for the best gleaner, | 3 00 |
|---|------|

## CLASS 8TH.

|  |       |
|--|-------|
| 434. To E. Whitman & Co., for the most extensive and valuable collection of useful machines and implements exhibited and made at any one factory, whether including subjects for other premiums or not, a premium of | 25 00 |
|--|-------|

## CLASS 9TH.

*Miscellaneous.*

|  |       |
|--|-------|
| 437. To A. E. Huff, for Kahle's Patent, for the best scoop or scraper, | 10 00 |
|--|-------|

|   |      |
|---|------|
| 449. To E. Whitman & Co., for the best churn, | 4 00 |
|---|------|



## CLASS 11TH.

*Ploughing Match.*

446. To Wm. Shepperson, with Watt's Virginia Plough, for the best ploughman with horses, \$10 00
447. To J. B. Jones' colored man, do. do., for the second best ploughman with horses, 5 00

## CLASS 13TH.

*Reaping and Mowing Machines.*

453. To C. Aultman & Co., for the best reaping machine, Buck Eye, 25 00
454. To C. Aultman & Co., for the best mowing machine, Buck Eye, 20 00

## BRANCH V.

## ORCHARD AND GARDEN PRODUCTS.

## CLASS 1ST.

*Fruits and Fruit Trees.*

456. To Westbrook & Mendenhall, for the best and largest variety of apples suitable for Southern raising, each labeled, 10 00
457. To Westbrook & Mendenhall, for the best and largest variety of pears, 8 00
459. To F. Davis, for the best and largest collection of apple trees, suitable for Southern raising, 10 00
460. To Jos. Sinton & Sons, for the best pear trees, 10 00
461. To James Via, for the best peach trees, 10 00
462. To Joseph Sinton & Sons, for the best fig trees, 5 00
463. To James Via, for the best grape vines, 5 00
465. To F. Davis, for the best raspberry plants, 3 00
466. To Mrs. Henry Jarratt, for the best bushel dried apples, 3 00
467. To Mrs. Henry Jarratt, for the bushel dried peaches, 3 00

## CLASS 2ND.

*Flowers.*

469. To Mrs. James Ayres, for the largest and choicest collection of plants, 10 00
470. To Miss Nancy Glover, for the second best, 5 00
473. To Mrs. James Donnan, for the greatest variety of roses, 5 00
475. To Mrs. James Ayres, for the best and largest collection of chrysanthemums, 3 00
476. To Mrs. J. B. Varnum, for the

- best floral ornament, \$5 00
477. To Mrs. James Ayres, for the best hand bouquet, not more than eight inches in circumference, 2 00
479. To F. Davis, for the best and largest collection of evergreens, 5 00

## REPORT OF THE COMMITTEE.

The Committee, to whom has been referred the duty of awarding the Premiums in the Floral Department, beg leave respectfully to report, that they have discharged the duty assigned to them, and that they concur in the foregoing awards.

The Committee feel that they should do themselves injustice, if they failed to express their regret at finding so few competitors in this department of the Exhibition.

In the various branches of Agriculture, in the mechanic arts, and in the multifarious operations of good housewifery, and skillful handicraft with the loom, the needle, or the pencil, it is gratifying to witness the ample proofs of improvement from year to year. But where are the beautiful and fragrant flowers, so eloquent of truth, goodness and love? Where are the tropical fruits, so enchanting to the eye, so inviting to the taste and so suggestive of the primeval Paradise? Where are the evergreens, reminding us of immortality and glory, and freshening even the desolateness of the tomb with the amaranthine hues of heaven?

Excepting sunshine, rain and air, there is scarce any object in nature which God has diffused with a more affluent bounty than flowers. Not only in the meadow, by the brooklet, and on the lawn—but buried in the depths of the ocean-like forests, far down in the obscure dell, and on Alpine heights, where they wage an unequal war with eternal snows and ice—they show their smiling faces and pour out their charming fragrance.

This seeming prodigality in the abundance and dissemination of these "silent dwellers on the earth," has been beautifully recognized in the oft-quoted couplet,

"Full many a flower is born to blush unseen,  
And waste its sweetness on the desert air."

But is it waste? Is not the thought, even, presumption? Who will dare to say that those unnumbered flowers, which have never been greeted by human eye, do not pour life and health into the atmosphere which we breathe. Besides, it is more than mere poetry that,

"Millions of spiritual beings walk the earth  
Unseen both when we wake and when we sleep."

And who will venture to say that they, with their etherialized intellects, and their loftier and purer sentiments than belong to earth, do not a thousand times more enjoy these floral charms, than do any of the sin-stained mem-

bers of our race? It were as wise to say, that the atmosphere which floats, untouched by living creature, a dozen miles above our heads, is waste: that the stars, which show only as diamond-points in the sky—and especially, those countless myriads of them which neither the eye, nor the telescope, has ever yet brought to view—is waste. Hush! presumptuous man! “Canst thou by searching, find out God?”

Flowers are one of the mightiest educational forces which God has brought into being. The cultivation of them improves the intellect, refines the sensibilities, purifies the heart, and softens and beautifies the whole character. The lady whose fingers daily train the tender vine, and whose eye watches the opening petals, gives clear proof of gentleness, delicacy and refinement. And the gentleman who luxuriates in flowers, twirls them in his fingers, and wears them in his button-hole, cannot be lost in sordid selfishness, sensuality and vice:—and such an one—to the gentler sex we hint it—may be relied upon in most cases, as having left some avenue, or postern gate, leading to the heart, unguarded, where successful assault may be made.

Silent and often unobserved as is this power for good, it nevertheless takes hold, and with an all-pervading grasp, of our earliest years. Howitt has beautifully revealed our thoughts on this interesting theme as follows:

“With what eagerness do very infants grasp at flowers! As they become older they would live forever among them. They bound about in the flowery meadows like young fawns; they gather all they come near; they collect heaps: they sit among them and sort them, and sing over them, and caress them, till they perish in their grasp. We see them coming wearily into the towns and villages, loaded with posies half as large as themselves. We trace them in shady lanes, in the grass of far off fields, by the treasures they have gathered and have left behind, lured on by others still brighter.

“As they grow up to mature years, they assume, in their eyes, new characters and beauties. Then they are strewn around them, the poetry of the earth. They become invested, by a multitude of associations, with innumerable spells of power over the human heart; they are, to us, memorials of the joys, sorrows, hopes, and triumphs of our forefathers; they are, to all nations, the emblems of youth in its loveliness and purity.”

In conclusion, therefore, we beg leave earnestly to recommend to our entire community, and especially to the MOTHERS AND DAUGHTERS, a greatly increased attention to the cultivation of flowers—not only as a source of rational entertainment and pleasure, but as a powerful means for good, in training the young to intelligence, purity, refined sensibility and virtue, and in perpetuating to mature years, with the

freshness and greenness of youth, the same excellent qualities.

Respectfully submitted, in behalf of the Committee,

A. J. LEAVENWORTH, *Chairman.*

CLASS 3RD.

*Vegetables.*

- |  |       |
|--|-------|
| 481. To W. B. Bagley, for the largest and best assortment of table vegetables, | 10 00 |
| 482. To A. A. Archer, for the best dozen long blood beets,                     | 2 00  |
| 483. To W. Bowden, for the best dozen head of cabbage,                         | 2 00  |
| 486. To H. J. Smith, for the best dozen carrots,                               | 2 00  |
| 488. To W. B. Bagley, for the best peck of onions,                             | 2 00  |
| 489. To H. J. Smith, for the best dozen parsnips,                              | 2 00  |
| 490. To W. B. Bagley for the best bushel Irish potatoes,                       | 2 00  |
| 491. To L. J. Simonson, for the best bushel sweet potatoes,                    | 2 00  |

BRANCH VI.

*Butter, Cheese, Bacon, Honey, &c.*

CLASS 1ST.

BUTTER AND CHEESE.

- |  |       |
|--|-------|
| 492. To Mrs. E. Cummins, for the best specimen of fresh butter, not less than ten lbs.,          | 10 00 |
| 493. Mrs. J. C. Burton, for the second best specimen of fresh butter, not less than five pounds, | 5 00  |

CLASS 2ND.

*Honey, Bee Hives, and Bacon Hams.*

- |  |        |
|--|--------|
| 497. To J. R. Banks and A. S. Maddox, for the best specimen of honey, not less than ten pounds,  | 5 00   |
| The honey to be taken without destroying the bees—the kind of hives used, and the arrangement of the bees to be stated by the exhibitor. |        |
| 499. To Mrs. Samuel Weisiger, for the best ham, cured by exhibitor,  | \$8 00 |
| 500. To Mrs. James Ayres, for the second best,   | 4 00   |

BRANCH VII.

*Household and Domestic Manufacture.*

HOUSEHOLD MANUFACTURES.

CLASS 1ST.

- |  |      |
|--|------|
| 501. To Mrs. M. H. Turner, for the best quilt, | 5 00 |
|--|------|



502. To Mrs. E. M. Wheary, for the second best quilt,

503. To Mrs. Harris and Mrs. Jones, for the best counterpane,

504. To Mrs. James Ivey, for the second best counterpane,

505. To Mrs. Meredith and Miss V. Young, for the best pair home-made blankets,

506. To Mrs. W. B. Westbrook, for the best home-made carpet,

507. Mrs. M. A. Davis, for the best home-made hearth-rug,

510. To Mrs. Norman Wake, N. C., for the best piece, not less than seven yards, home-made negro shirting,

512. To Mrs. F. Niblett, for the best piece, not less than ten yards, heavy woollen jeans, to be woven by hand,

513. To Mrs. H. Jarratt, for the second best piece, not less than ten yards, heavy woollen jeans, to be woven by hand,

514. Mrs. J. W. Harris, N. C., for the best piece linsey, not less than seven yards, to be woven by hand,

515. To Mrs. R. H. Allen, for the second best,

#### CLASS 2ND.

516. To Mrs. J. E. Venable, for the best fine long yarn hose,

519. To Mr. James Ayres, for the best specimen of home-made wine,

520. To Mrs. W. R. Johnson, for the best home-made bread,

521. To Mrs. E. G. A. Poindexter, for the best home-made pound cake,

522. To Mrs. James Ayres, for the best home-made sponge cake,

523. To Mrs. James Ayres, for the best varieties home-made pickles,

524. To Mrs. B. A. Hancock, for the best varieties home-made preserves,

525. To Mrs. James Ayres, for the best varieties home-made fruit jelly,

527. To Mrs. Henry Jarratt, for the best sample home-made soap,

#### LADIES' ORNAMENTAL AND FANCY WORK.

#### CLASS 3RD.

528. To Mrs. M. J. Lucas, for the best specimen of embroidery,

529. To Miss M. T. Gordon, for the second best,

530. To Mrs. W. T. Moseley, and Miss Pattie Branch, for the best specimen of worsted work,

531. To Mrs. Deems, for the second best,

532. To Miss Bettie D. August, for the best specimen of crotchet work,

533. To Mrs. Alex. Donnan and Miss Kate Couch, for the second best,

534. To Mrs. Wilson and Mrs. Alley, for the best specimen of wax work,

535. To Mrs. Cooper and Mrs. Morton, for the second best,

536. To Mrs. Brownley, for the best specimen of shell work,

538. To Miss P. A. Lacey, for the best specimen of ornamental leather work,

539. To Miss E. J. Rowlett, for the second best,

540. To Miss Annie Butler, for the best specimen of block work,

542. To Mrs. Baxter and Mrs. Gilliam, for the best specimen of knitting,

543. To Mrs. A. Archer, and Miss M. Lemoine, for the second best,

544. To Miss Isabella Gray, for the best specimen of netting,

545. Mrs. P. Woolfolk, for the second best,

#### DOMESTIC MANUFACTURES.

#### CLASS 2ND.

549. To Sutherland and Ferrill, for the best manufactured tobacco, Lenora Brand,

CERTIFICATE OF MERIT.

#### BRANCH VIII.

*Honorary Testimonials* to each individual of Virginia who, previous to 1859, has discovered or introduced, or brought into use any principle process, or facility generally, or any improvement by which important value has been gained for the Agricultural interests of Virginia.

#### REPORT OF THE COMMITTEE.

The Committee on *Honorary Testimonials* in their present report would touch only on a single topic.

That the artificial grasses have had a principal agency in our improved systems of husbandry is known to all; and among these the place of precedence must undoubtedly be given to *clover*; not only for its intrinsic value as an article of food for animals, and the wonderful increase in its growth from the application of gypsum, but as a means, when turned under, of fertilizing the soil. A great drawback, however, to its more general and extensive use, has been the high price of its seed when obtained from abroad, or the tedious and comparatively inefficient methods heretofore employed, when the Farmer, and especially the Planter, would gather them from his own fields. The labour required for this purpose is also called for at an inconvenient season, and materially interferes with the other operations of the planter,—so much so, indeed, as generally to render this entire

class dependent on others for a supply. Both these causes combined have to this day, whether rightfully or not, deterred many small proprietors, or men of moderate means from its use, either entirely or only to a limited extent.

It is not very creditable to the mechanical ingenuity of our countrymen which has done so much to facilitate or abridge the labours of the husbandman in other departments, that it should here have so signally failed.

Your Committee are happy in expressing the belief that this reproach is at length about to be removed, and that this desideratum may henceforth be supplied. A machine for gathering clover seed, invented by Mr. M. S. Kahle, a citizen of Rockbridge county, and which, having been exhibited at other points in our State, was open to inspection on our own Fair Grounds on the present occasion, promises to meet this want.

The undersigned have not had an opportunity of witnessing its operation in the field; but testimonials of its successful working, from highly respectable and practical farmers in the Valley of Virginia, have been laid before us, and our own examination of the machine has tended to confirm their report. On inspection it appears to be well adapted to its purpose, simple in its construction, and, under a prudent use, but little liable to get out of order.

We have not at present the means of forming even an appropriate estimate of the sums which, during the present century, have been paid by the farmers of Virginia to those of other States for the clover seed used by them. But that the amount is great, there can be no doubt. This implement promises to enable them to gather from their own fields this essential element in an improved husbandry, and must inevitably reduce the cost to such as may not employ it directly for that purpose. Farther consequences will be, its more liberal and general, if not universal use, and when used liberally, the increase of its own crop to the exclusion of noxious weeds.

We therefore do not hesitate to invite the attention of our farmers generally to this novel implement as one which bids fair to be of the very highest utility. We presume not to say that it is insusceptible of further improvement; but it is certainly a move in the right direction, and in advance of all its predecessors, so far as these are known to us. And should its performance fulfil but one half of what is claimed for it by its friends, the name of its inventor should be placed among those of the most distinguished benefactors of the agriculture of the State.

The present proprietors are Messrs. Huff & Kahle, of Salem, Roanoke county.

Respectfully submitted,

N. FRANS. CABELL,  
T. JEFFERSON RANDOLPH.

#### DISCRETIONARY PREMIUMS.

|  |                       |
|--|-----------------------|
| 559. To William B. Blanton, Farmville, for the best Tobacco Flattening Mill,   | \$10 00               |
| 560. To _____, _____, for the best Marl and Brick Elevator,  | 5 00                  |
| 561. To Mrs. C. B. Turner, for the best dried corn,  | 1 00                  |
| 562. Mrs. C. B. Turner, for the best paper flowers,  | 2 00                  |
| 563. To Miss E. H. Lacy, for the best oil painting,  | 5 00                  |
| 564. To Miss Flora Ragland, for the best hair work,  | 2 00                  |
| 565. To M. Turpin for fine specimen oil painting,  | 2 00                  |
| 566. To A. C. Harrison, for beautiful specimen of buggy saddle, stitched by John Aggers, 16 years old, after four months apprenticeship, | 2 00                  |
| 567. To Mrs. R. P. Bridgers, for best home-spun and home-made coat,  | 2 00                  |
| 568. To E. A. Pillow, for a handsome plat of Fair Grounds,   | 2 00                  |
| 569. To T. A. Sinclair, for the best buggy,  | 5 00                  |
| 570. To Mrs. M. S. Bagley, for the best home-made starch,  | 2 00                  |
| 571. To Burger & Boyle, for the best circular saw,   | CERTIFICATE OF MERIT. |
| 572. To Law & Sherman, for the best lot of files,  | CERTIFICATE OF MERIT. |
| 573. To Mrs. J. W. Hobbs, for the best specimen of lard,   | 2 00                  |
| 574. To Miss M. A. Glover, for the best geraniums,   | 2 00                  |
| 575. To William Duryea, for the best corn starch and maizena, made at Glen Cove, L. I.,  | CERTIFICATE OF MERIT. |
| 576. To _____ Outen, for the best swingle-tree life-preserver,   | 5 00                  |
| 577. To Tredwell & Pell, for Shaers coulter harrow,  | 6 00                  |
| 578. To Mrs. J. O. Bragg, for beautiful stand pearl work,  | 2 00                  |
| 579. To Mrs. Sarah Burns, Petersburg, for fine spiced tomatoes,  | 2 00                  |
| 580. To William B. Billings, for Union light and self-generating, safety gas lamp,   | CERTIFICATE OF MERIT. |
| 581. To Miss Jennie Rowlett, for superior home-made fruit cake,  | 2 00                  |
| 582. To Mrs. James Ayres, for splendid damson cheese,  | 2 00                  |
| 583. To Mrs. Thomas E. Haskins, Prince Edward, for superior blackberry wine,   | 2 00                  |
| 584. To Miss Ida Ragland, for fine specimen of painting and hair work,   | 2 00                  |
| 585. To Miss E. J. Rowlett, for fine specimen of pearl painting,   | 2 00                  |



## COMMENDATIONS.

Miss Rosa P. Crump, for handsome worked lady's morning wrapper.

R. J. White, of Portsmouth, for the Foster Block, a new building material compounded of sand and lime.

Mrs. Jesse W. Barton of Petersburg, for a handsome worked bed quilt.

Mrs. Nunnally, of Dinwiddie, for five handsome baskets.

Dr. A. Whitehead, for draining tile.

Messrs. Tappey & Lumsden, for improved hogshead screw.

Mrs. J. M. Sheppard and J. F. Disoway, for one case each of dentistry.

Mr. W. M. Bush, for hog-skin, tanned one inch thick.

Mr. J. F. Jaques, for fine Metallic Stencil brands.

Mrs. J. Hobbs, for fine loaf of potato bread.

Mrs. R. R. Haskins, Prince George, for fine specimen of home-made champagne wine.

Mr. C. B. Turner, for fruit trees.

Mrs. Ann Corling, for an overcast quilt.

Mrs. J. W. Hobbs, Petersburg, for home-made counterpane.

Mrs. Susan Pool, Petersburg, for home-made counterpanes.

Mrs. Cosby, Petersburg, for home-made counterpanes.

Mrs. Ivey, for domestic rag carpet.

Mrs. Tennon, for domestic hearth rug.

Mrs. Harris, of Wake county, N. C., for cotton serge.

Mrs. A. A. Rowlett, for large quantity of negro clothing.

Mrs. Norman, for cotton and flax towels.

Mrs. J. W. Harris, of Wake county, N. C., for Suppersong wine, ten years old.

Mr. Allen P. Lee, for cotton cultivator.

Mrs. Powhatan B. Starke, for fine sponge cake.

A Yankee who had seen the statue of the "Greek Slave," and was asked if he was not in raptures with it, answered, "Well, to tell the truth, I don't care much about them stone gals."

The parent who would train up a child in the way he should go, must go in the way he should train up his child.

Dr. Franklin, speaking of education, says: "If a man empties his purse in his head, no one can take it away from him. An investment in knowledge always pays the best interest."

Be contented and thankful; a cheerful spirit makes labour light, sleep sweet, and all around cheerful.



## The Southern Planter.

RICHMOND, VIRGINIA.

## Friends!

Of the Southern Planter, and agriculture generally, help us to hold up our hands.

If ours is a good work, then aid us in its behalf. By contributions of science, experience, theory, and subscribers, help us to extend our circulation and means of usefulness.

If we deserve to succeed, and we think we do, as we try always to discharge our duties faithfully, then give in your continuance and support.

Every man on our list of subscribers can send us some new names, (or else his influence is feebly exerted) if he will try. Will they not do so? Give us a liberal support, and we shall be enabled to reciprocate the favor, by making our journal more complete and full in details, wood cuts, and general interest.

## On Economical Living, and the Encouragement of Home Industry.

While public attention is awake to the necessity of some well defined course of principle and action, which shall be so well understood and acted on by all parties of our mighty Confederation, as will best tend to the benefit of our sovereign States, and the preservation of their respective "rights," under the constitutional agreement, which should be alike binding upon them all, we deem it no trespassing upon the peculiar character of our paper, to say a word to the farmers of our own State on the course which we believe will best advance their interests, and our general prosperity, if it is adopted. While we put in a general disclaimer of any intention to increase the present excitement among our people, in regard to our "peculiar institution," or to fan the flames of angry prejudice existing between different parts of our Federal Union, we speak soberly and

calmly our own views of what we and our readers, as *farmers, owe to our State*, and of evils which may as well be remedied now, as at a later period. We must begin a reform sooner or later, and go back to the "good old times" for our notions of economy and simplicity of habit, which so well became the "Virginia gentleman," because they were so natural and unaffected.

It will not be denied that our habits of living have, for many years, been growing more and more luxurious, and, in many cases, an ostentatious "style" has usurped the place of the plain, simple, cordial, generous hospitality of our forefathers. Are we any better or happier for it? Far from it. Our wants have been multiplied in a ratio far exceeding our means of gratifying them, "and if told, would muster many a score;" while our fortunes have decreased, in spite of greater facilities than those possessed by the last generation for making money.

Broadcloth has taken the place of home-spun; rosewood and mahogany have displaced the plain and substantial walnut and pine furniture of the olden time; silk has taken the shine off warm, comfortable home-spun yarn; and *style* has rustled out of sight the unpretending and more modest chintz and calico of our grandmothers. This change in domestic matters and habits, which, while it has added no substantial additional charm to the persons of our ladies, has often impaired their minds, by fostering a blind obedience to the enervating laws of fashion and luxury, and added a grievous load of care to the burdens usually belonging to our gentlemen. Such a system of living procures for our women impaired health and usefulness; for our men, premature grey hairs, bankruptcy and misery.

Are these things so? We shall see, by comparing a list of the expenses of one of our young ladies of the present day for educational proficiency in the "ologies," dress and ornaments, with those of her mother, while we listen to the groans of many a "governor" of a family, at the "extravagance" of his household, displayed by a peep at his bills payable, and hearing the oft-repeated direction of "Young America" to his merchant, tailor, &c., "charge it to the old man."

Improper and false estimates of the respectability of labor, have increased and grown apace among all classes, until many a youth would

blush at being caught engaged in any manual labor or exertion differing from the course taught at the gymnasium, or by the "professor" of "boxing," or dancing; and the old adage, "He who by the plough would thrive, himself must either hold or drive," is too often imperfectly remembered by farmers, and unbent to their sons. If we would prosper, and deserve to possess this fair land in which it has pleased a beneficent Providence to cast our lots, *we must help ourselves*—improve and develop the vast resources of our State, for the support and competent maintenance of all its sons. While we mind our own business, we are engaged in our own proper duty as good citizens; and we wrong no others when we cultivate and cherish that spirit of affectionate devotion to, and pride in the weal of, our glorious "Old Dominion," which is the birthright of each and all of her sons. For us all, we may glory in the fact, that on no part of the globe is this very feeling of unswerving loyalty to the home of our childhood so strongly marked, so often expressed, so seldom forgot, as in the inmost heart of every Virginian.

It is right and proper to cultivate this sentiment, to hush the voice of party spirit, which occasionally is raised among us, and to come up as one man to the work of developing the full industrial capacity of our Commonwealth; devoting our best energies of mind and body to its accomplishment; respecting the rights of others; knowing and maintaining our own; standing shoulder to shoulder, like brothers as we are, and push on the wheels of improvement of our own State car.

How shall we bring about this concert of action, to accomplish the desirable result of improving the condition of every man among us? By reducing our wants and expenses to the standard of comfort and utility. These may be preserved, and many a dollar saved, which is now spent in extravagant show, and the creation of envy among many who cannot afford the expense attending useless "style." By the adoption of simple and more industrious habits of life and cheaper costumes of dress, but above all, by *buying nothing outside of our own borders which can be procured at home, and determining, unalterably, to do without everything not absolutely a necessary of life, which cannot be procured here.*

Look upon every sober, honest, working man, in every department of human industry, as the man of honor, and an ornament to his race;



thus will we promote the true dignity of labor; tighten the chains of friendship and confidence which should bind together the hearts of every people, and incite every man to the faithful performance of the duty which he owes to society and his country.

It is a great mistake to suppose that we are dependent upon any other State for the supply of our *real* wants; and if this assertion is in any sense too broad, *surely it is high time to remedy, and as speedily as it can be done, so great an evil*, and to remove the cause of this reproach from our skirts.

In Richmond and Fredericksburg alone, we have water-power enough to manufacture all the cotton grown in the South—all the shoes, hats, blankets, hardware, &c., that we want. We have large founderies, machine-shops and factories of every kind, which would be greatly benefited, and placed on permanent foundations, by Southern support and patronage.

*Let them have it, and their prosperity will be the means of supplying us with establishments, which may at present be needed among us, for carrying on any other branch of industry, for the products of which we may be dependent now upon any other place.*

We believe that the adoption of this course would help every citizen among us, and draw to our shores hosts of good artisans from other parts, whose advent would add to our general prosperity as a people, and do away the necessity for any such word as "waste-land" among us.

Let us begin, then, at once to adopt a more economical and plainer style of living; to retrench, as far as possible, our general expenses, and to *encourage, by all means in our power, our home manufactures*, and to let every Virginian see by our *acts*, as well as "resolutions," that in our sentiments of devotion to our State, our interests and common aims, we are one people—that each man is to his neighbor a help, friend and brother, and come weal or woe, we will share a common destiny.

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### To our Subscribers.

With the beginning of the present volume, The Southern Planter enters on its *twentieth year*. Upon the list are the names of some good friends, who have helped to support it from its infancy to the present time, and there are also the names of some who, *as it approaches the period of its majority, seem to think it can stand*

*alone, and needs no further help.* We have sent them the paper regularly, waited in a state of patient expectancy for the amount of their dues and contributions, and we have received neither.

Printer's ink, paper, patience and hope are alike consuming by the delay of these, and we sincerely hope that they "treat no other friend so ill."

We must, however, in the proper discharge of our duties to them, remind them that the beginning of the present year is an auspicious time to throw off all old encumbrances, in the way of bad habits—among the worst of which we are inclined to number that of failing to pay the printer—and, with the new year, to commence a regular system of dealing with printers, and all other classes of men, as they would like to be treated by them, if their relative positions were altered. Take our advice, then, for which we charge nothing, and we guarantee an increased amount of happiness and satisfaction to all parties concerned.

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### Information Wanted.

A subscriber begs for information, from any farmer whose experience qualifies him to give it, with regard to the following varieties of wheat, viz:

Boughton,  
Bowers,  
Early Purple Straw, White.

The difference in the prices paid by millers for White and Red Wheat, make it an important desideratum for us to procure a *White variety*, which will be ready for harvesting at a period sufficiently early to justify us in discarding the Red, now so extensively sown.

We must do this in self-defence, if we can secure, along with early maturity, other advantages equal to those claimed for the "Early Purple Straw, Red."

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### Droughts.

It will be seen by reference to the extract of Dr. Higgin's Report to the Maryland State Legislature, that the new and ingenious theory of the beneficial effects of drouth on soils, in bringing to the surface a fresh supply of inorganic constituents, is entirely original with him. We publish in our present number his views on the subject, and cannot refrain from expressing our convictions of the entire truth of his discovery.

This theory explains satisfactorily and rationally why it is that the well-known proverb of a "dry seeding time, preceding a good harvest," is true.

We commend the article to the attention of our readers.

### Important Discovery.

Rev. Mr. Seeley, formerly of Springfield, Mass., now in Paris, communicates to the *Springfield Republican* the following interesting particulars of a promising discovery in France, for purposes of health, agriculture and surgery:

This discovery, made by Messrs. Corne and Demeaux, and thus far known as "Corne and Demeaux's Disinfecting Powder," or as the "French Disinfecting Powder," is as simple in its character as its results promise to be important. These gentlemen, in the course of some experiments, ascertained that a simple mixture of the ordinary plaster of Paris and coal tar (which is produced by the distillation of coal for gas) has very powerful anti-septic properties. The proportions of the ingredients are, one hundred parts of the plaster of Paris, to from one to three parts of the coal tar; and the mixture to be thoroughly made with a mortar and pestle, or in a hand-mill, or by such other method as the quantity desired and the means of the operator may dictate. The process cannot be very difficult, since the article fully prepared is sold in Paris for about ten cents per pound. It is used for disinfecting, or anti-septic purposes, some of which I will indicate. For preventing the disagreeable odor of sinks, &c., the effect is instantaneous, and it is so much cheaper, that chloride of lime must entirely fall into disuse. Two lbs. of the powder are sufficient to dissolve in twenty-two gallons of water; or a tablespoonful dissolved in  $1\frac{3}{4}$  pints of water is sufficient per day to render inodorous the refuse of a household of four or five persons. A morsel, the size of a pin's head, will render limpid and fit for use a pint and a half of water, which is beginning to become putrescent. The value of such a discovery for those who travel in the East, and especially for ships at sea, cannot well be overstated.

But it also has an important relation to agriculture. One-half pound of the powder, dissolved in five or six gallons of water and sprinkled on the litter of a stable, will

deprive one cubic yard of manure of all odor, and prevent the loss of its fertilizing qualities. It was on this feature of the case that I thought you might easily institute experiments, and, if successful, you will not fail to see what a boon such a discovery must prove to all those farmers who comprehend the necessity of preserving in the best possible condition, and making the best possible use of all the fertilizing materials produced on the farm. It is probably no exaggeration to affirm that tens of thousands of dollars are evaporated every year from the exposed and smoking manure heaps around the barns and out-houses of the Massachusetts farmers; and if there be any virtue in this alleged discovery, coal tar enough to prevent all this waste is furnished by any gas establishment in the State. Every farmer is wont to use plaster, more or less, on his land. Let him apply a small portion of it in the form and manner here suggested, and its usefulness will be much more certain, in all cases, than at present.

But the relations of the discovery, which are regarded with most interest in France, just at present, are those which it sustains to surgery. It is claimed that applied as an ointment (made of the mixture) or in the simple form of a powder, to severe wounds and sores, to cancerous ulcers and to suppurating abscesses, it instantaneously deprives them of all odor, and brings the wound into such a state that the ordinary healing applications act successfully. Doctor Velpeau has reported to the Imperial Academy of Medicine, expressing high approbation of it as a dressing for wounds. Immediately after this report, the suggestion was made that it might be of great service to the wounded of the army in Italy. Accordingly it was tried at the hospitals at Milan by direction of Baron Larrey, physician-in-chief to the Emperor. I give a translation of a brief report on the subject, made to Marshal Vailant, major general of the army in Italy, by the surgeon, Dr. Cruveithier, under whose eye the experiments were made:

"In conformity with your orders, and following the instructions left by Dr. Larrey, the powder of coal tar has been employed in the hospital of Milan on the wounded in whose wounds the gangrenous process, or hospital suppuration has commenced. The applications of the remedy, both in powder and as an ointment, were made on the first of August. The immediate results were



very favorable, and the disinfecting properties of the topic were verified in the cases of more than twenty patients who were treated by different physicians. Still further, it has proved that under the influence of this preparation and of good living, the wounds, being disinfected, are then modified, and in a few days the greater part of them present a greatly improved appearance. The application of the disinfectant is not omitted till the wounds, restored to a normal condition, are able to feel the action of the medicaments usually employed to promote the healing process. Twenty observations made in the hospitals in Milan, put these conclusions beyond all doubt."

From the foregoing may be learned what appears to be the general opinion among the French surgeons as to the effect of the mixture on wounds, though there has been some difference of opinion as to whether the powder is or is not strictly to be regarded as a disinfectant. That it is a powerful antiseptic, no one doubts, and time will discover whether or not it also possesses disinfecting properties.—*Country Gentleman*.

#### Lime and Salt Mixture.

Eleven years ago we first recommended the use of the Lime and Salt Mixture for the decomposition of muck, woods-earth, leaves, sea-weed, spent-tan, and other organic matters, which do not readily yield up their inorganic constituents for the use of crops; for whatever may be the proper doctrines of the day as to ammonia and its uses, the great value of organic matter is resident in the progressed inorganic constituents which they are capable of furnishing by decomposition. The Lime and Salt Mixture when properly prepared, is an admirable decomposing agent. Cotton seed, and a variety of other material, may be more readily decomposed by its use and with less loss, than by any other substances. It should be thus prepared: Dissolve one bushel of refuse salt in water, with this slake three bushels of caustic lime, hot from the kiln; we mean by this, lime which has not been slaked, either by water or by exposure to the atmosphere, and even when in this state, it is difficult to cause it to take up all the brine made by one bushel of salt. In such cases it should be left for one day after receiving all it is capable of absorbing of the pickle, when it may be turned over and a new quantity

added; thus in two or three applications it will all be received.

Salt is composed of chlorine and soda, and when added to lime, the following changes occur: the chlorine combines with the lime forming chloride of lime, the soda being thus set free, takes carbonic acid from the atmosphere and becomes carbonate of soda. Commencing then with lime and salt, we end with chloride of lime and carbonate of soda. This slaking should always be performed under a shed; as the new material is soluble in water, the outside of the heap will effloresce, becoming very fine and extremely white, and the mass should be turned very frequently, so that all parts may in turn come in contact with atmosphere. When the whole quantity has put on this peculiar appearance, and not before, it is ready for use. Four bushels of this mixture equally divided through a cord of any inert organic material, will decompose it to a powder in thirty days in summer, and in sixty days in winter. Swamp-muck, river-mud, woods-earth, spent tan, and various other materials when thus prepared, may be mixed through stable manure for composting with great advantage. In soils containing an excess of organic matter, such as the peaty soils, the Lime and Salt Mixture may be used direct as a manure. As a top-dressing for grass in sour lands, it has great value, while in all soils deficient of lime, chlorine or soda, it would be found to be beneficial.

The Lime and Salt Mixture should never be incorporated with purely putrescent manures, but rather applied separately; thus, if stable manures be deeply plowed under, the Lime and Salt Mixture may be used as a top-dressing before harrowing, and it will gradually find its way down, meeting the manure beneath the surface and there perfecting its decomposition, when so positioned, that all the results may be absorbed by the soil about it.

When oyster shell lime fresh from the kiln can be procured, it is always preferable to stone lime for agricultural purposes; more of it is progressed and capable of being assimilated by plants, while the excess quantity does not exercise a deleterious effect on the texture of soils.

Those who dispute our theory of the progression of primaries, would do well to tell us why we never find soil cracking by over-

THE  
**SOUTHERN PLANTER,**  
ADVERTISING SHEET.

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No. 1.

RICHMOND, VA.

JANUARY, 1860.

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**SCHOOL BOOKS.**

Permit me to call your attention to a work which I have lately published. It is

**"AN ELEMENTARY TREATISE ON DESCRIPTIVE GEOMETRY,"**

BY SAMUEL SCHOOLER, M.A.,

*Principal of Edge-Hill School, Caroline, Va.*

This work has been prepared with much care, and it is hoped that it will supply a want long existing in our Schools and Academies.

ELEMENTS OF DESCRIPTIVE GEOMETRY—the Point, the Straight Line and the Plane—by S. SCHOOLER, M.A. 4to. half roan; \$2. It will be mailed, post paid, to all who remit the price.

The paper, type and plates, are in the finest style of the arts, and the book, altogether, has been pronounced equal, if not superior, to any English, French or American work on the subject.

One extra copy (for their own use) will be given to those who order six or more copies.

All the SCHOOL BOOKS of merit, of the latest editions, always on hand and sold on the best terms.

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**J. W. RANDOLPH, Bookseller and Publisher,**  
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A Manual of Scientific and Practical Agriculture. For the School and the Farm. By J. L. Campbell, A. M., Professor of Physical Science, Washington College, Va. With numerous illustrations.

PRICE—\$1.00 or \$1.15 by mail, post-paid. For sale at

**RANDOLPH'S Bookstore and Bindery.**



The former Firm of

## GEO. WATT & CO.,

having been this, 23d day of December, 1853, dissolved, we have associated ourselves in business, under the firm of GEO. WATT & CO., for the purpose of making and selling the WATT

## CUFF-BRACE PLOW,

With the

## BREAST IMPROVEMENT

thereon, and the

## HANOVER PLOW,

And shall keep constantly on hand a large assortment of these Plows, and Castings of these and other popular kinds, with Cultivators, Harrows, Corn or Tobacco Weeders, Hillside and Subsoil Plows, new ground Coalers., &c.

*All of which are made in our own Factory.*

Also, Straw Cutters, Grain Cradles, Corn Shellers, Corn Planters, (Caldwell's make,) and a variety of other useful implements in our line, which we warrant to give satisfaction, or be returned. We solicit a call from the Agricultural Community, assuring them that our best efforts shall be used to give them superior articles.

GEO. WATT,

HUGH A. WATT.

Richmond, December 23, 1853.

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

GEO. WATT, PATENTEE.

Richmond, January 1859.

## City Savings Bank of Richmond CHARTERED IN 1839.

Continues to receive deposits, on which interest is paid at the rate of 6 per cent. per annum, if remaining on deposit six months, and 5 per cent. for shorter periods.

HORACE L. KENT, Pres't.

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N. AUGUST, Cashier.

### DIRECTORS:

John N. Gordon, Samuel Putney, H. Baldwin, I. Davenport, Jr., Charles T. Wortham, Hugh W. Fry and Wellington Goddin.

Jan 1859.—ly

## R. O. HASKINS,

Ship Chandler, Grocer and Commission Merchant,

In his large new building, in front of the Steamboat Wharf, ROCKETTS, RICHMOND, VA.  
Sept 1859.—ly

## MITCHELL & TYLER,

DEALERS IN

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

RICHMOND, VA.

## SHOCKOE MILL. Richmond Ground Plaster.

The subscriber begs leave to return his grateful acknowledgements for the heavy patronage extended to his Mill from the State at large, and North Carolina, and would state that he has made improvements that will double the capacity, and enable him to supply fresh GROUND PLASTER promptly, exceeding any demand that can at present exist.

His Stock will be entirely of Nova Scotia Lump, the purest that can be selected, with special reference to its richness in SULPHATE of LIME, and he pledges a faithful adherence to his determination to sustain the flattering reputation that his brand has already gained.

Of those who have been driven from the use of Plaster, by application of Northern Ground, he only asks a trial of HOME MANUFACTURE.

JOHN H. CLAIBORNE,

Jan. '60—3t

No. 11 Pearl Street.

## PIGS OF IMPROVED BREED FOR SALE.

I have for sale, to be delivered at weaning time, a good many pigs of improved breed. I have produced it myself from crosses of the Surry (or Suffolk) genuine Berkshire, (Dr. John R. Woods' stock) Irish Grazer, Chester County, no Bone and Duchess. I think them superior hogs of medium size, and for fourteen years they have not had a bad cross among them. I prefer that purchasers should view my brood sows and my boar on my farm, three miles below Richmond. I will not sell them in pairs, because the in-and-in-breeding would depreciate the stock at once and cause dissatisfaction. But I will sell in one lot several of the same sex.

Price \$10 per head for one, and an agreed price for a larger number. They will be delivered on the Basin or any of the Railroad Depots free of charge.

FRANK: G. RUFFIN

Summer Hill, Chesterfield. March, 30, 1858.

## 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  
May 59--ly STEBBINS & PULLEN,  
101 Broad St., Richmond, Va.

## To Farmers and Planters. DR. JAMES HIGGINS,

(For the past ten years State Agricultural Chemist of Maryland.)

Agent for the Sale of Real Estate, Dealer in Manures,

and every thing connected with the Farming and Planting interests, offers it his services.

A long experience as a practical planter and farmer, with the constant analytical examination for more than ten years, of every kind of Manure sold in our market, (advantages possessed by none others in the trade,) will enable me always to furnish those, who may favor me with their orders, with the *best, purest, and therefore the cheapest* Manures.

Farmers, Planters and others will be furnished with the following natural Manures:

PERUVIAN GUANO,

MEXICAN GUANO,

SOMBRERA GUANO,

NEVASSA GUANO,

COLUMBIAN GUANO,

BONE DUST,

and all others in our market worthy of purchase. Also with PLASTER OF PARIS, and PURE or MAGNESIAN LIME, according to the wants of the soil, and too much care cannot be taken in adapting the proper lime to soils; for the want of this kind thousands of dollars have been annually lost to our State.

Also the following artificial Manures:

HIGGINS' SUPER PHOSPHATE OF LIME—prepared under his own direction; and

HIGGINS' PHOSPHATED PERUVIAN OR MANIPULATED GUANO, prepared with the greatest care and precision.

This mixture of Peruvian and the Phosphatic Guanos was first recommended by me, and successfully used by many planters and farmers of this State years before it was ever made or sold in the city of Baltimore, by those who have pretended to be its originators. (If this be denied, I can furnish abundant proof of the accuracy of my statement.) Also

HIGGINS' NITRATED SALINE FERTILIZER, an admirable Top-Dressing for Wheat, Oats or Grass, which has been successfully used for many years, and prevents, to a great extent, the wheat from being straw-fallen; where the wheat is pale, sickly or yellow, it at once changes it to a bright, healthy green, and rapidly increases its growth, and greatly promotes the yield.

All Manures sold in our markets are liable to differ naturally, though coming from the same place, and bearing the same mark. Still more are they liable to adulterations, &c., and for these things our Inspection System has never afforded an adequate protection.

All Manures sold by me will have my name stamped on each bag or barrel, be carefully analyzed, and for their purity the buyer is pledged a LEGAL GUARANTEE and my PERSONAL HONOR.

The Manures sold by me will be at the same rate as those sold by others in the trade.

Persons wishing to obtain any of the Manures manufactured by me, or any others of my selection, should so specify in their orders to their agents in town.

TERMS Cash, or accepted city paper.

Office and Laboratory, Second Street, 3d door from South Street, in Gitting's New Building.

May 59—11

BALTIMORE, MD.

## STRAW CUTTERS.

My patent Straw Cutter is admitted to be the most valuable in use. I guarantee satisfaction.

H. M. SMITH, Agricultural Warehouse,  
oc 58—11 4 Main Street

## SEEDS OF EVERGREEN TREES AND SHRUBS.

We are now in receipt of several leading varieties of TREE and SHRUB SEEDS, in advance of our extensive assortment of over 300 sorts, a Catalogue of which will be published on the first of February.

|                              |                  |
|------------------------------|------------------|
| NORWAY SPRUCE SEED,          | 75 cents per lb. |
| EUROPEAN SILVER FIR,         | \$1 00 per lb.   |
| BLACK AUSTRIAN PINE,         | 3 00 "           |
| PITCH PINE,                  | 3 00 "           |
| WEYMOUTH PINE,               | 3 00 "           |
| EUROPEAN LARCH,              | 2 00 "           |
| CHINESE ARBOR VITÆ,          | 2 50 "           |
| AMERICAN do. (clean seed)    | 6 00 "           |
| HEMLOCK SPRUCE, (clean seed) | 6 00 "           |
| SEA-SIDE PINE,               | 1 00 "           |
| BALSAM FIR,                  | 3 00 "           |
| WHITE and BLACK BIRCH, each, | 2 00 "           |
| YELLOW and WHITE ASH,        | 1 00 "           |
| CEDAR OF LEBANON CONES,      | 20 each.         |
| SCOTCH FIR,                  | 1 50 per lb.     |
| HONEY LOCUST, for Hedges,    | 75 "             |
| YELLOW TIMBER LOCUST,        | 75 "             |
| BUCKTHORN SEED,              | 1 00 "           |

ALSO,

|   |                           |
|---|---------------------------|
| APPLE SEED, 40 cts. pr. qt.,  | \$8 00 pr. bushel.        |
| PEAR SEED, (Imported),  | \$2 50 per lb.            |
| PEAR SEED, (American),  | 2 00 "                    |
| BLACK MAZZARD CHERRY PITS,  | 50 cents                  |
| per qt.,  | \$10 00 per bushel.       |
| CONNECTICUT SEED LEAF TOBACCO,  | \$3 50 per lb.            |
| EARLY SOVEREIGN POTATOES, the earliest and best variety in cultivation,   | \$4 50 per barrel.        |
| WHITE CLOVER, LUCERNE, ENGLISH RYE GRASS, BLUE GRASS, ORCHARD GRASS, and all and every variety of SEEDS for the Farm, Plantation, and Garden. |                           |
| J. M. THORBURN & CO.,   |                           |
| Jan. 1860—11  | 15 John Street, New York. |

## SEEDS AT WHOLESALE!

Our new TRADE CATALOGUES of Garden, Field, Flower, and Tree Seeds, for 1860, is now ready for mailing to all Dealers enclosing a postage stamp.

OUR STOCK OF SEEDS is the finest and most extensive ever offered in this country, and to parties requiring them in large quantities, we offer unusual inducements.

J. M. THORBURN & CO.,

Jan. '60—11 15 John Street, New York.

**THORBURN'S**  
DESCRIPTIVE ANNUAL CATALOGUE OF KITCHEN-GARDEN, and AGRICULTURAL SEEDS, for 1860, is now ready for mailing to applicants enclosing a postage stamp. It contains directions for Cultivation, and other useful information for amateur cultivators. Send for it.

J. M. THORBURN & CO.,

Jan. '60—11 15 John Street, New York.



# AUGUST & WILLIAMS'

## Agricultural Registry and Agency Office,

At the office of the Southern Planter, No. 153 Main Street, RICHMOND, VIRGINIA.  
The subscribers are engaged in the business of

## BUYING AND SELLING LANDS

and executing orders for all kinds of

## AGRICULTURAL MACHINERY AND IMPLEMENTS. SEEDS, IMPROVED STOCK, of every variety, &c.,

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

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

We are also Agents for the sale of

### "Phelps' Patent Combination Bee-Hive,"

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

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

JULY 1, 1858.

AUGUST & WILLIAMS.

### THE GREAT SOUTHERN Hat and Cap Manufactory and Depot.

**JOHN DOOLEY,**

No. 81, Main Street, Richmond Va.

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

July 1858—1y

### LIME—LIME—LIME.

To Farmers, Bricklayers and Others.

**H**AVING made arrangements for a regular supply of Shells, I am prepared to furnish any quantity of well burnt Shell Lime, as low or lower than can be procured elsewhere. It will be delivered to farmers at any of the railroad depots, and to customers in the City wherever they may desire.

Application to be made at my Lime Kilns, opposite Tredegar Iron Works, at Mr. John G. Werth's office, corner 10th Street and Basin Bank, or at Messrs. Smith & Harwood's Hardware Store, Main Street Richmond.

Jan 1858.—rf

WM. SMITH.

### GREAT REDUCTION in THE PRICE OF HATS AND BOOTS.

FROM 15 to 20 per cent. saved by buying from J. H. ANTHONY, Columbia Hotel Building.

Moleskin Hats of best quality, \$3½; do. second quality, \$3; Fashionable Silk Hats, \$2 50; Fine Calfskin Sewed Boots, \$3 50; Congress Gaiter Boots, \$3 25; Fine Calfskin Sewed Shoes, \$2 25.

J. H. ANTHONY has made arrangements with one of the best makers in the city of Philadelphia to supply him with a handsome and substantial Calfskin Sewed BOOT, which he will sell at the unprecedented low price of *Three Dollars and a Half*.  
July 59—1y



### Southern Clothing House RICHMOND, VA.



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

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

E. B. SPENCE,  
No. 120, Corner of Main and 13th Sts.

July 59—1y

## Virginia Land Registry and Agency Office, LYNCHBURG, VA.

The undersigned, by request of land sellers, has established in the city of Lynchburg, an Agency for the sale of Land, the object of which is to afford facilities both to the seller and purchaser of the land. He will keep in his office a LAND REGISTER, containing correct and thorough descriptions of Farms for sale, including quantity, quality, location, price, terms, and all other information essential to be known by one desirous of purchasing.

In this way, persons unacquainted with the country, or wishing to purchase, can, without delay, have such a plantation pointed out to them, as would suit their wishes, and the purchaser and seller at once be able to meet each other. And, on the other hand, sellers can bring their land to the notice of those directly concerned, without that notoriety which is often unpleasant within itself.

Persons who wish the aid of this office in selling, must give a full and accurate description of their land, in order that a fair and candid representation may be made to the purchaser.

This Agency will be advertised in the most prominent agricultural papers.

All communications must be post paid, and if an answer is required, must be accompanied with a postage stamp, and they will be promptly attended to.

Registering Fee, \$10.

Office at Wm. T. Anderson's, Bridge Street, next door to Messrs. Ibbey & Saunders.

May '59—tf LEYBURN WILKES.

## WM. P. LADD,

No. 319, head Broad Street, Shockoe Hill,  
RICHMOND, VA.

Wholesale and Retail Detail Dealer in English, French and American

## DRUGS, MEDICINES, CHEMICALS,

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

Fine and Choice Perfumery, Fancy Goods,  
PURE LIQUORS AND WINES,

For Medicinal and Sacramental Purposes.

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

Landreth's Celebrated Garden Seeds,

In great variety. Also,

DRS. JAYNES' AND ROSE'S

FAMILY MEDICINES,  
MEXICAN MUSTANG LINIMENT.

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

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

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

## Corn Shellers of Various Kinds.

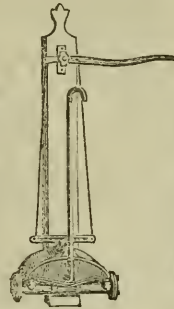
The Cylinder for hand will shell 400 bushels per day, the same for horse power and hand will shell the same by hand and 600 by horse power. The Reading Sheller will shell from 1,000 to 1,500 bushels.

WHEAT FANS, and the usual variety of machinery on hand.

H. M. SMITH,

14 Main Street.

## EDNEY'S AMERICAN PUMP. Without Facking—Without Suction.



Mar 59—tf

This Pump, patented 1859, is a double acting force pump, without chains, guide rods or pulleys, is the simplest, strongest, cheapest Pump yet invented; can be put in by any one, and without going into the well, and raises from 6 to 60 gallons per minute, according to size; works by hand, water, wind or steam, and is warranted to give satisfaction in all depths, and to raise water by a ten year old boy 60 feet. All depths under 20 feet complete, \$18. Drawings and full particulars sent free.

Address,  
JAMES M. EDNEY,  
147 Chambers St., New York.

## FRUIT AND ORNAMENTAL TREES AT

## SOUTHERN GREENWOOD NURSERIES, Richmond, Va.

THE Subscribers most respectfully call the attention of all lovers of SUPERIOR FRUIT, to their large and well assorted Stock of TREES for sale this coming Fall and Spring. Such as

Apple, Peach, Plum, Cherry, Apricot, Nectarine and Dwarf Pear Trees, Strawberry Plants, &c., &c.

Our Stock of APPLE TREES is unusually large and fine. A new Descriptive Catalogue, with Prices annexed, will be seen on application. We would insist upon those in want of TREES, &c., to send in their orders at their earliest possible convenience.

Address — LEWIS TUDOR & CO.  
Sept. 1859—6m Richmond, Va.

# \$30,000!

To one or more persons who can command the above sum, and who may be disposed to conduct a large manufacturing establishment in the west, a most advantageous opening is proposed, whereby with reasonably good management, a fortune may be realized in a short time. Address

Reference may be made to } P. WILLIAMS,  
Jos. C. G. KENNEDY. } Washington, D. C.  
Sept—tf

## Essex Pigs for Sale.

The subscriber has a few pure bred Essex PIGS. Price \$10 each. Also some half Essex, out of Sows of "Berkshire and Grazier" stock. Price of the latter, \$15 for two.

The best only of the litter will be sent to persons ordering them.

May '59. JAMES E. WILLIAMS.

## Rich's Iron Beam Plows.

A full supply on hand, and for sale by

H. M. SMITH,  
14 Main Street.  
oc 58—tf



# PHOSPHATIC GUANO, FROM THE ISLAND OF SOMBRERO, West Indies, THE RICHEST DEPOSITE OF PHOSPHATE OF LIME KNOWN TO THE WORLD.

By a careful analysis of an average sample of different cargoes, the annexed eminent Chemists have found this remarkable deposite to contain of Phosphate of Lime, as follows:

|                     |                  |                                     |            |                |        |           |
|---------------------|------------------|-------------------------------------|------------|----------------|--------|-----------|
| By PROFESSOR HAYES, | -                | Boston.                             | -          | of 1st Sample, | \$9.60 | per cent. |
| "                   | "                | "                                   | "          | 2d "           | \$9.20 | "         |
| "                   | REESE,           | -                                   | Baltimore, | -              | 1st "  | \$5.14    |
| "                   | "                | "                                   | "          | -              | 2d "   | \$6.60    |
| "                   | "                | "                                   | "          | -              | 3d "   | 72.04     |
| "                   | "                | "                                   | "          | -              | 4th "  | 72.04     |
| "                   | CHILTON,         | -                                   | New York,  | -              | 1st "  | \$6.34    |
| "                   | "                | "                                   | "          | -              | 2d "   | \$4.92    |
| "                   | PIGGOT,          | -                                   | Baltimore, | -              | 1st "  | 76.85     |
| "                   | HUSON,           | Liverpool,                          | England,   | -              |        | \$0.20    |
| "                   | DECK,            | -                                   | New York,  | -              | 1st "  | \$5.00    |
| "                   | "                | of a selected specimen,             |            | "              |        | \$8.25    |
| "                   | MAUPIN & TUTTLE, | University of Virginia,             |            |                |        | \$5.16    |
| "                   | WILLIAM GILHAM,  | Military Institute, Lexington, Va., |            |                |        | \$3.40    |

Thus proving it to average the richest deposite of Phosphate of Lime known to the world.

Pure Bone Dust contains but 55 or 56 per cent. of this important Phosphate; hence a comparison of the relative value of the two, will at once show which is the most desirable for Agricultural purposes.

Guanos are of two distinct species—those in which the Phosphates of Lime predominate, as in Sombrero, and others; and those in which Ammonia predominates, as in the Peruvian. Both experience and theory establish the fact, that Ammonia and Phosphate of Lime are essential ingredients for a general fertilizer, and, consequently, for general purposes, a proper mixture of the two is recommended: whilst the Peruvian and other Ammoniated Guanos, are mere *stimulants* or *quickeners* of the soil, the Sombrero and other Phosphatic Guanos, are permanent fertilizers, but of slower action and less perceptible effect the first year, unless aided by some stimulants. Hence the great importance of combining the two in proper proportions, which, if done, makes the best, most convenient, and economical fertilizer known. Assuming the cost of Peruvian Guano at \$62, and Sombrero at \$34 per ton—and with one-quarter of the former, mix three-quarters of the latter, (which proportions are recommended by experienced Farmers,) it gives, at a cost of about \$41 per ton, a fertilizer far more valuable and permanent than the Peruvian alone. The agriculturist need only be reminded of the nature of the two predominating ingredients, in the different species of Guano, to enable him to understand the proper mode of its application. Whilst Ammonia (in the Peruvian) is liable to evaporate or rise, Phosphate of Lime (in the Sombrero) is heavy, and liable to sink below the reach of the roots of plants. Therefore it should be either deposited in the hill, or drill with the crop, or used as a top dressing, in the proportion of from 200 to 400 lbs. to the acre, according to the wants of the soil. If used as a top dressing, the Spring is the best time, when the crop is assuming its strength and sustenance, as, at that time, the benefit of the Ammonia is less likely to be lost than if used in the Fall or early Winter.

**EDMOND DAVENPORT & CO., Agents.**

RICHMOND, Virginia.

It can also be obtained of A. GARRETT, E. WORTHAM & CO., DUKE & HUTCHINSON, and E. H. SKINKER, Richmond. Feb. 1, 1858.



## CO-PARTNERSHIP NOTICE.



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

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

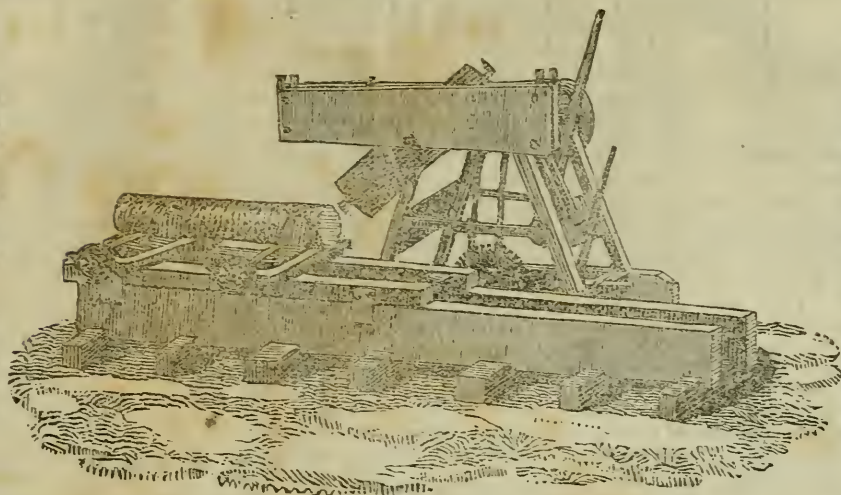
I beg leave to return my sincere thanks to my old friends and the public generally for the liberal patronage heretofore bestowed upon me, and respectfully solicit a continuance of the same to the new concern, pledging ourselves to use our utmost endeavors to please our friends and patrons.

Feb 1859—1y

SAMUEL S. COTTRELL.

HAW'S IMPROVED

PECKER SAW MILL.



The above cut is a representation of J. HAW'S Pecker Saw Mill.

It is simple in its construction, very durable; and is well adapted for plantation sawing. It will saw with from 4 to 6 horse-power from 1,000 to 1,500 feet per day, if properly managed. The carriage is 24 feet long, and will cut logs that will square to 21 inches, and cuts all kinds of timber. The timber is inserted in the oblong plate, and can be renewed when worn out.

I have given the Mill a fair trial, and warrant the performance as above stated. The price of the Mill is \$265, with extra pinions, screw-wrench, cant-hooks, set-punch, and one extra set of teeth. Any good thrasher horse-power will answer to drive it. I also make Threshing Machines from 4 to 12 horse power, and Threshers to thresh and clean Wheat at the same operation, for which I can give satisfactory references to the largest farmers on the Pamunkey River. Those wishing further information, will address

October 1858—tf

JOHN HAW, Old Church, Hanover Co., Va.

## NAVASSA GUANO

THE RICHEST PHOSPHATIC GUANO IMPORTED.

Your attention is respectfully invited to the annexed Analysis and Reports on the Guano offered by me, and especially to the fact therein shown, that it contains in a given bulk a greater amount of Phosphates than is found in any other manure, natural or artificial, yet offered to the public. Phosphoric acid is now admitted by the best agricultural authorities to be the one thing above all others necessary to be returned to the soil, to enable it to produce an unfailing good crop without permanently impairing its general fertility; in this guano we have it presented in the form best adapted for such a purpose. I am anxious to have some of it tried in every district, and also that such as try it, may favor me through my Agents, with the earliest information, as to how far it has practically borne out the anticipations of those who have scientifically examined its constituents, with a view to enable me, and district Agents to make early arrangements for an adequate supply for the following year. Owing to the rapidly diminishing supply of Guano from the Chincha Islands, its yearly advancing price, and the exhaustive effects produced by its too free application to the land, from its possessing too much ammonia, in proportion to its Phosphates, Navassa Guano excels it in practical use, and especially to the farmer as permanently improving to the land, which might yearly receive from the application of NAVASSA GUANO, more Phosphates than the crop would deprive it of.

All local Merchants and Dealers are required to give a guarantee on purchasing that they will sell it to consumers genuine, as received.

Very respectfully,

WM. F. MURDOCK,

No. 29 Exchange Building, Baltimore, April 4, 1858.

Report of Analysis of "Navassa Guano"—Made for E. K. COOPER.

The sample was found upon Analysis to be composed as follows—

|   |   |   |       |
|---|---|---|-------|
| Bone Phosphate of Lime, . . . . .             | - | - | 84.73 |
| Containing of Phosphoric Acid, . . . . .      | - | - | 38.82 |
| Fluoride of Calcium, . . . . .                | - | - | 2.54  |
| Carbonate of Lime, . . . . .                  | - | - | 5.35  |
| Per Oxide of Iron and Some Alumina, . . . . . | - | - | 3.00  |
| Water, &c. . . . .                            | - | - | 4.38  |
|   |   |   | 100.  |

The extraordinarily high per centage of Phosphate of Lime above stated, recommends this article at once as a superior Phosphatic manure, especially at the present time when the want of the better qualities of Phosphatic Guanos is most seriously felt. The presence of Fluoride of Calcium is of no slight importance. This substance serves as a direct nutriment to plants and, subsequently, enters the composition of the Bones and Teeth of Animals.

CHAS. BICKELL, Ph. D.

Bone Phosphate of Lime.

Jas. R. Chilton, M.D., New York, \$3.75

R. H. Stabler, M.D., Alexandria, \$5.92

For sale by S. McGRUDER'S SONS, E. H. SKINKER & CO., Richmond; JOHN ROWLETT & CO., H. C. HARDY & CO., Petersburg; SCOTT, FRENCH & CO., Fredericksburg; GARRISON & MAIGNE, Norfolk; J. C. NEVETT, Alexandria; VALENTINE S. BRUNNER, Frederick, Md.; BENJ'N DARBY, Georgetown, D. C.

May 1859—tf



## RUFFIN'S PHOSPHO-PERUVIAN GUANO.

Peruvian Guano *used alone* is quite costly, and is rarely attended with any permanent, and never with any considerable improvement. Phosphatic Guano *used alone*, though far less costly than the other, is yet not economical, because, being dissolved slowly and with difficulty, it rarely exerts any effect on the Wheat crop, and not much on the subsequent crop of clover. The two used in intimate mixture, and costing less than Peruvian Guano, are said to be superior to either alone, that a far less quantity of Peruvian Guano will produce a crop which would require a much larger application if used singly; and the Phosphatic Guano is made speedily operative on the Wheat, and permanently operative on the succeeding crop of clover, and on the land. One theory is, that the ammonia in the Peruvian liberates the phosphoric acid in the Phosphatic Guano, for the use of both wheat and clover. Another is, that the ammonia enables both Wheat and clover to appropriate the phosphoric acid. Of the truth of all this each man must judge for himself. The mixture would certainly seem to be judicious, because there is a growing demand for it from judicious, practical men—men whose names can stand a reference. Hitherto this demand has been met from Baltimore, or still farther North. I now propose to supply it from Richmond, with an article at least equal to any made elsewhere. It shall contain 8 per ct. of ammonia, and not less than 45 per ct. of phosphate of lime. All who have heretofore satisfactorily used Manipulated Guano, may safely buy their supply of me; and I ask those who have never tried it to try mine now by the side of Peruvian Guano.

There is no secret in my ingredients or mode of manufacture; and every farmer is at liberty to inspect the whole process. If he approves it, but thinks he can mix it more cheaply for himself, I will sell him the phosphates I use, and he may make the experiment, provided he will buy enough of mine to compare them. All I claim to do is to grind and mix far better than the farmer can, to select a better phosphate than he can, and to obtain it on better terms. My experience in the market already assures me that it is far more difficult to obtain a good phosphate than a good Peruvian Guano; and as, besides this, their complete effect depends on their thorough admixture, which can only be accomplished by perfect machinery, it is better for them to purchase the prepared article than the ingredients, when they are satisfied that they will get what they bargain for. That I profess to furnish all who deal with me. I have leased a large house on Cary street, opposite the Basin sheds, and fitted it up with complete machinery, where I shall superintend the manufacture in person, and where I shall be happy to see all my friends.

While I claim that this article, from the fact that it is reduced to a fine dry powder, will broadcast better than Peruvian Guano, there is no question that for the same reason it will be vastly superior for the drill.

Price, \$52 cash per ton of 2,000 lbs., and will vary according to changes in prices of ingredients.

I have appointed the following persons as agents for the sale, from whom it can be obtained, on the same terms as from myself, viz:

CRENSHAW & CO.,

ALEX'R GARRETT,

M. HOLLINS & CO., Lynchburg.

S. McGRUDER'S SONS,

PEYTON & ARCHER, Richmond;

FRANK G. RUFFIN.

Richmond, July, 1859.—tf

## IMPROVED HOGS.

The subscriber has for sale two very fine Essex BOARS, rather more than a year old. Also, one Suffolk—one Chester County, and several Essex Sows. Price \$30 each, delivered on the cars, or other public freight lines.

Nov. 1st, 1859.

JAMES E. WILLIAMS.

## SHUCKS WANTED.

The subscriber wishes to purchase for present delivery at his place on 8th street, (opposite City Spring), Richmond, Va., or for future delivery, loose or in bales, in Richmond, or pressed in bales only in New York, any quantity of Corn Shucks.

Sept 1859—6t

G. B. STACY.

## For Sale.

A FARM OF 300 ACRES IN BOTETOURT COUNTY. Land good, and improvements good and sufficient. For further particulars inquire of

AUGUST & WILLIAMS,

Dec.

Richmond, Va.

## \$50. FIFTY DOLLARS, \$50

Fifty Dollars a Month, and all Expenses Paid.

To introduce our NEW NATIONAL DOUBLE THREAD TWENTY DOLLAR SEWING MACHINE. A Great Chance for Travelling Agents to engage in a permanent business, at \$600 a year and expenses. Address, with stamp, for particulars,

J. W. HARRIS & CO.,

No. 13, Shoe and Leather Exchange,

Dec.—2t

Boston, Mass.



## GROVER & BAKER'S CELEBRATED FAMILY SEWING MACHINES.

**NEW STYLES**—Prices from \$50 to \$125. Extra charge of \$5 for Hemmers.

This Machine sews from two spools, as purchased from the store, requiring no re-winding on thread. It hems, fells, gathers and stitches in a superior style, finishing each seam by its own operation, without recourse to the hand needle, as is required by other machines. It will do better and cheaper sewing than a seamstress can, even if she works for one cent an hour.

Sales Room, under Mechanics' Institute, Richmond, Va., 9th Street.

*To the Grover & Baker's Sewing Machine Co.*—Gents: Perhaps you may like to know how the Grover & Baker machines are doing in Cuba. We have twenty-five of your machines in use, making government clothing for the army, and plantation sewing, which we have had in use now about eighteen months, and their performance has far exceeded our most sanguine expectations. We run the machines constantly by steam, at a high rate of speed, and we find them to require but little repair—indeed, they seem not to be worn at all. We have tried both the Singer and Wheeler & Wilson machines, but they have been long since laid aside in the race. One thing we are sure of—that the Grover & Baker machine is the only machine for our work.

JOHN J. SLOCUM,

*Supt of the Industria, Cabona, Havana.*

Some years since I purchased a Shuttle Machine, and found so much trouble in working it, that I gave it away, and after closely examining the mechanism and working of every machine within my reach, I purchased a Grover & Baker, as best suited to do the sewing of my family. I have found it simple, easily kept in order, and in evidence of its simplicity, will state that my daughter, when about ten years old, without any particular instruction, had no difficulty in working it, and finds it very fascinating employment.

ROBERT CHILSDEN, Beaufort, S. C.

Jan 1860—6t.

## BRIDGEMAN'S Horticultural Establishment,

*Nos. 876 and 878 Broadway,*

**NEW YORK.**

# SEEDS, SEEDS, SEEDS.

THE SUBSCRIBER HAS NOW ON HAND A FULL SUPPLY OF

## Grass. Vegetable, Herb and Flower Seeds,

Embracing the old favorites, and including several new varieties of superior excellence. For sale (at the lowest market price,) for quality, and quantity, or in packages, for retail trade.

☞ New Catalogues furnished on application.

Also an assortment of

Horticultural Implements, Agricultural and Horticultural Books.

All orders attended to promptly, and with exactness.

**ALFRED BRIDGEMAN.**

Jan 60—3t





HAVING COMPLETED MY

**NEW FACTORY,**

ON

**FRANKLIN STREET AND WALNUT ALLEY,**

*The whole being in connection with my*

**IMPLEMENT AND SEED STORE,  
ON MAIN STREET,**

I now invite particular attention to the advantages I have for Manufacturing any kind of

**MACHINERY,**

AND FOR

**Supplying Seeds and Implements,  
OF EVERY DESCRIPTION.**

*As heretofore, I shall pay particular attention to my*

**PORTABLE THRESHERS,**

With horse-powers so arranged as to require no digging or delay in starting; and shall keep Machines of the best Plan and Workmanship—such as my patent Straw Cutter, Corn-Shellors for Horse and Hand Power, Wheat Fans, Screws, Cradles, Reapers, Hay Presses, Cider Mills, Seed Drills, Plows, Harrows, Hay Rakes, Glenners, Cultivators, Gum and Leather Machine Belting.

Repairs of all kinds of Threshers and Reapers if sent early strictly attended to.

Agent for Bickford and Hufman's Wheat and Guano Drills, and McCormick's Reaper.

Jan 60—1t

# RHODES' SUPER-PHOSPHATE.

Every lot offered for sale regularly Analyzed and fully Warranted.

MANUFACTURED BY

**B. M. RHODES & CO.,**

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

Packed in Barrels and Bags. Price \$45 per ton, cash, in Baltimore.

AGENTS IN VIRGINIA.

Richmond—SCHAER, KOHLER & CO,

Petersburg—VENABLE & MORTON.

Lynchburg—M. HOLLINS & CO.

Norfolk—B. J. BOCKOVER.

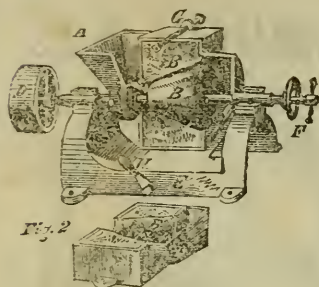
May 1859—ly

Alexandria—WATERS, ZIMMERMAN & CO.

Fredericksburg—SCOTT, FRENCH & CO.

Farmville—H. E. WARREN.

Blacks & Whites—JEFFERSON & WILLIAMSON.



## EXCELSIOR CORN MILL For Planters, AGENCY NO. 45 GOLD STREET, NEW YORK.

THIS is a CONICAL FRENCH BURR STONE MILL, of greatly Improved Construction, combining advantages over all others of same material, in compactness, simplicity, the small amount of power required to operate it, in not heating the meal, and in being adapted to grind on the same Mill, the coarsest feed and finest flour. Negroes of sufficient intelligence to run and keep it in perfect grinding order, are found on every plantation. The Gin power used by Planters is admirably adapted to drive the EXCELSIOR MILL.

Two good horses working on any good power, will grind five bushels flour, or fine meal the hour. It is only 36 inches long, 18 wide, and 18 high—weighs 300 pounds. The best Mill ever invented for plantation use—will last a life time, and therefore must not be confounded with the numberless Iron Mills with which planters have been humbugged for years past. It is a perfect gem, of inestimable value on any plantation.

PRICE—\$100

Descriptive Circulars sent by

Nov. 1859—6m

**J. A. BENNET,** Sole Agent.

## MANIPULATED GUANO! MANIPULATED GUANO!

We offer to the Planters of Virginia a Guano prepared by us as follows:

1000 lbs. of the best Peruvian Guano that can be procured;

800 lbs. of the best Sombrero Guano, containing full 80 per cent of the Phosphate of Lime.

200 lbs. of the best Ground Plaster, for which we pay \$2 per ton extra.

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

Price to Planters, \$45 per ton, or \$2 per ton less, where they furnish bags.

For sale by

**EDMOND DAVENPORT & CO.**

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

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

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

"I am now able to give you the results of analysis. They show the Mixture to be what you stated in a former letter, and I judge that you are very fortunate in the selection of materials, especially of Peruvian Guano. The per centage of Ammonia shows the pure Peruvian to contain 12.4 per cent., which is more than the average. The Analysis is as follows:

|   |   |   |   |       |
|---|---|---|---|-------|
| Moisture (given off at boiling point of water,) | - | - | - | 10.05 |
| Phosphate of Lime,                              | - | - | - | 45.26 |
| Sulphuric Acid, 5.45 }                          | - | - | - | -     |
| Lime, 3.64 }                                    | - | - | - | 9.09  |
| Ammonia,  | - | - | - | 6.20  |
| Insoluble Matter,                               | - | - | - | 1.55  |
| A small quantity of Alkali—undetermined, }      | - | - | - | 24.85 |
| Water in combination and Organic Matter, }      | - | - | - | -     |

100.00

Hoping that your Fertilizer may meet with the success which it deserves.

I remain, very respectfully yours,

Jan—tf

**D. K. TUTTLE."**



## A GRIST MILL FOR TWENTY DOLLARS. THE TOM THUMB GRIST MILL.



We claim that the TOM THUMB MILL supercedes, in practical efficiency, all small metallic mills for similar purposes which have ever been made, and at *less than half the cost of any other*. By the simple device of an adjustable regulator within the throat of the Mill, we are able to dispense with all the superfluous and expensive rattletrap arrangements which have proved such an insuperable objection to every thing of the kind heretofore. If the power is ample, the regulator may be set to feed in the grain rapidly; if deficient, so as to deliver it more slowly to the grinding surface.

They are arranged to be run by horse, water, steam or any machine power where a belt attachment is admissible, and will grind wheat, rye, buckwheat, oats, barley, corn, or Hungarian grass-seed, at the rate of five to eight bushels per hour, according to the grade of fineness of the meal and speed at which they are run.

The distinctive merit of the Machine is its simplicity, whereby any one competent to put on the band, and fill the hopper with grain, may understand and attend it. It is small, it is true, but as long as it works well and with rapidity, that will be pardoned, doubtless, by its friends, and it asks nothing from any other.

It is self-sharpening, and therefore durable—the latter quality being established, we think, beyond a question, by the long continued use of a mill possessing similar grinding capacities, though greatly more complex and expensive, which our house and the firm that preceded ours, have several years manufactured.

The following interesting letter from a party who is using one of the mills, tells what the people think of the little chap.

MENDOTA, ILLINOIS, Feb. 14th, 1859.

Messrs. Hedges, Free & Co.

GENTS: The little TOM THUMB GRIST MILL you sent me is the best thing of the kind in use.

We have ground corn, oats, barley, Hungarian grass seed, and buckwheat. It works equally well with each. We ground six bushels per hour, and are confident that we can put eight bushels of dry corn through, and then make as good meal as can be made with burrs.

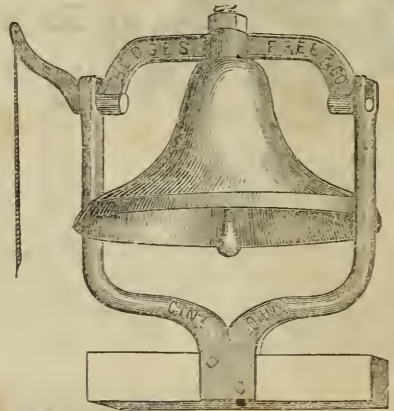
WARREN CLARK,  
Sec. of the Eagle Co.

Shipping weight, packed for transportation by rail or express, - - - 140 lbs.  
Price. - - - - - \$20 00

HEDGES, FREE & CO.,  
No. 6 Main Street, Cincinnati, Ohio.

N. B.—A full descriptive circular mailed free on application. [Jan. '60—1t.

## IRON AMALGAM BELLS.



The undersigned, by a happy amalgamation of circumstances, (chiefly iron) have succeeded in producing a class of Bells which, while possessing the sonorous qualities of brass, are yet afforded at less than a third of the price of those which are composed of the latter material.

The superiority which these bells possess over anything of the kind previously presented to the public, coupled with their remarkable cheapness, render them especially worthy the attention of those requiring anything in that line. It is with no little satisfaction therefore, that the undersigned solicit an examination of the annexed Price List, which must, for reasons given above, possess unusual interest to Farmers, Hotel Proprietors, Planters, Supervisors of Schools and Trustees of Country Churches.

### PRICES.

|       |                                     |      |
|-------|-------------------------------------|------|
| No 1. | 50 lb. Bell with Yoke and Standard, | \$ 5 |
| " 2.  | 75 " " " "                          | 8    |
| " 3.  | 100 " " " "                         | 12   |
| " 4.  | 150 " " " "                         | 15   |

Patents for larger sizes are in active preparation, and may be expected shortly, when prices will be given.

We feel warranted in saying, that the Nos. 3 and 4 may, with distinctness, be heard a distance of three miles.

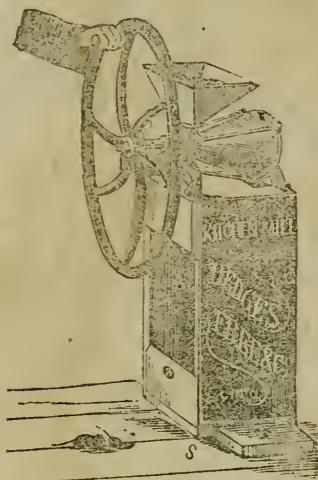
On receipt of price, we will deliver free, on board Cars, Steamboat, or to Express Company, marked to any address.

HEDGES, FREE & Co.

No. 6, Main Street, between Front & Columbia.  
Jan 60—1t Cincinnati, Ohio.

# A KITCHEN MILL.

FOR  
CONVENIENCE, LUXURY, HEALTH AND  
ECONOMY.



With this little machine, the cook, or the "good lady of the house," can have made in a very few minutes daily as much fresh meal, from corn or other grain, as the family can use, and thus save all of the "trouble of going to mill."

It makes No. 18 meal at the rate of about one bushel per hour, when turned, say sixty revolutions per minute. It grinds Spices, Coffee and other grindable substances with great facility. It is, therefore, recommended with confidence to all who like sweet, coarse bread, meal, hominy, samp, etc., etc.; and especially to hotel keepers for grinding Spices or Coffee.

Price \$7 00, boxed and delivered free on cars or steamboat. Shipping weight, 75 pounds.

Manufactured by

**HEDGES, FREE & Co.,**  
No. 6 Main Street, Cincinnati, O.

Jan 11

## BALTIMORE STOVE HOUSE.

**BIBB & CO.,**  
(At the old stand.)

No. 39 LIGHT STREET, Baltimore, Md.

We particularly invite the attention of our country friends to our large and varied assortment of STOVES, embracing the best selection to be found in the city, and will be sold on the most accommodating terms.

Hot Air Furnaces, Ranges, Cambooses,  
Fire-Place Stoves, Parlor Stoves and Grates,  
Gas-burning Stoves, Improved Old Dominion,  
Heating Stoves, Noble Penn & Globe Stove.

Repairs for all kinds of Stoves constantly on hand.  
Old Stoves taken in exchange.

Also, LITTLE GIANT CORN AND COB  
MILLS. AGRICULTURAL BOILERS, &c.

Sep. 1859—6t

## RICHMOND GROUND PLASTER.

The undersigned takes this method of informing the public that our plaster has been selected at the North with great care, purchased with special reference to the interests of our customers, and the trade generally. We hazard nothing in saying that it will be to the interest of those who want, to give us a call, being longer in the business than any one in the city, and attending to the grinding and cooping personally, seeing that every barrel is put up in good order. Farmers sending their own bags, it can be had \$1 per ton less than in barrels.

We tender our grateful thanks for the liberal patronage bestowed on our old brand last season, as well as in years past, and hope, by a strict attention to the business, to merit a continuance of the same.

A liberal discount to the trade.

J. & H. F. SHARPE.

Steam Plaster Mills, South Side Dock,  
Oct 59—6 mo—pdj Richmond, Va.

Liberal Offer for 1859!

## NASH'S TRIAL PIANOS!



We will take upon ourselves the trouble and responsibility of selecting **PIANOS** for and forwarding to such persons as may wish to purchase, and if they do not turn out to be really good, we **WILL BEAR ALL THE EXPENSE.**

We know what the **PIANOS** are, and have no hesitation in taking the risk of giving satisfaction.

E. P. NASH & CO.,

Petersburg, Va.

April 1859.

**J. R. KEININGHAM,**

DEALER IN

**BOOKS & STATIONERY,**

211 Broad Street, between 4th and 5th, RICH-  
MOND, VA.

March 1859.

**C. H. M'CORMICK,**

Offers to the Farmers of Eastern Virginia and North Carolina his Reapers, and Reapers and Mowers, deliverable to order, through his agent,

W. M. A. BRAXTON.

Address Aquinton P. O., King William Co., Va.

N. B.—All persons wanting machines, are requested to call on their orders *early*.

W. A. B.

January 1859—tf

**Macfarlane & Fergusson,**

**BOOK, JOB,**

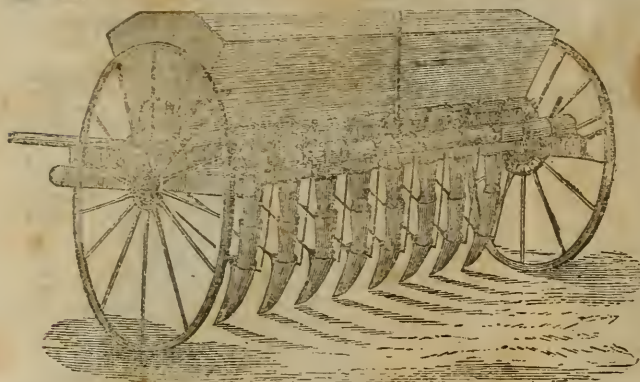
AND

**ORNAMENTAL**

**PRINTERS,**

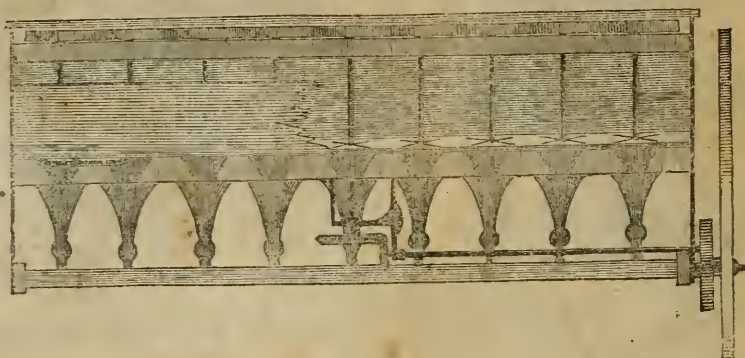
CORNER BANK AND 12TH STREETS,  
RICHMOND, VA.





HEAD-QUARTERS  
FOR THE  
CELEBRATED PREMIUM  
IRON CYLINDER  
Grain Drill,

With the Improved Guano Attachment and Grass Seed Sower.



PATENTED IN 1856 AND 1858.



MANUFACTURED BY  
**BICKFORD & HUFFMAN,**  
BALTIMORE, MARYLAND.

Those wishing this article, and one that is universally acknowledged by the Farmers of the South, North and West, and by all that have examined it, to be the best ever offered to the public, will bear in mind that unless they order early, may be disappointed, as hundreds were last season, by delay.

PRICES,

|               |   |   |         |                   |   |   |         |
|---------------|---|---|---------|-------------------|---|---|---------|
| 9 TUBE DRILL, | - | - | \$90 00 | Guano Attachment, | - | - | \$25 00 |
| 8 " "         | - | - | 85 00   | Grass Seed Sower, | - | - | 10 00   |
| 7 " "         | - | - | 80 00   |                   |   |   |         |

All Orders promptly filled and information given, by application to

**C. F. CORSER,**

General Agent for the Southern States,

Office, No. 90 S. Charles Street, between Pratt and Camden, Baltimore, Md.

For sale by **CHURCH & FLEMING,** Agents, Richmond, Va.

**CAUTION.**

Notice is hereby given to all whom it may concern: That this is to forbid all persons making, vending using or infringing upon our Guano or Compost Attachment, patented April 22d, 1856, re-issued May 18th, 1858. Any person violating our rights, will be held accountable. None genuine except manufactured by us, where they can be had on application to **C. F. CORSER,** our General Agent, at No. 90 S. Charles Street, Baltimore, Md., or to agents appointed to sell the same by said Corser.

September 1853.—ly

**BICKFORD & HUFFMANN.**

*J. Saunders*

VOL. XX.

[FEBRUARY.]

No. 2.

PUBLISHED MONTHLY.

AUGUST & WILLIAMS, PROPRIETORS.

J. E. WILLIAMS, EDITOR.

# THE SOUTHERN PLANTER



DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

PRINTED AT RICHMOND, VA.,  
BY MACFARLANE & FERGUSSON.

1860.



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## THE SOUTHERN PLANTER

Is published monthly, in sixty-four octavo pages,  
upon the following TERMS:

TWO DOLLARS AND FIFTY CENTS per an-  
num, unless paid in ADVANCE.

ADVANCE payments as follows:

|  |      |
|--|------|
| One copy, one year,  | \$ 2 |
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| Thirteen copies, one year,   | 20   |
| Twenty do do   | 30   |
| One copy, three years,   | 5    |
| And one copy free to persons sending us the NAMES<br>and MONEY for thirteen or more new subscribers. |      |

All money remitted to us will be considered at our  
risk ONLY, when the letter containing the same shall  
have been registered. This rule is adopted not for  
our protection, but for the protection of our corres-  
pondents, and we wish it distinctly understood that  
we take the risk only when this condition is complied  
with.

## ADVERTISEMENTS

Will be inserted at the following rates:

|   |   |                   |      |                     |       |                     |       |                    |       |                |      |
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# 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.—SCILLY.

J. E. WILLIAMS, EDITOR.

AUGUST & WILLIAMS, PROP'RS.

VOL. XX.

RICHMOND, VA., FEBRUARY, 1860.

No. 2.

*From Josiah Parkes' Essays on the Philosophy and Art of Land-Drainage.*

## **Influence of Water on the Temperature of Soils, &c., and the Physical Action of Water.**

\* \* \* The importance of an inquiry into the physical properties of different soils, and particularly into the causes affecting their state of heat and moisture, has been glanced at by various philosophers and agriculturists; but I am not aware that a systematic pursuit of it has yet engaged the attention of any British experimentalist. Mr. Handley, in his letter to Earl Spencer, which preceded the formation of the Society, has cited certain phenomena with which, it must be admitted, we are very insufficiently acquainted; and he has pointed out, as still remaining among the mysteries of nature, the action of several of her most energetic agents. He observes, "The experimentalist might be usefully engaged in determining the temperature of the earth at its surface, and to the depths accessible to the cultivator; the influences exerted by heat, light, and air; how far they penetrate into the soil, and at what point seeds cease to germinate; the effects of different culture in promoting the absorption and retention of caloric; the extent and operation of capillary attraction;—points which, hither-

to much disregarded, evidently act an important part in hastening and perfecting the maturity of plants, and the study of which appears to be at least as interesting to mankind as those scientific labours which have been exercised with so much zeal to deduce the intensity of a central fire from experiments showing the increasing temperature of the body of the globe the deeper you bore into it."

I have no pretension either to the ability or the knowledge to fill up these *vacua* in the science of agriculture; it may appear, even from the following imperfect observations, that the gaps are still wider than those above recited: yet, I would express my conviction that there exist no obstacles which should discourage the possessor of land and leisure from entering on this unexplored field of investigation; but, on the contrary, there is reason to anticipate that his labours would be made in a land of promise, and that they would be abundantly repaid.

Previously to detailing my own and other very limited experiments on the temperature of soils, it may be well to consider some of the operations of the husbandman, their intent, and the manner in which the heat and moisture of a soil may be affected by them. The two principal agricultural processes, upon which, perhaps, the fertility



of land depends as much as on the artificial aids now so scientifically and beneficially applied to it, are drainage and pulverization.\* These mechanical operations are practically known to be indispensable to the full development of the natural powers of soils, as well as to the profitable employment of the numerous and costly stimulants latterly introduced into agriculture; and it is my present object to show that the temperature of soil is materially influenced by the perfection of these processes; and that each particular soil is benefitted by them, according to the degree in which it may require to be artificially drained and worked. You have forcibly remarked, [addressing Ph. Pusey, M. P.] that "all who are acquainted with improved husbandry are now agreed that, on wet land, thorough draining is to a farm what a foundation is to a house." Water, indeed, forms an essential element in soil, but there may be as much difference, in respect to fertility, between a *wet* soil and *moist* one—though they be identical in other respects—as between a swamp and a garden. By drainage and pulverization the proper degree of humidity is to be attained in most soils; for, though it is wisely ordained that we cannot control the precipitation of rain, we do possess the power of regulating, within certain limits, the quantity of moisture to be retained by the earth, and of adjusting it, as it were, to the quality of the soil and to the requirements of vegetation.

### SECTION I.

#### *Physical Action of Water.*

The consideration of the well-known effect of drainage on soils surcharged with water, naturally leads to an examination of the causes of the change produced in them by so simple an operation. A soil perfectly dry, or one perfectly wet, *i. e.*, constantly drenched with water, would be nearly alike sterile; and we may conceive that some certain proportions may exist between the amounts of heat and moisture adapted, so far as their agency is concerned, for bring-

ing a given soil, in a given latitude or situation, to its maximum state of fertility. The researches of different philosophers have elucidated the laws which pertain to water, in its several states, as a fluid, a solid, and a vapour or steam. There is, probably, no natural substance which has been investigated with greater success, and there is, perhaps, no other substance which performs more numerous or more important parts in its action on soil, and in the economy of vegetable life, than water. In its chemical relations to the solid, saline, and gaseous constituents of soil, there may be still something to discover; but its physical properties as regards heat, its operation as a solvent, and its mechanical laws, are sufficiently ascertained to enable us to understand, and explain satisfactorily, the various benefits that are afforded to wet soils by drainage.

If a soil be saturated with water, the nobler classes of plants cannot flourish; they vegetate more or less imperfectly, until the quantity of water be so diminished as to suit their habits. The reduction of the excess of water to the due proportion can only be effected, naturally, by its gradual evaporation, *i. e.*, by its conversion into vapour; and its transition from the fluid to the æriform state is accompanied by the absorption of so large a quantity of heat from the soil in contact with it, that it may be convenient to consider its action in this respect first, and to endeavour to appreciate its amount.

When water is set over a fire in an open vessel, its temperature, as indicated by the thermometer, cannot be made by any force of fire to exceed  $212^{\circ}$ , under the mean atmospheric pressure of about 30 inches of mercury. The temperature of the water then becomes stationary, and the heat of the fire is afterwards expended in converting the water into steam or vapour. The temperature of the steam continues to be precisely that of the water, and it has been found that it requires about six times as much heat to boil off any given volume of water as would raise the temperature of that volume from  $50^{\circ}$  to  $212^{\circ}$ . Hence it is concluded that the difference, or  $162 \times 6 = 972$  degrees of heat, have passed through the water, and entered into the composition of every atom of steam. Steam, therefore, has a much greater capacity for heat than water. These continual accessions of heat are absorbed by the steam in the act of its

\* The term *drainage* is here used in an extensive sense, not confining it to the construction of artificial conduits for water, nor to its application on those soils only which are reputed as *wet*. The mere acts of digging, ploughing, and working soils reputed as *dry*, do, in reality, effect drainage, by opening channels for the descent of water from the superficial to the lower strata.

formation, and become what is termed *latent*, i. e., insensible to the thermometer, which, plunged in the steam, marks only the same temperature as that of the water from which it was generated viz.,  $212^{\circ}$ . This latter is termed the *sensible* or *thermometric* heat of the steam. That the whole of the heat thus expended in changing water from its fluid into its gaseous state has entered into the steam, is proved, conversely, by condensing a given weight of steam in water, when it is found that a pound of steam will raise about 6 lbs. of water from  $50^{\circ}$  to the boiling-point.

Water is vapourizable at all temperatures when exposed to the atmosphere. Its expulsion from the earth does even, under certain circumstances, continue when the atmosphere is replete with moisture, or at what is termed the dew-point. And it is most important to observe that, at however low a temperature the water in the soil, or that of the atmosphere incumbent on it may be, at which vapour is formed and expelled, the same amount of heat is carried off by a given weight of vapour as if it had been generated in the open vessel over the fire above referred to, or in the close boiler of a high-pressure steam-engine. A practical confirmation of the truth of this law has been obtained by evaporating water under widely different pressures, when it appeared that the same weight of fuel (or measure of heat) was consumed in converting equal bulks of water into steam at all those different pressures. It is ascertained that it requires as much heat as 2 or 3 ounces of coal will produce to convert 1 lb. of water into vapour; it is, therefore, evident what an enormous quantity of heat must be taken from the soil in cases where water is allowed to remain stagnant upon it till it evaporates.

As heat is generally considered to be an imponderable body, we are without the means of ascertaining directly, by weight or measure, the quantity of heat absorbed from soil by the evaporation of water. The following illustration of it will, however, be familiar enough to the mind of the engineer, and will also, I think, enable intelligent farmers to form an idea of its immense amount.

If we suppose the rain falling on the surface of an acre of land in the year to be 30 inches in perpendicular depth, it would amount to 108,900 cubic feet=3,038 tons; which, spread over a twelvemonth, gives an

average of 298 cubic feet= $8\frac{1}{2}$  tons, or 18,647 lbs. per diem. This weight of water would require, for its diurnal evaporation—supposing it were all carried off by that means—the combustion of about 24 cwt. of coals, as ordinarily used under a steam-boiler, or 1 cwt. PER HOUR PER ACRE throughout the year! We thus obtain some idea of the abstraction of heat from land under the circumstances of perfect aqueous repletion and stagnation, and there are too many soils approaching to them. We may also imagine the depression of the terrestrial temperature consequent on the abstraction of so much heat from the mass of the soil—a depression which must ever be in proportion to the excess of water present in the soil, over and above the due complement required for the supply of vegetation. Soils in that state must necessarily be very cold in the spring months, and much colder at the time of the commencement of vegetation, and throughout the summer, than well-drained or naturally drier lands. If we knew the capacity for heat of any given soil, and the weight of water mixed with it in excess over the proper complement necessary for vegetation, it would be easy to determine, very nearly, the depression of temperature caused by its evaporation. We know that the heat of a pound of water in its gaseous state, that is, as steam, would raise the temperature of about 1,000 lbs. of water one degree; so that, if the specific heats of the solid and fluid bodies were alike, the evaporation of a pound of water would keep down the temperature of 1,000 lbs. of earth one degree; of 500 lbs., two degrees; and so on.

Secondly; excess of humidity obstructs the absorption of heat by the solid matter of the soil. Water, in a quiescent state, is one of the worst conductors of heat with which we are acquainted. If it be warmed on the surface—and it derives, when mixed with soil, nearly all its heat from the sun's rays—water transmits little or no heat downwards.

If a mass of water be heated from below, the whole quickly attains an uniform temperature by reason of the motion excited amongst its particles. The lowest stratum, when heated, becomes of less specific gravity than that resting upon it, and the heavier superincumbent portions descend and push that which has been warmed upwards. In this manner rapid circulation is induced.



If, on the contrary, it be heated from above, *i. e.* on the surface, the film of warmed water floats on the top, by virtue of its superior levity, and no heat is conveyed below; there is no circulation from above downwards. Much of the heat of the sun's rays is, therefore, prevented by excess of water from entering into, and being transmitted through, the mass of the soil.

Thirdly; water is a powerful radiator of heat, *i. e.*, it cools quickly. All bodies, whether fluid or solid, possess peculiar powers of emitting or radiating heat, and water was esteemed by the late Professor Leslie—in which opinion he has been joined by other philosophers—to stand at the head of radiating substances.

The phenomena of the production of cold by radiation and evaporation are elegantly exemplified by the well-known experiment of exposing water, warm enough to give off visible vapour, in one saucer, and an equal bulk of water drawn from a well in another saucer. The former, on a sharp frosty morning, will be found to exhibit ice the soonest.\* The cooling powers of evaporation and radiation, combined, and of radiation chiefly, or solely, are represented in this experiment by the order of congelation in the two vessels in time; but the difference in the quantity of heat emitted from each of them is immense, as appears from what is stated above with reference to the constituent heat of vapour.

Fourthly; as the temperature of water diminishes during the night, or in the day-time, according to the varying conditions of the atmosphere, by radiating its heat to the heavens, its specific gravity increases; and the superficial stratum, which is first cooled, immediately descends by reason of its augmented density. This film of cooled and heavier water is as quickly replaced by relatively warmer and lighter portions, which become cooled in turn, and successively sink. Water, therefore, though a non-conductor of heat downwards when warmed on the surface, becomes a ready vehicle of cold in that direction when cooled on its surface; and this cooling process may even continue, under fitting circumstances, until the whole of a given mass is reduced to the low temperature of about  $42^{\circ}$ , at which point water

attains its maximum density. The further descent of cold through this process would then cease; but the refrigeration occasioned by it must affect all soils, to a greater or less degree, which hold water in excess, *i. e.*, when in a state of stagnancy near to the surface. Those soils only can be exempt from this chilling influence which are not naturally retentive of water, or which are artificially and deeply drained.

Thus, excess of water conduces to the production of cold in soil, by means of several independent, vigorous and ever-active properties.

On the other hand, when a soil is naturally so porous, or is brought into such condition by art, (*viz.*, by drainage,) that rain-water can sink down into the earth, it becomes a carrier, an alert purveyor, instead of a robber of heat; and tends to raise, permanently, the temperature of the mass of useful soil; and this more particularly and beneficially during the vegetative season. Rain-water, at that time, conveys downwards the more elevated superficial heat of the soil, and imparts it to the subsoil in its course to the drains; it leaves the soil in a fit state to receive fresh doses of rain, dew, and air, and in a better condition to absorb and retain heat, at the same time that it promotes, in other ways, its fertility and productiveness; but a consideration of the chemical effects attributable to the continual circulation and renewal of water and air is foreign to the present discussion.

In order to render the change of water perfect, and its action uniform throughout a field, all drains should be deeper than the active or worked soil, and covered. If drains are open, much of the rain precipitated on the surface necessarily passes into them before it has permeated the whole mass; consequently, it carries off with it heat, which would have been usefully employed in warming the lower strata; and it may, at the same time, remove fertilizing matter. If drains are not deeper than the worked bed, water remains below in a stagnant state, which must chill the roots of plants, and diminish the temperature of the superincumbent mass.

Gardeners and florists are well aware of the injurious influence of water when supplied constantly to the pan instead of to the surface of the soil in the flower-pot; and bottom water, as it is frequently and very appropriately called, produces the same ill

\* Boiling water thrown on the ground will freeze sooner than cold water.

effects when stagnating too near the surface of the great agricultural bed.

Superficial drainage is comparatively of little value, and is, perhaps, exemplified in its worst practical form by land tortured on the ridge and furrow system. When land is permanently cultivated in high ridges, the crowns can obtain but partial benefit from the action of rain. The gradation from the comparative dryness and warmth of the summit, to the suffocating wetness and coldness of the furrows, is commonly evidenced by the state of the crops grown on land so disposed.\*

*To be continued.*

### Omitting too Much.

A green, good-natured, money-making, up-country fellow, who said everything drily, "got things fixed," and struck up a bargain for matrimony. Having no particular regard for appearances, the party agreed to employ a not over-wise country justice to put on the tacking. He commenced by remarking that "it was customary on such occasions to commence with prayer, but he believed he would omit that." After tying the knot, he said "it was customary to give the married couple some advice, but he believed he would omit that. It was customary, too, to kiss the bride, but he believed he would omit that also." The ceremony being ended, the bridegroom took the justice by the button-hole, and clapping his finger on his nose, said: "Squire, it's customary to give the magistrate five dollars—but I b'leve I'll omit that!"

Let habits of industry, honesty and perseverance be the register of your life.

\* It would be curious—but, possibly, more curious than useful—to learn the origin of this remarkable artificial configuration given to land, which is, I fancy, peculiar to England and to particular counties. One would think that this system must have been invented previous to the discovery that water would find its way into cut drains; or, the inventor may have considered rain as his greatest enemy, and that he ought to prevent its entrance into the soil and get rid of it as soon as possible. I once put the question, as to the utility of this process, to a few farmers in Cheshire with whom I was in company. Their notion was that an undulating, being greater than a plane surface, more stuff would grow on it. It stood to reason that such must be the case! This was debated at great length, I contending it was a fallacy. On a division I was left in a minority of one.

*From Memoirs of the "Society of Virginia for Promoting Agriculture.*

### Rotation of Crops.

*By W. C. NICHOLAS, ESQ., Vice President of the Society.*

RICHMOND, OCTOBER 2, 1818.

DEAR SIR:

Through you, I offer to the Agricultural Society of Virginia, a paper upon the rotation of crops, and the importance of stock to complete the good effect that can be expected from any rotation. I am sure I need say nothing to impress upon the society the value of any system, that will give meat for our own consumption and to spare, increase the product of bread stuff, and give additional fertility to the lands of Virginia.

With the most anxious solicitude for the success of our efforts, to improve the agriculture of our country,

I am, with great respect and regard,

Dear Sir, your humble Servant,

W. C. NICHOLAS.

JOHN ADAMS, ESQ.,  
*Secretary Agricultural Society of Va.* }

### ROTATION OF CROPS.

Of all agricultural subjects, this perhaps is the most important, and to a Virginian, the most difficult. Experience affords us little light upon the subject. The practice in Virginia, heretofore, has been to cultivate our lands more with a view to immediate profit, than with any regard to the future. All the various soils in the country eastward of the mountains, have been used in the same way, and the same crops have been cultivated by all, without regard to the fitness of the soil, or to the situation of the farm. Everything that could be drawn from it has been eagerly taken, without giving anything in return, by ameliorating crops, manure, or even rest. The land has either borne, in succession, exhausting crops, or it has been as much or more injured by improper use of its pasture, as it is falsely called.

In fixing on a rotation, a farmer should ascertain what crops are best suited to his farm, and in what succession such crops ought to follow each other, so as to make the greatest possible profit, consistently, not only with keeping his land in good heart,



but in an improving condition. "A judicious rotation of crops is the ground-work of general improvement. If a judicious system be adopted and persevered in, it cannot fail. No mode of execution can make up for a defective one. The same crops which under one system would be unprofitable and injurious to the land, under another rotation, with intervening ameliorating crops, might not only be profitable, but might promote its fertility." What I shall suggest to the Society upon this subject, will be the result of my own experience and observation, assisted by all that I have been able to derive from the English and Scotch writers—making the necessary allowance for difference of climate, soil and products. I have, without scruple, availed myself of their suggestions, whenever they appeared rational, and more particularly, when they were founded upon facts properly vouched for. In speaking of the agriculture of Great Britain, I cannot deny myself the satisfaction of expressing my warmest admiration of the exalted merit and patriotism of the distinguished men of that country, who have, by devoting their talents, time, and money to agricultural pursuits, brought that most useful art to a perfection unknown to their ancestors, or to the people of any other country. The Duke of Bedford, Mr. Young, Lord Kames, Mr. Anderson, Sir John Sinclair, Mr. Coke, Lord Sommerville, and others, may have less splendour attached to their characters; but I have little doubt, that they have been more usefully employed than Mr. Pitt, Lord Castlereagh, the Duke of Wellington, or Lord Nelson. I trust the people of Virginia will not be less attentive to the improvement of a country so deservedly dear to them.

I will consider, first, the principles on which rotations ought to be arranged; next, the various sorts of rotations which have been adopted in Virginia, for different periods of two, three, four, five, six, or seven years; and lastly, any miscellaneous particulars connected with this branch of enquiry.

It is not believed that the same land, without some interval will continue to yield the same plant to advantage; there may be some exceptions, but they can only occur where the land is the richest alluvion soil, or is frequently and heavily manured. A farmer should, therefore, avoid frequent

repetitions of the same articles in his rotations. The propriety of adopting any particular rotation must depend on the climate; for it would be absurd to attempt to make gourd-seed corn and sweet potatoes in Greenbrier; a light, sandy land should never be selected for grass, nor cold, wet, stiff land for corn; on the situation of the farm in regard to markets, for some articles will pay in some situations that would be unsaleable in others; and upon the condition of the soil, whether fertile or exhausted. A farmer cannot carry on his business, unless he has various kinds of crops upon his farm. If he had nothing but wheat and tobacco, he might not be able to procure corn and hay. By having various articles, he does not run so much risk, either in regard to the season or the sale of his produce; and if he fails in one article, he may succeed in another. The crops should be so arranged that the labour of plowing for each, of sowing, weeding, &c., shall proceed in a regular succession, and the labour or business of the farm should not be too much crowded at any one season of the year, but that the crops produced on the farm should be cultivated by the same hands, (except in harvest,) and the same teams. Avoid, as much as possible, having two grain crops; in this country, a deviation from this rule must be admitted; so that small grain of some kind, must succeed corn: this is unavoidable, but must not recur too frequently. To raise those crops most likely to be productive of manure, the use of which cannot be dispensed with, under any rotation that can be devised. To arrange the crops so as to keep the land in good condition and increasing in fertility. Variations in the rotation will be found necessary and expedient, as the condition of the farm may alter. Keeping these maxims in view, the various systems that have been practised in Virginia, shall now be considered.

#### *Two years rotation.*

When wheat was first made a crop for market in that part of the State that had been previously devoted to the culture of tobacco, the rotation was corn and wheat alternately. It was soon found that this course was too hard for the land, and that wheat and corn, in such rapid succession, gave precarious and scanty crops, and that

even the river bottoms could not bear such a scourge. I am satisfied that nothing short of manuring, very heavily, the half that is in corn, will justify the expectation of either good crops, or preserving the fertility the land might have possessed when this course commenced. The impracticability of doing that without summer food for cattle, and with no winter food but what the offal of the wheat and corn affords, must cause this rotation to be rejected at once. If it was possible to ensure a good crop of clover, after every crop of wheat, I believe alternate crops of wheat and clover would be made without injury to the land: but the clover crop is too uncertain to be relied upon for this. It is rare that clover succeeds after a heavy crop of wheat, by which it is subject to be smothered; it is likewise liable to be killed by frosts and severe droughts, in its infant state, and it is said that land tires of it as soon as of any crop.

#### *Three years rotation.*

Corn, wheat, and pasture; this is the most common rotation practised in Virginia. Under this rotation, as under the last, the lands have grown worse yearly, as under that, most of the maxims upon which judicious rotations are founded are violated. There is not a proper mixture of grain and green crops; the grain crops perpetually succeed each other, and the proportion of land in grain is too great. If the farm were in good order when this rotation commenced, and the land regularly sown with red clover when in wheat, and plastered the spring when the clover was sown, and the plaster repeated the next year, and a sufficient stock kept to convert all the offal of the corn and wheat into manure it is possible that the land would not be rapidly injured. If this course were observed, the materials for making manure would be so abundant, there is no question it could be made in large quantities, the whole produce of the farm contributing to it; upon this plan much reliance must be placed upon soiling, which the experience of many years has taught me is a precarious dependence in this climate. I am far from recommending this rotation except upon rich bottom land; but if it be pursued, I do recommend it upon the plan here suggested, with the addition of some provision of grass land

for early and mid-summer pasture. One-twelfth part of the most suitable land on the farm cannot be more beneficially employed than in this way. I consider cattle and hogs as an essential to every farm, not only for the purpose of making the manure necessary for the farm, but as the only means of supplying the country with food from our own resources. A farmer should buy nothing that he can make or raise for the use of the farm. If where the three years rotation is practised, the farm should be thrown into four divisions, and one of them is kept in grass for pasture, and thrown out of the rotation for several years, the land may possibly improve in fertility, if there should be proper exertions to make and apply manure.

#### *Four years rotation*

Admits of greater variety in the succession of crops. The course most approved in the country below the falls of the river, which is generally denominated the corn country, from that grain being considered the staple of that district, is corn, wheat, and two years in clover. Its effects I have had no opportunity of judging of; it is recommended in such strong terms by the president of our Society, that I can have no doubt of its advantages in that tract of country which is better adapted to corn than to wheat. It gives a greater proportion of corn and less of wheat, than I have been accustomed to make, or than it is advisable to attempt in a broken stony country, inconvenient to market, and where manual labour does not abound. In a tract of country above the falls, and below the Blue Ridge, wheat is considered the staple. An increase of the quantity of corn is no compensation for a diminished crop of wheat. One-fourth of a farm in wheat, and that after corn, when the crop is always worse than after fallow, is not considered enough. I once cultivated a plantation in a rotation of four years. My course was corn, wheat, clover, wheat, and the plantation evidently grew worse. I should remark, that during that experiment, the fields were not pastured, nor was I very successful with the clover crop, it having failed more than once. Three crops of grain in four years are too many for any high land. If the plantation had been laid off in five fields, and one field had been alternately thrown out of the course,



as suggested in the three years rotation, the benefit to the land and to the stock from a portion of the land being for a number of years in grass would be attained. So far as my experience or observation goes, wheat may succeed clover with every prospect of a good crop. Sir John Sinclair, however, states it to be the opinion of many of the most intelligent and successful farmers in Scotland, that clover land ought not to be sown in wheat. There may be some difference in the climate or soil of the two countries, that may make the difference upon this subject. However, it is proper that every judicious man should be on the lookout, as our experience has not been such as to be conclusive. When this rotation is practised, I would pasture moderately the clover field the last year it is in grass. In every rotation where the land is to remain not more than two years in grass, I am decidedly of opinion, that clover-seed should be sown on every crop of wheat, at the rate of a bushel of clean seed to ten acres.\* The cost of the seed is no consideration in comparison with the value of the crop or the improvement of the land from it. Many people believe, that after clover is once well taken, it is unnecessary to sow again; land will sometimes re-seed itself, but it will more frequently fail. The famous Norfolk four years rotation, which has made that one of the most productive counties in England, is turnips, barley, clover, wheat; the land always manured for turnips, and the turnips fed off by sheep, which is a dressing twice in four years.

#### *Five years rotation.*

This is the rotation practised by Mr. Wickham upon his highly cultivated and productive estate upon James river. Its success recommends it highly on rich land. It has been in use for seventeen years; during that time his crops have been the best upon the river, and from what I hear, the average of the last nine years is at least double the first term. I have repeatedly seen his crops of wheat and clover from May to harvest, and I have no hesitation in saying, that they are the best, taken throughout, I ever saw. I have seen in other plantations, lots and parts of fields that were equal to his, but I never saw entire fields under as good crops, either of wheat or clover. Before this land came

into his hands, it had been cropped in the three years rotation. The succession of crops in his rotation is, 1st corn, 2d wheat, 3d clover, 4th wheat, 5th clover. I consider his experiment as establishing, conclusively, that by the free use of plaister of paris, and the proper exertions to make and apply manure, that five years rotation may be relied upon to give fine crops on lands in good heart, and to keep the land in a state of regular and progressive improvement. Although the number of acres that are in grain by having six divisions instead of five, would be fewer, I believe the quantity made would not be lessened, and I am confident the land would improve faster, with the advantage of summer pasture for stock, and the diminution of labour in seeding only one-third of the farm, instead of two-fifths, with the further advantage of commencing, whenever the extra field was to be brought into the rotation, with a naked fallow; which I fear will be found indispensable. From the increase of strong perennial plants upon our lands, since they have been less frequently than formerly planted in corn, I suspect we shall be obliged to resort to naked fallow once in six or seven years to keep them clear enough for wheat. For these reasons I should prefer six divisions; the sixth field I would use as it is proposed the fourth and fifth should be used in the two preceding rotations, to be sown with a mixture of grass seed for pasture.

#### *Six years rotation.*

1st corn, 2d wheat, 3d clover, 4th wheat, 5th clover, 6th clover; this course of crops may be practised to great advantage upon weak or worn lands. It may be varied thus: divide the arable land of a farm into three fields, one of which for corn and clover in equal parts, one in wheat, (half corn and the other half fallow,) and one in clover. Under this course one-sixth of the farm would be in corn, one-third in wheat, and one-half in clover. That part of the clover that is in the inclosure with the corn, to be mowed for hay, and the produce of the field that is in clover to be applied to the support of stock in summer, by soiling and by being pastured.

#### *Seven years rotation.*

1st corn, 2d rye, 3d clover, 4th wheat, 5th clover, 6th wheat, 7th clover. Perhaps

as beneficial a rotation with a view either to profit or improvement would be, 1st corn, 2d rye, (the corn and rye to be consumed on the farm,) 3d clover, 4th wheat, 5th clover, 6th wheat, 7th pasture for six years, on which I would sow greensward, orchard and herds grass, meadow oat and red clover. It will be remarked, that in this rotation the last crop in the course is wheat, and the first and second corn and rye, being three crops in succession. It is supposed the land would be amply compensated for this by the entire crops of rye and corn being consumed on the farm, and each field in its turn being in pasture six years. Where one-seventh of the land is manured for corn, the produce of two-fifths of the land that is in grain consumed upon it, and three-sevenths of the farm in grass, there can be no doubt of produce and improvement sufficient to satisfy any reasonable man. I am informed the lands on the south branch of Potowmac are cultivated in corn six, seven, and eight years in succession, after which they are pastured as long, and in that time are supposed to be completely renovated.

Of the foregoing rotations, I should prefer the five years rotation for good land, but think it would be more perfect, if the farm was thrown into six divisions and one of them kept in grass the whole round. For weak or thin land, I should think the change I have suggested indispensable. With that variation one-half the land would be in grain, and the other in grass.

To avoid repetition, I have purposely omitted mentioning tobacco, not from a belief that its culture should be abandoned; on the contrary, I think it will be long one of the best articles of produce for a Virginia plantation; at anything like the present prices, it unquestionably is so. Persons distant from market, or those who can make tobacco of the first quality, will probably find it to their interest to continue its culture for a great length of time. If it is made upon old land, it should be planted upon the lands that in the different rotations I have given, are allowed for corn. It will be found an easier crop to the land than corn, and will invariably be succeeded by a better crop of wheat.

#### *Miscellaneous Observations.*

It is obvious, that at the commencement of an improving system upon an exhausted

farm, or upon poor land, it is proper to begin with gentle rotations; when the soil is improved, it will bear more severe cropping.

By the high price of wheat, farmers have been induced to cultivate too much land in grain, and there is reason to believe, that stock, the great source of manure, being neglected or almost given up, the soil will be exhausted by the severity of cropping. The late change in Europe to a state of profound peace, must cause the price of grain to fall, which, added to a decrease in the produce of the land, must bring distress upon the farmer; stock of every kind must rise on account of its scarcity, a circumstance which cannot be remedied for many years. The ready answer given by every man, when he is asked why he works his land so hard, is, that he must have the crop from all the land he cultivates, that less will not support his family and defray his expenses. Great and weighty considerations, I admit; but is it not a fatal error to believe, that one hundred and fifty acres of land, in an exhausted state, will produce more than a third, or at any rate half, the same land, well cultivated and improved by the manure that can be made, the free use of plaister and clover, and the proper mixture of ameliorating with exhausting crops? Let these questions be tested by experience.

John Wickham, Esq., when he purchased his upper farm, I understand, could not expect more than from two thousand to two thousand five hundred bushels of wheat, annually, according to the season. His crop is now from four to five thousand bushels. Thomas Marshall, Esq., took possession of his estate, when two and a half barrels of corn, and five or six bushels of wheat to the acre, would have been thought good average crops; he now makes from six to eight barrels of corn, and from fifteen to twenty-five bushels of wheat to the acre. For these facts many of the members of this society can vouch. Little more than half Mr. Wickham's land, produces more than double the grain he used to make upon two-thirds. Mr. Marshall has been equally successful. I hope those gentlemen will favour the public, through this Society, with a full statement of their improvements. Sir John Sinclair says that the lands in some districts in Scotland, were formerly cultivated in grain, three years in



four; the rent was then from twenty-five to thirty shillings per acre; the same lands are now in grain not oftener than three years in six; they pay from five to six pounds rent, and make more grain from half than they formerly did from three-fourths of the farm. These great and important changes have been made in Scotland, in about forty years.

A safe rule by which to proportion the crops of grain, is, not to suffer more than from a half to three-fifths of the farm to be in grain in one year. Let the land that can be manured, be the limit of the corn crop, to be succeeded by wheat, rye, or oats, according to the soil, and the relative value of each species of grain, and then complete the rotation by alternate crops of small grain and clover, allowing one field to be always in grass for pasture. I fear many farmers will be deterred from following this advice, from a belief that it is impracticable to accomplish what I propose. I pledge myself that any man who will make proper exertions, may make the quantity of manure that will be necessary. A farm of three hundred acres in six fields will have six of fifty each; twenty loads of forty bushels to the acre, will require a thousand loads for a field, to be spread over the surface equally. If the manure be applied to the hill or the drill, one-fourth of the quantity will be sufficient for the corn crop. The application in either mode will give from two hundred and fifty to three hundred barrels of corn from the fields, as the year is favourable or otherwise, in one of these modes. I know it is in the power of every man upon such a farm, to manure fifty acres; if he will provide winter and summer food for his stock, and use due diligence in making and saving manure, and consume all his wheat straw and corn stalks as litter for his stock.

In this way, then, half the land will be made to produce the quantity of corn usually made, with a great saving of labour, a certain and constant improvement of his farm, and a crop of wheat, double what he would make, when one-third of his land was planted in corn, and all his wheat made upon corn land.

The nature of the soil should have the greatest influence in deciding upon the crops to be made. In most cases, that crop will pay best, that the land is best adapted

to. If the distance from market is too great to transport grain of any sort, still it is made to great profit, for fattening stock and for distillation. On the south branch of Potowmac, corn is the principal crop. Where the lands are peculiarly adapted to corn, let that be made the staple; so as to wheat, and every other plant which is cultivated. Upon the dry, thirsty uplands of the mountainous country, corn is as precarious a crop, as wheat is upon the light lands of the lower country.

The great error in Virginia, heretofore, has been, that we have cultivated our lands without intermission; that we have attempted crops without any attention to the quality of the land, or the fitness of its culture; that we have taken everything from the soil, without returning anything to it, and that even now, when there is a strong solicitude to improve our lands, we are attempting it in a way that cannot succeed. I believe that by the due application of plaster, and the proper mixture of clover crops, if the clover succeeds, good land may be kept in heart; but if our lands should tire of clover, or become clover-sick, as has happened in other countries, this resource will fail. Is there any man so credulous as to believe, that by clover and gypsum alone, the gullied and exhausted lands of Virginia can be reclaimed? I believe not; if there should be, I can assure him he will be disappointed. Before clover will perform its office, the land must be made capable of holding and sustaining it; nothing but manure will enable such land to do this, and to have manure, there must be stock on every farm, with a sufficiency of food for winter, and pasture for summer. Soil-ing for some time, may be practised to advantage, but it is not to be relied upon in this dry, hot climate, with any certainty, for more than two months, and can scarcely be practised at all in the harvest month, from the middle of June to the middle of July; because the farm hands are fully employed in securing the grain crops. Instead, then, of excluding stock from our farms, they should be considered indispensable, not only for the purpose of making manure, and for the necessary supply of the farmer, his family and labourers, with meat, milk and butter, but as a means of affording income. Instead of Virginia having a surplus of meat and horses, as she ought to have, our supply is drawn to a very

serious and alarming amount from other States. A vast proportion of the beef and pork consumed in our towns, and much of that which is used in the country by the farmers, is brought from other States. I am sure it is a reasonable estimate to say, that Virginia has paid, in the last five years, to the people of the Western country and North Carolina, not less than a million of dollars a year for cattle, horses and hogs, nearly one-fifth of the value of our tobacco crop, thereby impoverishing the people, as well as the land of Virginia.

I have no scruple in saying that at this day, there is less pasture land and less stock in Virginia, in the country east of the Blue Ridge, than there was thirty years ago. I must not be understood to approve of the ancient management of stock and pastures, when the stock was permitted to roam over the plantations, during the winter, and poach the earth, nibbling every atom of herbage that escaped the frost, and snatching every particle of the spring growth, as fast as it was high enough to enable them to bite it. Under this management, the land was injured and the supply of food inadequate; the stock miserably kept through the winter, a great loss in the spring of every year, half starved through the summer, and the manure from them at all seasons, small in quantity and meagre in quality. Instead of which, I recommend the forming of lots for the spring use of milch cows, yearling calves, mares and colts, and ewes and lambs; the more hardy stock to be kept upon dry food until the woods will sustain them, which they will do for two or three weeks in all the upper and most of the lower country; after which, towards the middle of May, the common pasture of the farm may be used, and soiling commence. One-twelfth or fifteenth of the farm of suitable land, in three or more grass lots, on a farm of any size, to be soon in greensward, orchard and herd's grass, meadow oat and red clover, will be of as much value as the same number of acres, in any crop, deducting the expense of culture, that ought to be charged to either grain or tobacco. When the common pasture is open to stock, or when it shall be sustained by soiling, the lots to be shut up for summer use—after the first of September there is never a want of pasture. From that time until March, the lots should not be depastured; the fall growth will be very considerable, which will

be valuable food in March and April, the top of it only being injured by the frost. Where there are two fields of clover in the rotation, perhaps a better use for the land cannot be made of one of them, than to pasture with stock with due caution. Exclude everything until the clover is in full bloom, continue the stock upon it only long enough to make way for the second crop, excluding them always when the land is wet. There is no stock on a farm more benefitted by clover, or less injurious to it or the land, than hogs. Except for the comfort of resting themselves in wet or moist places, in very hot weather, hogs will not root, particularly when the land is dry, if they can get plenty of food without it. They have the ability to procure sustenance in that way, but I am satisfied it is only necessity that makes them resort to it. By using one of the divisions of a farm for pasture, with the aid of lots, I am satisfied that as much manure may be made and applied every year to the field in corn as will make it a fine crop; that horses enough may be raised in Virginia for our own use, and that instead of purchasing a great proportion of the meat we consume, in a very few years, we should have a considerable quantity for exportation.

Here I beg leave to call the attention of the Society to the effect of fattening stock on the farm, with a proportion of its produce. It is to make the land more productive in everything from the vast quantity of the rich manures it affords, which imparts its fertilizing power to every part of the farm in its turn. If the crop of corn is consumed by cattle on the farm, there is no question but that the subsequent crops, both of corn and wheat, will be increased, by the application of the manure it will furnish, which excess may, of itself, pay a good price for the corn so consumed. If, in addition, you can obtain a fair price for the corn, by the fattening of cattle, with a saving of the trouble and expense of its transportation, the farmer would be doubly paid. I am warranted in recommending feeding stock by the success of the South Branch farmers, who have become in thirty years, the most wealthy in Virginia, by the culture of corn, without ever having exported from the district, one bushel in grain; the whole crop being consumed on the respective farms. In Great Britain, the advantage and propriety of this prac-



tice are so fully understood, that there is never more than from one-third to half their farms appropriated to grain. The vast product of potatoes, turnips, cabbages, and grass are applied to the feeding of stock *on their farms*. In this way they believe, and I have no doubt of the fact, that they make more grain than they would do if a greater proportion of the land were made to produce it. In England, this practice is carried so far, that oil-cake is purchased and used for fattening cattle, with a knowledge that its chief benefit is derived from the richness it imparts to the manure, made by the cattle to whom it is fed.

The wisdom and economy of making as much grain upon twenty acres of land as they formerly made upon fifty, are there fully understood, and they are so rational as to believe it is better to have their farms improving than decreasing in fertility—and this is done by men who have only a short and temporary interest in the land, while we, the people of Virginia, who pride ourselves in being the lords of the soil, show so much indifference to its preservation. It is believed, and I fear justly, that our climate is unfavourable to the product of potatoes and turnips, which I consider a misfortune; but it is not pretended that either our soil or climate is at all so, to carrots, parsnips, scarcity, Jerusalem artichokes, or the sweet potatoe, cabbage, rape, or Swedish turnips. We have a great resource, too, in pumpkins, not less valuable for the quality of the food, than any of the roots, and only made so by the time at which they must be consumed. Much of our grain, both corn and rye, might be fed to great advantage, by being ground and fed on cut straw, or steamed, and perhaps more profitably than to sell it in grain, at the common prices.

The benefit to the farmer and to the land, from feeding stock, is so well understood in Great Britain, that it has become an agricultural maxim, that whenever a farmer discovers he can be as well paid, by cultivating food for cattle as for man, he should prefer it, because of the increased quantity of manure it gives. Mr. A. Young remarks, that "that country, that farm will be most improved, and most productive, upon which the greatest quantity of cattle and sheep are kept. This holds good, of

an acre, a field, a farm, a district, a province or a kingdom."

By providing food for a due proportion of cattle, hogs and sheep, the quantity of grain will be increased, and the "meat, cheese, milk, butter, wool, and leather, are so much additional produce gained from the land; by means of which the wealth of a country and its power of providing for a numerous population, is enormously increased."

I trust there is no possibility of my being so far misunderstood as to have it supposed, that it is my desire to convert all our arable into grass land, or that I wish to increase the quantity of grass by diminishing the product of bread-stuff. I recommend stock as an auxiliary, whose agency is to be made to contribute to the increase of the grain crop, and to be subservient to that object. It is essential to the utility and chance of profit from stock, that they should be abundantly fed through the year, and the quantity of stock kept proportioned to the food *provided*; remembering always, that it is better for every person that a farm should be under than over stocked. In the neighbourhood of my estate in Albemarle, we have no resource for the summer support of cattle, but those furnished by our arable lands. We are without swamps or marshes, and we are so fortunate as to be able to cultivate all our cleared lands in succession. I do not believe within eight miles of Warren, there are fifty acres of waste uninclosed lands. Under these circumstances, we must abandon stock or depend upon what can be derived from the farm by pasturage and soiling.\*

W. C. NICHOLAS.

\* The following is an extract of a letter from a gentleman of the first respectability, who is distinguished as a farmer, and who has improved highly a tract of land that had been very much exhausted. It is published to corroborate my opinion of the importance and value of stock; both with a view to the improvement of a farm and the profit to be derived from it:

"I regret that it is not in my power to give anything like a satisfactory account of the ancient mode of cultivating the soil which it has fallen to my lot to manage. The modern and more improved mode of farming had already been adopted in part, when I came here to reside. The plowing, however, is deeper now, and better executed than formerly; plaister of paris is used in greater abundance, and more manure is carted out upon the fields. Not long

*From the New York Observer*

### Lecture on Stock Feeding.

At a late exhibition of the Highland Society's Show, of Scotland, Dr. Anderson, the Society's Chemist, during an able lecture on Stock Feeding, made the following remarks:

"All branches of agriculture are now going through this phase of existence, and principles are being gradually established. The feeding of stock is exactly one of those subjects which can be most successfully advanced by studying the principles on which it depends; and though these involve many most complex, chemical and physiological questions, we have obtained some foundation on which to go. The food which an animal consumes is partly assimilated and partly excreted, but, if it be properly proportioned to its requirements, its weight remains constant, and hence we learn that food does not remain permanently in the body. If, now, an animal be deprived of food, it loses weight, owing to the substances stored up in the body being used to maintain the process of respiration and the waste of the tissues. The course of events within the body is, so far as known, somewhat of this kind. The food is digested, absorbed into the blood, a certain quantity being consumed to support respiration. If the food be properly adjusted to the requirements of the animal, its weight remains unchanged—the quantity absorbed and that excreted exactly correspond to one another; but if we increase the food, a

part of the excess will be deposited in the tissues to add to its weight. Now, the quantity absorbed depends upon the state of the animal—a lean beast thoroughly exhausting its food, while, when it is nearly fat, it takes only a small proportion. So, likewise, if the quantity of food be greater than the digestive organs can well dispose of, a certain quantity escapes digestion altogether, and it is practically lost.

"The problem which the feeder has to solve is, how to supply his cattle with such food, and in such proportions, as to ensure the largest increase with the smallest loss. In solving this problem we must, in the first place, consider the general nature of the food of all animals, the constituents of which may be divided into three great classes—the nitrogenous matters, which go to the formation of flesh; the saccharine and oily, which support respiration and form fat. It is sufficiently obvious that as the two great functions of nutrition and respiration must proceed simultaneously, the most advantageous food will be that which supplies them in the most readily assimilable forms, and in proper proportions. In regard to the first of these matters, it will be obvious that if two kinds of food contain the same quantity of nutritive matters, but in one they are associated with a larger quantity of woody fibre or other non-nutritious matter, the latter will have considerably less value than the former. The necessity for a proper balance of the two great classes of nutritive constituents is also sufficiently obvious, for if, for example, an animal be supplied with a large quantity of nitrogenous matters, and a small amount of respiratory elements, it must, to supply a sufficiency of the latter, consume a much larger quantity of the former than it can assimilate, and there is practically a great loss. We may determine the proper proportion of these substances in three different ways: 1st, we may determine the composition of the animal body; 2nd, we may examine that of the milk, the typical food of the young animal; and 3rd, the results of actual feeding experiments may be examined. But, however valuable the data derived from these experiments may be, they are less important than those derived from actual feeding experiments. In fact, it by no means follows that the proportions in which the different substances are found in the

after my arrival, my stock of cattle was considerably diminished, with a view to give the land as much as possible the benefit arising from clover considered as a mere manure. For five or six years I have been nursing my land carefully, and have had some very poor fields to reclaim; but I am now able to fatten 50 or 60 heaves annually for market, without sustaining any inconvenience; indeed I consider the grazing of those fields which I propose to fallow in any given year, as a decided advantage: because I am enabled by this means, to have the plowing executed more effectually, and to prepare a good seed bed for the wheat. The surface of our country is much broken and exhibits many poor knolls, where improvement has not progressed far, which are not only a great detriment to the appearance, but a material drawback upon the produce of our wheat fields. Upon some of these spots I have been in the habit of having my farm cattle penned every night, and others I have endeavoured to cover with manure. The results have been in every way satisfactory."



animal are exactly those in which they ought to exist in the food. On the contrary, it appears that while one-tenth of the saccharine and fatty matters are assimilated by the animal, only one-twentieth of the nitrogenous compounds, and one thirty-third of the mineral substances in the food are assimilated by the animal. On the other hand, however, it must be remembered that the particular compounds also exercise a very different influence. Thus a pound of fat in the food, when assimilated, will produce a pound of fat in the animal; but it requires about two and a-half pounds of sugar and starch to produce the same effect. The broad general principle arrived at is, that we must afford a sufficient supply of readily assimilable food, containing a proper proportion of each class of nutritive substances. But there are other matters also to be borne in mind, for the food must not only increase the weight of the animal, but also support respiration and animal heat; and the quantity of food required for this purpose is large.

"It appears, from Boussingault's experiments, that in a cow, eighteen ounces of nitrogenous matter are required to counterbalance the waste of the tissues—a quantity contained in about ten or twelve pounds of wheat flour; and it is well-known that an ox expires four or five pounds of carbon daily, to supply which one hundred pounds of turnips are required. We see from this the large quantity relatively to that used up, which is required for the maintenance of these functions, and the importance of adopting such measures as, by restraining them within the narrowest possible limits, produce a saving of food. The diminution of muscular exertion, and keeping the animals warm, so that a small quantity of food may be required to act as fuel to maintain the animal heat, are the most important considerations. Although the presence of a sufficient quantity of nutritive matters is an essential qualification of all foods, their mechanical condition is not unimportant, for unless its bulk be such as to admit of the stomach acting upon it properly, there must be an appreciable loss; and there is no greater fallacy than to suppose that the best results are to be obtained by the use of those which contain their nutritive matters in a very small bulk.

"As a practical question, the principles of feeding are restricted to determining

how the staple food produced on the farm can be most advantageously used to feed the cattle kept on it, and on this point much requires to be said. It appears that they can be best made use of when combined with more highly nutritious food, such as oil-cake or rape; and, when this is properly done, a very great advantage is derived. It appears from experiments that sheep, which, when fed on hay only, attain a weight of ninety pounds, reach a hundred when rape is added. The subject cannot be completed without referring to the value of the dung produced, which has been variously estimated."

The experiments referred to in the course of the address, appear to show that, of food generally, about one-third to one-fourth of the money value, and seven-eighths of the valuable matter, appear in the dung. Dr. Anderson concluded by saying that he had by no means attempted to exhaust, but had given only a sketch, trusting that the observations of others might fill up the details.

### Form and Action of Saddle Horses.

When a horseman sits on a good roadster, he need not take the trouble to pick his way when riding down a rough country lane or over broken ground, because the fore feet of a clever saddle horse, be the pace, walk, trot or canter, are always well forward, and fall flatly and evenly on the ground; and when in action the fore legs are sufficient but not too much bent, the action coming direct from the shoulders. But the most agreeable feature experienced in riding perfect saddle horses is, the ease and elasticity with which they move in all their paces, thereby sparing the rider any feeling of fatigue. Not only is the number of backs and hunters very limited, but those we have—except a few in the hands of masters of hounds and members of hunts—are too apt at an early age to display some of the infirmities to which their race are now so subject, in the shape of curbs, splints and spavins, consequent upon the hurry the breeders are in to bring them into the market before they arrive at a proper working age. Thousands of capital saddle horses are annually sacrificed from this very cause. I partly attribute the downward tendency of our breed of saddle horses, to the rage for speed, which is now so prominent a feature

on the English turf; but when we take into consideration what long considered and careful selection on our turf has effected, when the sole object was speed, we may reasonably anticipate as important and beneficial results from equally judicious selection, when our object is to produce horses possessing that fine union of qualities so essential to good saddle horses.

There are a few people who know what constitutes good shoulders in a horse—a good many asserting that they should *fine*, meaning by this, lean at the withers. It is, however, certain that the shoulders of a young horse, intended to carry weight, can hardly be too thick at that place, provided they are not too thick at the points or the lower ends, while inclining their tops well back, and leaving a good space between the end of the mane and the pommel of the saddle. There is a certain cross-beam which connects the lower end of the shoulder blades with the horse's fore legs, which very materially affects his action. When this is too long it throws the fore legs too much back, causing the horse to stand over like a cart-horse; and such an animal, besides being unpleasant to ride, when at all tired, is very likely to come down. I am here stating what is well known to good judges, but I write for the many. I would also observe that the form of shoulders I here recommend only *contribute* to good action, they alone do not *secure* it. Good hind-leg action is as important as good action in the fore legs. The hock joints should bend well, when in action, bringing the hind feet well forward, but without striking the fore feet, commonly called over-reaching.

It is a common practice to pay little attention to the action of the hind legs, so long as the horse possesses what is termed "fine knee-up action;" but all superior horses, of whatever breed, are eminently characterized by good hind-leg action; for be the shoulders ever so good, unless the action of the hind legs are also good, the horse is uneasy to ride, because the action of the two sets of legs are not properly balanced, and, no matter how accomplished the rider may be, it is with difficulty he can accommodate his seat to the action of such a horse. Such a horse is unsafe to ride, and his rider, if a judge of action, feels that he is so; but if the action of the hind or fore legs be properly balanced, the rider feels his horse firm under him, and

that he cannot very well come down. Indeed, in this case he seems to be riding *up hill*, while under opposite circumstances, he seems to be riding *down hill*. One important point which I consider has been gained by the breeding of horses for speed is, the great length between the hip-bone and the hock, as exhibited in the grey-hound; and although the possession of this point is not so absolutely necessary, yet I, for one, should be inclined to give its possessor the preference for a hunter of the present day, for the horse either is, or ought to be, capable of great speed. But our hunter had not formerly this shape, and did not so much require it. There is, however, one objection against any *excessive* length between hip and hock, which is, that it frequently causes over-reaching, a most disagreeable infirmity for either hunter or roadster. A horse's hips should be wide, to carry weight, and his loins highly muscular, but the lower ends of his shoulders should be light. His chest cannot be too full, but it may be too wide for speed, as well as for agreeable action, causing a rolling motion, very unpleasant to the rider.

Great depth of chest is a powerful recommendation, and the ribs before the girths cannot be too long, but the back ribs (when much speed is required) should be rather short. For very fine action, the shoulder-blades must be long, while they cannot be so without inclining well back. If a horse so formed has good hind-leg action, he will be very valuable as an active weight-carrying cob, because this form of shoulders is, I regret to say, now rarely to be found among our saddle horses, as in the majority of them that come within the pale of a moderate price, the girths are continually slipping forward, causing the rider to sit on the horse's withers rather than on his back; and this is one cause of horses falling down, as the weight of the rider pressing on the top of their shoulders seriously interferes with their free action, and when they make a slight tumble it is next to impossible to recover their feet. The best height for horses intended as hacks of the first class, is about 15 hands. Tall horses are not so good for hacks as those of lower stature, as they do not move with so much ease and lightness, wearing their legs more, and causing more fatigue to their rider. The majority of tall horses are now-a-days tall only because they have long legs, which are very objectiona-



ble, as they never wear well, and are mostly allied with a very shallow body. These horses may do well enough when a showy appearance is the only object in view; but they are not calculated for hard work, or to ride in hilly country. I may dismiss this subject by remarking that I would not advise the purchaser to reject a horse just because he does not happen to possess all the good qualities I have here recommended, as they will remember the old adage, "That there never was a perfect horse."

*London Review.*

*From the Rural Register.*

### Bone Earth.

We are anxious to see a more general use of crushed bones, as we believe that they are the most valuable manure (so far as permanency is concerned) that can be used on most crops. The following from Prof. S. W. Johnson, to the Connecticut Agricultural Society, will be read with interest:—

Having lately been asked by several agriculturists if there is any method known of bringing whole bones into a pulverized condition, otherwise than by grinding or treatment with oil of vitriol, I take the opportunity to communicate to the members of the State Society the process of reducing them into a convenient form by *fermentation*.

This process has been practiced in England, for ten years or more, having been brought before the public there by Mr. Pusey, for many years the editor of the *Journal of the Royal Agricultural Society*, of England; but it appears not to have become very widely known in this country.

The process depends upon the fact that bones consist, to the amount of one-third their weight, of cartilage, or animal matter, which under the influence of warmth and moisture, readily decomposes, (ferments or decays), and loses its texture, so that the bones fall to dust.

From the closeness and solidity of the bony structure, decay is excited and maintained with some difficulty. A single bone, or a heap of bones, never decays alone, but dries and hardens on exposure. If, however, bones in quantity be brought into *close contact* with some easily fermentable moist substance, but little time elapses before a rapid decay sets in.

So too, if fresh crushed bones are mixed with sand soil, or any powdery matter that fills up the spaces between the fragments of bone, and makes the heap compact, and then are moistened with pure water, the same result takes place in warm weather, though more slowly.

The *practical process* may be as follows: The bones if whole, should be broken up as far as convenient by a sledge-hammer, and made into alternate layers with sand, loam, saw-dust, leached ashes, coal ashes, or swamp muck, using just enough of any one of these materials to fill compactly the cavities among the bones, but hardly more. Begin with a thick layer of earth or muck, and as the pile is raised, pour on stale urine or dung-heap liquor enough to moisten the whole mass thoroughly, and finally, cover a foot thick with soil or muck.

In warm weather the decomposition goes on at once, and in from two to six or more weeks the bones will have nearly or entirely disappeared.

If the fermentation should spend itself without reducing the bones sufficiently, the heap may be overhauled and built up again, moistening with liquid manure, and covering as before.

By thrusting a pole or bar into the heap, the progress of decomposition may be traced, from the heat and odor evolved.

Should the heap become heated to the surface, so that ammonia escapes, as may be judged by the smell, it may be covered still more thickly with earth or muck.

The larger the heap, the finer the bones, and the more stale urine or dung liquor they have been made to absorb, the more rapid and complete will be the disintegration.

In these heaps, horse-dung or other rapidly fermenting manure may replace the ashes, etc., but earth or muck should be used to cover the heap.

This bone compost contains the phosphates of lime in a finely divided state, and the nitrogen of the cartilage, which has mostly passed into ammonia or nitrates, is retained perfectly by the absorbent earth or muck.

When carefully prepared, this manure is adapted to be delivered from a drill-machine with seeds, and according to English farmers, fully replaces in nearly every case, the superphosphate made by help of oil-of-vitriol.

*Yale Analytical Laboratory, Nov. 22d.*

From the Boston Cultivator.

## On the Culture and Use of Root Crops.

*Messrs. Editors:*—The business of raising roots in our country may be fairly said to be as yet in a state of infancy, when we come to compare the amount raised with what it is in many foreign countries. It may also be fairly argued, that we can never expect to cope with other countries in this branch of husbandry, owing in part to the enhanced price of labour with us, and possibly, in part, that our climate is not as favourable to their growth, owing to its lack of humidity. Still there is not the slightest doubt in my own mind, but that we can profitably increase the amount of this species of animal food in a large ratio. The farmers of our region are loth to think that the fields from which an annual crop of a ton or two of hay per acre has been taken from time immemorial, can by proper tillage and judicious fertilizing be made to produce in a year or two just ten times the same amount of good succulent winter food for his stock, though probably not as valuable as his hay, pound for pound; yet in the aggregate, no one will deny, vastly more valuable.

One advantage in raising this crop is, that they draw so large an amount of their sustenance from the atmosphere, and consequently, do not impoverish the soil to that extent that most crops of the same amount would be like to. The large broad leaves of the turnip show this especially, and I have yet to learn that a crop of roots exhausts the soil to a greater extent than a crop of corn or other cereal, while the produce of the former is immensely the greatest.

Another advantage in their cultivation is, that by giving so large a yield, that when fed out, and the manure thus made properly saved and composted, more good, fertilizing matter is obtained, I will venture to say, than from any other crop raised on the farm. A man cannot take the product of an acre of roots, say from 15 to 20 tons, and feed them to his stock in the most careless manner without adding largely to the pile in the barn-cellar or yard. This I look upon as one of the greatest advantages arising from their culture, and when persisted in for a term of years, cannot fail of showing its effects in the increased fertility of the soil.

Still another advantage is, that they come into use at a season when animals are de-

prived of food of a succulent nature, and seem to be just what the system needs at that period—acting in a measure as a corrective and alterative, keeping the bowels loose and in a healthy condition. Especially are their good qualities manifested when fed to cows about the period of parturition, when the animal stands in need of food of a laxative nature. The good effects of carrots are also shown when fed to horses in the winter, which are otherwise confined to dry feed, in giving them a fine, sleek coat, and a general healthiness of the system, acting with them both as a laxative and diuretic. For colts especially are they highly beneficial. Having thus endeavored to show something of the practicability of the system, let us look for a moment to their culture; and first, as to carrots:

For this crop, a soil that might be termed a sandy loam, sufficiently compact however to retain manure, and resting on a clayey subsoil, is preferred. A field that was cropped the previous season with corn or potatoes and *kept clean*, should be chosen. Fall ploughing and manuring is preferable, though perhaps not essential, provided the land received two ploughings in the spring. As early in the spring as the soil becomes sufficiently dry to work, in April, if possible, prepare the land by first giving it a good coat of manure, evenly spread and well pulverized. If you have both fine and coarse, use the coarse at this time. Plough to the depth of 12 inches, provided your land was previously in good tilth, if not, two or three inches less will answer, and be sure to see that the manure is well covered. If it is long and difficult to do this, have a man follow the plough and push it in the furrows, so it will not choke the plough. Twenty-five loads at least per acre should be applied at this time. Allow the land to remain as left by the plough until about the 20th of May, when it should be again ploughed at the same depth crosswise, if possible, after which a dressing of fine manure should be applied to the surface of at least 15 loads to the acre, (the amount limited only by the supply,) and well cultivated in. It doubtless will be superfluous to mention the importance of bringing the soil into fine tilth for this crop. Not less than half a dozen applications with a good long thirty tooth harrow, or what is much to be preferred, a good two-horse cultivator on wheels—such an implement as the farmers of



Western New York use in preparing their soil for wheat. The soil will need to be perfectly free from stones and lumps, as they are a great hindrance, both in the sowing and in after cultivation.

For marking out the land for the drill—which when the land has been thoroughly prepared, and in an as fine tilth as an onion-bed, it should be marked for the drills by a machine similar to an old fashioned horse-rake, having the teeth at suitable distances for the rows, and drawn by hand. The first rows can be made straight by drawing a line across one side of the field and allowing the outside tooth to follow it—and if at any time the rows become crooked, by using the line matters can become straightened out again. The proper distance for the drills to be from each other is about eighteen inches for carrots. Now, with your hand-drill, which should be first tried on a floor to see that it works well and discharges the proper quantity of seed, follow the marks carefully, and if your drill is provided with a good roller, as it should be, no other covering will be found necessary, but if no roller, it will be needful to go over them with one separate from the drill. The proper time for sowing in our locality, is from the 20th May to the 10th June, according to the earliness or lateness of the seed season. If sown quite late, however, they may be somewhat thicker, as they will not attain so great size.

In just about three weeks from the period of sowing, if the weather has been favourable, the plants will be up and of a proper size to begin the weeding, and now comes the tug of war! For if the first weeding is not seasonably and properly done, your crop is half ruined; indeed, two or three days procrastination here may cost you your crop. First, let a careful hand hoe between the drills as closely as possible, and the weeds in the rows must be taken out by hand, for there has not yet, in all Yankeeedom, been a machine invented that could distinguish between a carrot plant and a weed. Beginners are very like to fail here, i. e., not to perform the weeding sufficiently early—for if postponed until weeds and carrots have both attained some considerable size, the plants will be very like to come out with the weeds. Care should also be taken here to get the roots of the weeds out, and not be content to allow the tops only to be eradicated. The second weeding usually

comes from ten to twenty days from the first and should be performed in a like thorough manner. They will ordinarily need going over the third time.

The plants should be allowed to occupy the ground until about the first of November, as they make the most growth in the autumn months.

As to the best mode of harvesting, I think it is to take long-handled spades, not shovels, strike them in the earth as close as possible to the roots in a perpendicular position, and pry the roots just loose with one hand and with the other grasp the tops and jerk them from their bed. After a slight experience, this can be done in a more rapid manner than one would suppose, and with a good yield, one man will dig in this way, having other help to do the topping, one hundred bushels in a day. Have never made out much in the use of the plough in digging, as some have suggested. Caution must be taken not to dig more than can be topped and housed the same day, as they are very susceptible to frost. If as yet you do not possess that almost indispensable apartment to the root grower, the barn-cellar, but are obliged to store them at the house-cellar, drive to the outside door or gangway, and having laid some loose plank over the stairs, allow them to roll down this, which will tend to dispossess them of much of the loose dirt likely to adhere to them, and at your leisure, throw them back to the spot designed for their reception. A mound-shaped pile in the centre is best for a large quantity, and if the cellar is properly ventilated, and the roots put in in good dry order, which is all important, there will be no fear from heating in the pile. If, however, from any cause this should take place, it can be stopped by opening the pile and allowing the air to circulate more freely.

As regards the cultivation of the rutabaga, or Swedish turnip, the mode of culture is, in many respects, so similar, that only a few additional hints will be needed. A light clover sward of one year's growth on the clayey loam, requiring a somewhat heavier soil than the carrot, is perhaps best adapted to the growth of this esculent.

When the clover has attained its growth and is part in blossom, say about the second week in June, the land should be well turned over at a good depth—not less than ten inches—and fine manure applied at the surface, amount limited only by the supply,

and thoroughly incorporated with the soil by the use of the harrow; indeed, the extreme pulverization theory of Jethro Tull comes in play here, and nothing short of very thorough culture will answer. Mark with the machine as described for carrots, only let the drills be two feet distant from each other, and at this distance horse-labor may be used somewhat in their cultivation, either by the cultivator or horse-hoe—the latter preferred, if of the right kind.

As regards the amount of seed necessary, two pounds to the acre is about the right quantity, provided your machine distributes evenly, and, I should have stated before, two pounds of carrot seed per acre is used; more being better than less, but it must be stated, one advantage in raising the bag is, that vacant places can be readily filled in by transplanting.

W. J. PETTEE.

We feel pleasure in saying, our excellent friend, the writer of the above essay, took the highest premium on farms less than fifty acres at the Connecticut State Fair in 1856, owing mainly to his success in root culture.

Eds.

### The Common Pump.

In the year 1641, a pump maker of Florence made an atmospheric, or as it was then called, a *sucking* pump, the pipe of which extended from 59 to 60 feet above the surface of the water. When put in operation it was found incapable of raising the water to a greater height than 33 feet. The pump was examined for some defect in its construction; but being found perfect in that respect, it was again set to work, without any better success.

The difficulty having been submitted to Galileo for his advice and solution, and by him having been communicated to his pupil Toricelli, led to the discovery, by the latter, in 1643, that water is raised in pumps by the pressure or *weight* of the atmosphere, and contemporarily, to the invention of the barometer.

Nearly every one now-a-days is acquainted with the fact that water can not be raised from a greater depth than 33 feet by means of the common pump: but suppose an artisan, who had been brought up in New York or London, and was perfectly familiar with this fact, should go to the city of Mexico, and there construct a pump with a pipe 33 feet in length, he would find, upon trial, that

he could not raise the water within 10 feet of the surface: moreover, if he should go to Quito, or Santa Fe de Bogota, in South America, or to Gondar, the capital of Abyssinia, he would not be able to raise it more than 20 feet; while on the summit of the highest ridge of the Himalayas, he could scarcely raise it by the same means to the height of 10 feet.

Without a knowledge, therefore, of the *principles* upon which the operation of the pump depends, he would be likely to get involved in as great mistakes as the Florentine pump maker; and this simple case may serve well to illustrate the *value of science*, even in the simplest affairs of life, and its absolute *indispensability* in directing our operations under varying circumstances.

At the level of the sea, the atmosphere supports a column of water 33 feet high.

At  $2\frac{1}{2}$  miles above the level of the sea, it will only support one  $16\frac{1}{2}$  feet high.

At 5-4-10 miles above the level of the sea, it will only support one  $8\frac{1}{2}$  feet high.

At 8 miles above the level of the sea, it will only support one 4 feet high.

### Artificial Manures.

As sulphuric acid is largely employed in making superphosphates and other artificial manures, the quality of this acid is a subject of considerable importance. Sulphuric acid in England and this country is chiefly manufactured from iron pyrites, in consequence of its greater cheapness; but it would seem that most of the pyritic sulphur contains an amount of arsenic equal to from one five hundredth to one eight hundredth part of the acid. This arsenic is taken up by the plants to which the manure is applied; and in a chemical analysis of vegetables so manured, the presence of arsenic is clearly detected. Prof. Davy, of Dublin, has recently called attention to these facts, and urges upon manufacturers of superphosphates the necessity of caution in the materials they employ, as arsenic is a cumulative poison which is sooner or later destructive to the animal system. He mentions an instance where sheep refused to eat turnips grown with superphosphates, evidently preferring those grown with ordinary farm-yard manure. The Professor recommends the total abandonment of sulphuric acid, made from pyrites, for any agricultural purpose; and, the substitution, instead of acid made from pure sulphur as, in his opinion, pyrites almost invariably contain arsenic.



This plan is actually adopted by many manufacturers of superphosphates who stipulate that the acid must be made from pure sulphur. All pyrites, however, do not contain arsenic. That of the "Belgian Pyrites Company, of Antwerp," has been repeatedly tested without ever showing a trace of arsenic; The Spanish pyrites are also said to be free from it. It is very desirable to have the pyrites, which are imported from different places, thoroughly tested, so that the manufacturers of artificial manures may be able to give satisfactory assurances that so pernicious an ingredient as arsenic is not contained in their otherwise useful productions, which are now so extensively employed.—*Practical Machinist.*

From the Farmer and Gardener.

### Take Care of the Implements.

MR. EDITOR:—Examining a Mowing machine a few days since, I observed, painted upon a conspicuous part of it the words, "*Keep your Knives Sharp.*" The manufacturer had, I presume, learned to know that very many of the failures on the part of farmers to make their mowing machines work satisfactorily, proceeded from a want of attention to the injunction contained in the four words so conspicuously painted upon the machine. It seems strange that any such admonition should be necessary, but "facts are stubborn things," and it cannot be denied that too little attention is given to our implements, when in use, or when not in use. No nation expends so much money for implements as the American, and none are so careless of them. In fact, the purchase of improved implements is one of the heaviest taxes imposed upon us: but it is equally clear that we *double* our taxation in this particular by our abuse of them. The leisure season of the farmer is at hand, and this is the proper time, therefore, to direct their attention to this matter. Where shall they begin? With the first tool or implement they meet after reading this. If they have done with plowing and harrowing for the season, let every plow, harrow, and cultivator be taken to the implement house, presuming, of course, that every well-conducted farm is provided with one of these indispensables. Every shovel, hoe, spade, or rake should be similarly cared for, and the first leisure hour, or rainy day, appropriated to putting them in proper order for

use at any moment. By this I mean, that every part of every tool should be carefully examined; every nut and bolt should be seen to; the adhering dirt should be washed from both iron and wood work; and this should be done before the bright or polished parts, as mold-boards, &c., begin to rust. Apply a little tallow or oil to these parts; procure some good oil paint, (the best is the cheapest,) and give a coat of it to every part of the wood-work. One coat of paint is worth half a dozen of varnish, at least such varnish as is usually applied to agricultural implements. Examine the mowing-machine knives, file or grind out the nicks, put a good edge on them, and after oiling them to prevent rust, lay them carefully aside. Remove all the gummed oil from the gearing and journals of your mowers, thrashers, corn-shellers, &c.; have the blunted harrow-teeth taken to the smith and pointed, and do not forget to have the plow-share laid anew, and the coultter or cutter of the plow sharpened. In a word, have every thing in such order that it will be ready when wanted. This, properly attended to, will save to one-half of our farmers one-half of the annual outlay for implements. Try it for one season, and my word for it the system will be adopted by every one who has any disposition or desire to economise his expenditures. ABNER BROOKS.

From the Farmer and Gardener.

### A Very Little More About Bones.

MR. EDITOR:—I promised in your first number, that I would probably have a word or two more to say about bones. True to my word, I wish to direct attention to a point which possesses some interest; and as my own mind is not at all clear upon the subject, perhaps some of your scientific readers will relieve my doubts. What I wish to know is, whether bones, after being boiled or burned, are as valuable for manure as the raw bone? We know that the analyses of scientific men give to the raw bone a value which the burned or boiled ones do not, and cannot possess. All the greasy, fleshy, and fibrous matter, of which boiling or burning deprives them, are regarded as valuable fertilizers, and it would seem but reasonable that when deprived of these ingredients, bone manure would be less valuable. Now, on the other hand, we have the practical experience of first-rate farmers, which goes

to prove that the burned or boiled bones are superior to the raw. Here science and practice are at loggerheads. Who shall decide? Who of our farmers have tested the matter and are prepared to report? We know that science is unerring. If it be science at all, it must be truthful. Science says raw bones are best; practice, or the results rather, of *some* practical experiments, makes an issue with science upon this point, and insists that burnt or boiled bones are superior to the raw. How are we to settle the dispute? Allow me to offer a suggestion. Both are right, I think, and both are wrong. The action of raw bones, which have not been deprived of their fat and gelatine, is less rapid than the burnt or boiled ones, hence the conclusions at which practice has arrived are based upon the more *immediate* action of the burned bones. Science, on the other hand, insists upon the truthfulness of her premises, and only asks a little more time for their verification. I do not offer this as an authoritative opinion, but simply ask a kind of compromise between the disputants, and with the hope that, if not correct, some of your learned readers will enlighten the rest of us on the subject. A. T. B.

10th Mo. 8, 1859.

### How to Use a Horse.

It is not, after all, every one who owns a horse that knows how to use him, whether for his own pleasure or the horse's, which is, in other words, the owner's best advantage. Nor is it very easy to lay down rules how a horse should be used, considering the many different purposes for which horses are kept, the different natures and constitutions of the animals, and the different circumstances of their owners.

Horses may, in general, be divided into two classes—those kept for work, and those kept for pleasure. In the former class may be included farm-horses, stage, coach and omnibus horses, team-horses, employed in the transportation of goods, and moving heavy and bulky masses, carmen's horses,—and lastly, the road horses of all professional men, who, like lawyers, doctors of medicine, and the like, are compelled to drive or ride many hours *per diem*, regularly, in the performance of their business.

In the latter class may be included race-horses, match-trotters, private gentlemen's saddle-horses, carriage-horses, or roadsters, and many other animals belonging to busi-

ness men, which being employed during half the time or more in actual service, are used during spare hours on the road for purposes of amusement.

With regard to the first class of these horses, the exigencies of the business to which they are applied are, for the most part, such as to supersede and override all rules. In some cases the natural hours of the day and night have to be reversed, and the animals are called upon to do their work by night, and to rest and feed by day. Under these circumstances, it may be laid down as an immutable law, that at whatever hour the horses are to be worked, they must have full time, beforehand, to digest their food and water; they must be carefully cleaned, and made comfortable; they must have sufficient intervals for halting and baiting, on the road, must be cleaned and well fed during the intervals of work, and must have ample time for undisturbed repose. The distance which horses in perfect condition can go upon the road, varies greatly with the powers of the animal, the degree of pains bestowed upon him, the skill of his driver, and the amount of his load, as well as the state of the roads. But it may be taken as a rule, that strong, able horses, of moderate speed, can travel forty miles a day, with a moderate load, without distress, for many days in succession. It may be observed, that it is the better way to start at an easy pace when on a journey, to increase it slightly in the middle of the day, and again to relax it before coming in at night, in order to allow the animals to enter their stables cool, in good order, and ready, after a short rest, and cleaning, to feed with an appetite.

It may also be observed, in this point of view, that it is a mistake to fancy that horses are benefited by being driven or ridden very slowly when they have a long distance to perform. If a horse have to get over forty miles in a day, the roads being good, the temperature of the day pleasant, and the load not excessive, he will do it with more ease and less inconvenience to himself, going at the rate of seven or eight miles the hour, and doing the whole distance in five or six hours, with a single stoppage in the middle of the day, to feed and rest, than if he be kept pattering along at the rate of four or five miles, and be kept out of his stable, hungry and thirsty, and leg-weary to boot, for a longer time.



Farm-horses, whose work is necessarily slow and continuous, lasting ordinarily from sunrise to sunset, with the exception of a mid-day-halt for baiting, are under different circumstances. Their work being always slow, and rarely, if ever, severe, at the moment, or toilsome, except from its long duration, they need not be subject to the same condition as fast-working horses, of being fed long before they are put to work, and allowed to evacuate their bowels thoroughly before being harnessed. They may, therefore, be fed and watered at the last moment, and put to slow work immediately, and will rarely take harm from traveling on full stomachs. In the same manner, when they are loosed at noon-day, being rarely overheated, after a slight rest and a slighter rubbing down—which, by the way, they rarely receive—they may take their mid-day feed without delay, and without fear of evil consequences. In the like manner may be treated carmen's horses, and team horses, the labor of which is heavy and continuous rather than rapid. All horses, however, whatever the work to which they are applied, should have ample time to rest at night, and should be thoroughly rubbed down, dried, clothed and made comfortable, before feeding them and closing the stables for the night,—and the more so, the more trying the day's work.

With regard to pleasure horses, which are usually in the stables, more or less, twenty hours out of every twenty-four, which are only taken out for the gratification of the owner at such times as it suits his humor or necessity, they should never be taken out or driven fast on full stomachs; which can always be avoided by letting the groom know, in case that they will be required at an unusual hour or for unusual work—when he can adapt his feeding hours to the circumstances of the case.

When harnessed and ready for a start, the driver should mount his seat quietly, gather his reins, and get his horses under way, slowly but gradually, by speaking or chirruping to them; never starting them with a jerk, or striking them with a whip,—allowing them to increase their pace by degrees to the speed required, instead of forcing it on a sudden.

It is far better for horses, to drive them steadily at a regular pace, even if it be ten or twelve miles an hour, than to send them along by fits and starts—now spinning them

over the road at sixteen or eighteen miles, now plodding along at six or seven; and of two pairs of horses, driven the same distance, after the two different methods that which is driven evenly will, at the end of the day, be comparatively fresh and comfortable, while the other will be jaded and worn out.

In regard to punishment, the less that is administered the better. A sluggish or lazy horse must, it is true, be kept up to his collar and made to do his share of the work, or the free-goer will be worn out before the day is half done; and for this the whip must be occasionally used. Even good and free-going horses will occasionally be seized with fits of indolence, at moments, induced perhaps by the weather, and it may be necessary to stimulate them in such cases. Again, at times when roads are bad, when time presses, and certain distances must be accomplished within certain times, recourse must be had to punishment; as it must occasionally, also, in cases where the animals are vicious or refractory, and where the master must show himself the master. Still, as a general rule, punishment should be the last resort. It should never be attempted with a tired, a jaded, or an exhausted horse; for to apply it in such cases is an utter barbarity; little or no immediate advantage is gained to the driver, while it may probably result in the loss of an excellent animal. It is common to see horses punished for stumbling, punished for starting; and whenever a new horse, which one may chance to be trying, starts off into a gallop after committing either of these offences, one may be sure that he is an habitual starter or stumbler, and that he has frequently undergone chastisement for them, and undergone it in vain. It is altogether an error to punish for either starting or stumbling; the one is the effect of fear, which cannot be cured by the whip, the other, in most cases, of malformation or of tenderness in the foot, which certainly cannot be treated successfully by chastisement, which, in fact, aggravates and confirms, instead of alleviating or curing.

In speaking of driving at an equal pace, we would not, of course, be understood to mean that horses should be driven at the same gait and speed over all roads, and over grounds of all natures. Far from it. A good driver will, while going, always, at the rate of ten miles—we will say—an hour, never, perhaps, have his horses going at ex-

actly the same rate for any two consecutive twenty minutes. Over a dead level, the hardest of all things except a long continuous ascent of miles, he will spare his horses. Over a rolling road, he will hold them hard in hand as he crosses the top and descends the first steep pitch of a descent; will swing them down the remainder at a pace which will jump them across the intervening flat and carry them half way up the succeeding hill; and will catch them in hand again and hold them hard over the top, as we have shown before.

Horses in work should be watered about once, with not to exceed two quarts, after every ten miles, or every hour, if one be travelling fast; and if travelling far, they should be well fed once in the middle of their journey. This point, however, has been discussed already under the head of feeding.

In closing, we would say, always remember, in using a horse, that it cannot be done with too much coolness, too much gentleness, too much discretion, or too much kindness.

There is no better beast in the world than a horse, nor any one which, though often most cruelly misused by man, so well deserves, and so amply, by his services, repays the best usage. *Herbert's Hints to Horse-Keepers.*

### Dyeing Hats and Feathers.

**TO DYE STRAW BONNETS BLACK.**—Suppose there are two bonnets to dye, one leghorn and one straw. Put an ounce of sulphate of iron into a vessel with two gallons of water; make the liquid boil, then put in the bonnets, and let them boil for one hour. Then take out the bonnets, and hang them on a peg to dry. When dry, rinse them in cold water. This portion of the process of dyeing is called mordanting, the liquor being termed the mordant. After the bonnets are thus mordanted, the mordant must be poured out of the boiling vessel, and two gallons of clean water made to boil in its place; into that liquor put half a pound of gall nuts (broken) and half a pound of logwood, together with the bonnets, and allow the whole again to boil, for one hour. Then take them out of the hot liquor, and hang them to dry as before, when they will be of dusky brown-black color. Chip bonnets as a rule do not require so long as

straw, because the chip takes the dye easier. The final process is to size or stiffen the bonnets, and put them into shape. This operation requires two ounces of best glue, put into two quarts of cold water overnight, and next day completely dissolved by boiling. When the glue is melted, strain the liquor (then called size) into an earthen vessel. Into this put the bonnets one at a time, till thoroughly soaked. When the bonnets are taken out of the liquor all superfluous size must be sponged off. They are then brought into shape as they get gradually dry, or they may be dried on a block. After this sizing process the color of the dye is improved, and becomes black as jet.

**TO CLEAN AND RE-DIP BLACK FEATHERS.**—Feathers that have become rusty in color may be thus restored: First, well wash the feathers in soap and water, using the best mottled soap, and the water scalding hot for the purpose; then thoroughly rinse them in clean water and dry them. Next, take half an ounce of logwood, and boil in a quart of water. When scalding hot, put in the feathers, and there let them remain till the liquor is cold, after which rinse them in cold clean water, and put them to dry. Finally, rub or brush over the feathers the smallest portion of oil, which simple operation brings out the glistening jet appearance in a remarkable manner. If you draw a long strip of paper between the thumb and a blunt pen-knife blade, the paper will curl up. Feathers may be treated in the same way, using only such tender care as may be expected to be required in "touching a feather."—*Scientific American.*

### Growing Potatoes under Straw.

Having seen, in the Agricultural journals, more than twenty years ago, reports of extraordinary success in raising potatoes by covering them with straw, I was induced to try a small experiment, which I will relate for the benefit of some of your readers.

A plat in my garden, about fifty feet square, of well manured clayey loam, was nicely spaded up and made fine and smooth. It was then marked out in shallow drills, two feet and a half apart, and potatoes (of the pink-eye variety) planted whole, two feet apart in the drills, and barely covered with earth. The whole patch was then covered with light, dry wheat straw—which



had been very much broken by its passage through a thrashing machine—and the same spread lightly and evenly with a pitchfork, to the depth of about two feet. Several showers occurred soon after the potatoes were planted, which settled the straw very considerably, and in due time the vines came up through the straw, and soon covered the entire surface with the rankest vegetation.

Nothing more was done to the patch till the vines were killed by frost in autumn. Not a weed appeared among them. At the usual time of digging potatoes the dead vines were all pulled, and removed; then, with a potato fork, the layer of straw—which was pretty well rotted, and not more than four or five inches in thickness—was carefully removed. To my great surprise, there lay the potatoes on the surface, *literally covering the ground*, and almost as clean as if they had been washed. They were picked up and measured, but the quantity I do not remember. This much, however, I well recollect, that I never raised so good a crop by any other mode of culture. They were of very uniform size, and of good quality.—S. MOSHER, Latonia Springs, Ky, March, 1858.

Undoubtedly the above method of growing potatoes is worthy of future trial—especially by those who live in warm latitudes. Protected by the straw from the scorching rays of the sun, the ground would naturally remain moist and cool—thus providing for the potato roots those conditions of soil best adapted to their growth.—*Ohio Valley Farmer.*

For the Southern Planter.

### Management of Tobacco Crop.

RICHMOND, January, 1860.

To the Editor of the Southern Planter:

MR. EDITOR,—At the request of several planters of the county of Fauquier, who have recently commenced the cultivation of Tobacco, and who have but little experience in the curing and management of this staple, we hand you the following communication from one of our most successful planters of the Southside. As we deem your valuable paper the most appropriate medium for its circulation, we hope you will give it a place in your next number.

Resp'y, &c.,

BARKSDALE & BROS.

PRINCE EDWARD Co., Va., }  
Spring Creek, Dec'r 13th, 1859. }

GENTLEMEN:

Your favor of the 1st December is to hand. You desire me to give you a detailed account of my management of Tobacco, from the time it is cut until it is priced in hhds. for market, which I herewith give as follows:

All Tobacco should remain upon the hill until it is *thoroughly ripe*, which can be readily ascertained by its thickness and yellow, grayish, and brittle appearance. Cut when the sun shines dimly, if you can; but whether the sun shines dimly or not, (if proper care is observed), Tobacco will *fall* and *wilt* sufficiently to handle, in warm weather, without breaking. From eight to ten plants upon a stick will be sufficient; eight plants, if the Tobacco is large, ten if medium size. Cut one or two *houses-full* if you can, less than a house-full cannot be cured to advantage; and two houses can be cured more advantageously than one, as you will perceive during the process. Scaffold it about two days, to give it an elastic, tough quality, so much desired by all good judges of the article; after which time, commence housing, beginning at the top and placing the sticks from six to eight inches apart, coming down *tier* after *tier*, until you reach the first firing tier at bottom. In the same manner commence and fill another house.

You are then ready for the *curing process*. Half-seasoned wood, *oak* or *pine*, is preferred. Build small fires all over the ground-floor of the house, four feet apart; let the *fires be small*, and, regardless of any thermometer, let the Tobacco be the guide in ascertaining the degree of heat to be kept up under it. Do not *coddle, burn, or color* it, but let the heat be sufficient to *sap* and *dry* it out in two or two and a half days. You may then raise the heat, by degrees, until the leaf is cured, which will take from two to three days more. *Fire only in the day time*; put out all the fires at night, and begin again early in the morning.

After the leaf is cured and in *supple* order, the best plan is to *re-hang*, putting the Tobacco of two sticks upon one, and replacing as before, giving as much room between the sticks as at first. You may have the Tobacco as close upon the sticks as you can get it, but it is very essential to have *space* between the sticks. You need not re-

gard *swollen stems*, or a few *green* ones; it will all cure up finely, if you follow out the plan laid down. You may give it a little fire only in warm, damp weather.

A great many planters object to re-hanging, on account of the time it takes; but my experience convinces me that, in the end, it saves a great deal of *time*. It saves sticks, the time of one hand, and house-room; for you can thus put two houses of Tobacco into one, and then, by being *jammed* one way, it will retain its original color.

About the middle of November I begin to take down my Tobacco for stripping, which should be done in very supple order.

In assorting I make five grades: *long bright, short bright, long dark, short dark, and lugs*. Tie four leaves to the bundle of the *long*, six of the *short*, and eight of *lugs*, using the shortest and inferior part of the crop to tie with, but always tie with a whole leaf. Straighten and pack down at night what is stripped during the day, with two bundles together, and weight only with tobacco sticks. After the Tobacco has remained in bulk from two to three weeks, rebulk in supple order, straightening *only one bundle* at a time, and keeping the hands of those engaged in straightening well greased with hog's lard, or fresh grease of any kind. After your bulk is of sufficient height, cover with tobacco sticks or plank, and *weight heavily* with rock or anything else convenient. Let it remain thus under weight until the last of March, when it should again be hung up, about twenty-five bundles to the stick, and four inches space between the sticks, to order for prizing. It will dry out, leaf and stem, in a few days, if the weather is favorable; if not, it should be dried out by *fire*. The first season that comes after this, take down in dry order, when the stem will crack from end to end, which is *prizing order*.

When it is taken down in prizing order, coop it, tail and tail, as high as you can reach, and then bulk again, straightening four bundles at a time. Weight your bulks as before, and in two or three days you may commence prizing, which should be done in the month of April, if it suits, but should be done, at any rate, by the 20th of June, and delivered in market.

You also request me to give my mode of cultivation. I could easily do this, if every year were precisely the same, and every season alike; but the years and seasons dif-

fer so widely, it is unsafe to rely upon any particular plan for the cultivation of a Tobacco crop. Suffice it to say, that you should plant as early after the 20th of May as you can, and be sure to have a living plant in every hill by the 20th of June. Cultivate well with *plows* and *hoes*, and never let the grass defeat you. Stop plowing and hoeing about the middle of August, and keep down the suckers, and keep off the horn-worms.

Yours in friendship,

D. F. WOMACK.

TO MESSRS. BARKSDALE & BROS., COM-MERCHANTS, Shockoe Slip, Richmond, Va.

[The foregoing plan, and mode of curing Tobacco, was submitted by Capt. D. F. Womack to two distinguished and successful planters of his neighborhood, for their opinion. with the request that they would make any suggestion they might deem important, which we append to this.]

We, the undersigned, have read the foregoing plan and mode of curing Tobacco, from the time of cutting until it is ready for prizing, and concur in the directions given, and think it as good as any, if not the best plan practised in the management of the article.

Signed,

SAMUEL F. HUNT,  
WM. A. WOMACK.

*From the British Farmer's Magazine.*

### The Lois Weedon System of Husbandry. Its Importance to the Farmer.

A few numbers back a review appeared in this journal of a work on the Tullian system of husbandry, as revived and illustrated in the practice of the Rev. Samuel Smith, of Lois Weedon, Northamptonshire, despite the ridicule and abuse of those who, like the late Sir William Curtis, are "quite satisfied with things as they are." This gentleman has now given the system a trial of twelve consecutive years, during which, without a particle of manure, he has grown wheat, year after year, upon half the land, reaping an average produce of thirty-five bushels per acre. The method of Mr. Smith is well known to our readers; the land having been kept open by the spade to a subsoil depth, three rows of wheat are planted or drilled, at one foot distance between the rows, of course occupying three feet. The next three feet of land being left vacant, three more rows are planted on



the other side of the void spaces, and so on throughout the whole field. One great point in this husbandry is, keeping the intervening fallows well tilled with the spade, and clear of weeds, during the growth of the crops upon the planted parts, and using the horse-hoe freely between the rows of growing corn. As soon as this is reaped, the vacant spaces are at once planted; and so on, year after year, without any change of crops, application of manure, or cessation in the course.

It is not a little remarkable, that after all the efforts that have been made, with the aid of modern science, capital and skill, to raise the fertility of the earth to the highest pitch it is capable of—after all the money expended in the manufacture and purchase of manure, in order to draw from the soil the greatest possible amount of produce—after the publication of innumerable books to prove that if you put nothing into the land you cannot expect to obtain anything out of it, and that for every cereal crop of grain grown, it is necessary to compensate the soil for the loss of elementary matters by a fresh supply in the form of manure;—it is, we say, remarkable that we are called upon, in the very zenith of our agricultural glory, to retrace our steps, and revert to the practice of a speculator, who, a century and a half ago, started a principle upon which, if true, the restoration of the fertility of the soil is based. Namely, that the atmosphere alone contains an abundant and everlasting supply of all the elements of fertility necessary for the growth and sustenance of plants.

This perfect competency of the atmosphere to furnish a supply of food for plants must be accompanied with an attractive power in the soil itself to absorb and modify these substances, and thus reduce them to a form in which their assimilation by the plants is promoted. On no other principle can a result so contrary to all the hitherto-received opinions and practice of agriculturists be accounted for. Every modern writer on agriculture, whether scientific or purely practical, has maintained the necessity of a constant application of manure, in order to compensate the soil for the exhaustion of a cereal crop. It is for this purpose that herds of cattle and flocks of sheep are kept on our farms, it being almost universally asserted by farmers that they only repay the expense of their maintenance by the

manure they produce, by which the produce of cereal crops is increased. Without absolutely endorsing this assertion, we may safely assume, from all experience, that, on the present system of farming, it would be impossible to grow corn profitably without manure; and that a constant succession of cereal crops, without it, would exhaust the most fertile soil in the world. We must therefore conclude that the secret of the success of the Lois Weedon system, which is a copy of Tull's, lies in the constant stirring of the soil under fallow, in order to promote the absorption of the elements of fertility. And moreover, the proportion of that success depends upon the degree and the depth to which the soil is stirred and comminuted. A remarkable corroboration of this opinion has occurred during the present season on the land laid down with Halkett's guideway-cultivator, at Wandsworth. This land had been deeply subsoiled, and communited with the Norwegian harrow and planted with potatoes, without manure. On each side of it the land was tilled in the common way, and also planted with potatoes. The latter produced one bushel per rod; but the former yielded  $2\frac{1}{2}$  bushels per rod, being an excess over the other of 240 bushels per acre. This amounts to  $7\frac{1}{2}$  tons, which, at £5 per ton, is £37 10s. A similar result is obtained by Mr. Smith's spade-husbandry over that of the plough, as practised by seven other experimenters on the Tullian system. Their average produce was 24 bushels 3 pecks per acre, whilst Mr. Smith's was 35 bushels. Their highest produce, also, was  $27\frac{1}{2}$  bushels per acre, whilst Mr. Smith's was forty bushels. It is further worthy of observation that this system is so far from impoverishing the soil, that it seems to improve it; and that the produce, after twelve consecutive years' trial, has increased rather than diminished; that of 1858 being forty bushels per acre. This is a very remarkable feature in the system, as it demonstrates the fact that tillage alone, by stimulating the soil and promoting the absorption of elementary matters from the atmosphere, is sufficient to sustain its fertility.

It is evident that if the Lois Weedon or Tullian system is what it has been represented to be—and there is not the slightest reason to suppose that any deception or misrepresentation has been practised—the expense of farming upon it must be much less,

and the profit much greater, than on the common system. Accordingly we find that whilst the profit upon a four-course rotation, according to Bayldon, ("On Rents and Tillages,") does not exceed £1 5s. 3d. per acre per annum, that of the Tullian system is £4 2s. per acre per annum; being in excess of the other of £2 16s. 9d., or considerable more than double. This, too, is under plough culture; but Mr Smith's spade culture is still more profitable; for whilst the average produce is 35 bushels per acre, which at 7s. per bushel (Mr. Smith's estimate) is £12 5s., his expenses amount to only £6 0s. 4½d., leaving a balance of £6 4s. 7½d. per acre, without reckoning the straw, which, as no manure is required, may be sold to increase still more the profit.

The question then remains to be solved—can this system, which is so profitable on a small scale, be made applicable on a large one with an equally favourable result? We see no reason whatever to doubt the facts that are stated in the work we have referred to, derived as they are from sources beyond the suspicion of deception, and corroborating each other. It is a pity that the subject is not taken up seriously by the Royal Agricultural Society or the Central Farmers' Club, and experiments on a large scale instituted, in order to bring the system at once to the test as the most useful and profitable to the farmer, and consequently to the public.

There is one other question involved in these experiments, we think, worthy of notice—namely, whether manures do not act more *indirectly* as stimulants and absorbents of the alimentary matters in the atmosphere than *directly* as fertilizers *per se*? We know the affinity of many chemical substances, which causes them to unite when placed in juxtaposition. Thus common salt, if placed on a reeking dung-hill, or on any substance emitting ammoniacal matters, will be found to effervesce strongly. This is caused by the absorption of the ammonia; and it will continue until the salt is supersaturated, when it ceases, and the union thus formed is nothing less than the sal-ammoniac of the chemist. This is a subject worthy the attention of the scientific farmer, who will know how to turn it to his advantage, by applying the principle to his every-day practice.

*From the British Farmer's Magazine.*

### The Implement Trade at the Cape of Good Hope.

In the middle of last month [November] the great Agricultural Society of the Cape of Good Hope held its annual exhibition at Cape Town. As with us, it was a show of both stock and implements, imported cattle and sheep valued at upwards of a thousand pounds being entered. Considering the prices at which animals leave England, this is not perhaps saying much. The display of machinery was more imposing, and estimated at least four times the sum of that of the beasts. That is to say, there were four thousand pounds' worth of implements on the ground for the Cape farmers to pick and choose from. Amongst these there were no less than *forty-two* varieties of ploughs; and we can picture the colonists going through the old controversy of Howard, Ransome, or Hornsby; or Hornsby, Ransome and Howard—Page, Ball, or Busby; Busby, Ball and Page. We might even go so far as to imagine that the several representatives of these houses could have been spared for so agreeable an autumn trip, and that Mr. Sutton, Mr. Barrett and Mr. Cole were on the scene, politely distributing their catalogues, and despatching on the premiums they had taken and the wonders they had done. Alas! however, it is too well known that some of the finest flights of our poets, and some of the grandest efforts of our artists, have been to depict their heroes in actions that they really never took a part in. And so would it be with our pæan over what Grantham, Ipswich or Bedford did at the Cape Town ploughing match—for there was not one of them there. Of these forty-two varieties of ploughs for the English colonists to purchase, every one of them was of American manufacture. In the whole four thousand pounds' worth of machinery there was scarcely anything whatever of English make. There were English horses of course, for the breeders out there are beginning to take to them very warmly at last, and, as we have already heard, there were English cattle and English sheep. But with all our knowledge of business, our different plans of pushing a trade, and more than this, with all our fierce opposition one to the other here at home, there was not an English plough on the ground! We begin to fear we shall yet



have to qualify what we set out with, about there being no people so strongly imbued with the spirit of commercial enterprise, and to put America before them. It is almost incomprehensible how they can have so much anticipated us in this direction; for if it was worth the while of the United States to send forty-two sorts of ploughs, it might certainly have been worth the attention of the United Kingdom to send a few. We can, indeed, very readily echo the commentary of the Judges on making their awards, and "the surprise they expressed at seeing English manufactures so badly represented."

Surely, this is a matter worth looking to. With some of our best blood to go on, the Americans already declare that they shall soon "grow" better Shorthorns than we can. Their horses, by the same system, are often equal to our own, as it is. The first favourite for the Derby at this very time is a colt brought over by Mr. Ten Broeck; and a Yankee pugilist is coming to fight our man for the Championship. In some descriptions of machinery even, we only follow their lead, and the best of our reapers and mowers are either invented or improved upon by Americans. But they are too 'cute a people to slight any hint or wrinkle they might take from us. At the Agricultural Fair held at New York, just about the same time as this meeting at the Cape, the entries for implements were kept open to the very day previous to the show, with the especial view of allowing strangers every opportunity for attending. We gave the time and place of this gathering, one generally known as that of the American Institute, in our List of Meetings to come. We have not yet heard how it was responded to; but in due course we shall have the report from our own correspondent in those parts. There is, at any rate, scarcely a celebration of the kind on this side of the water but a Transatlantic friend has some new discovery to show us; or, armed with a pencil and a letter of introduction, something "to remember to remember" when he gets home again.

It must not either be supposed that all our leading manufacturers are as much above, or simply as indifferent to the Cape market as our implement makers appear to be. It is only during this very week that we see that the "Messrs. Hawthorne, the celebrated engine-builders of Newcastle-on-Tyne, have

just completed the first of a batch of eight locomotive engines which they have been commissioned to make for the railway at the Cape of Good Hope, the first sod of which was recently cut by Sir. G. Grey. This engine has been making trial-trips on the Newcastle and Carlisle railway line, and it is built on a new principle," and so on. Might it not be worth the while of other celebrated engine-builders to ascertain what is wanted at the Cape? An agricultural meeting at this date rarely depends upon ploughs only, and there are all kinds of inventions which the Cape farmers might patronize if they only had the chance of doing so. We have been rather inclined to pride ourselves for some time past on having as a whole by far the best collection of agricultural machinery of any people in the world. We hold somewhat to this opinion still, and are so unwilling to see ourselves "cut out" in any quarter, but more especially amongst our own kith and kin. Depend upon it, if it will pay American houses to send forty specimens of ploughs to a Cape show, it might answer the purpose of an English firm to try a bout with them.

### Poisoning Land.

BY PROFESSOR E. PUGH, PH. D., F. C. S.

Notwithstanding all that has been said and written during the last few years, upon the subject of agriculture, the ideas of the great mass of the people, upon many points of the highest importance to agriculturists, are very much confused. Upon no questions is this more marked than upon those suggested by the words, nutriment, stimulant and poison, in reference to the growth of plants.

Many farmers think that certain substances stimulate the land at first, and overtax its powers, and ultimately *poison* it. Such ideas originate in conceptions obtained from false analogies which men are too prone to draw between animal and vegetable life. The earlier vegetable Physiologists were, for a long time, deceived as to the true character of vegetable growth in the same manner; but at present, scientific men are aware that no aid is obtained in studying vegetable physiology by the apparent analogies afforded by animal physiology. A difference of opinion sometimes exists, as to what is the correct definition of a *poison* in regard to animal life. And a

more difficult question might arise on the same subject with regard to vegetable life.

But waiving these difficulties we may get at a practical definition of what nutriment, stimulant and poison, applied to vegetable food may mean, which will throw some light upon the subject we are considering.

#### First. NUTRIMENT.

Under this may be included all those elements, and combinations of elements, that are essential to healthy and vigorous vegetable growth, whether obtained from the soil or the air, which enters into the plant to form part of its substance.

These embrace about 13 different elements, all of which enter the plant, more or less, in combination with each other; eight of them *must come from the soil*, and the remainder *may come from the soil, or from the air, or from both*. Independent of vegetable growth, there is all the time a more or less active interchange of these latter elements between the soil and the air, so that it is difficult to decide how far they are obtained by the plant directly from the air through the leaves, or indirectly from it at the roots, through the soil; consequently while *all* scientific men admit that these eight substances *must always be present in the soil*, to ensure its fertility, there has been a difference of opinion as to how far it is necessary to add some of the remaining five to the soil to ensure conditions "amply sufficient for the purposes of agriculture." *If all of these substances are not accessible to the plant in the soil, or the air, it cannot grow.* At times some of them fail in the requisite quantity, and it becomes the duty of the farmer to find which they are, and to apply them in manures to the soil.

#### Secondly. POISON.

All substances may be considered poisonous which are not included above (that is which do not enter the plant to form a part of the increase during healthy growth,) and which when placed in contact with growing vegetable matter, are absorbed by it, and prove injurious or destructive, to vegetable growth. This may include many combinations of elements, which combined in other proportions or in different circumstances, might be nutritious; acids or alkalies might, when *alone*, act as poisons, when in the *combined* state they would be nutritious. The products of decomposition of vegetable matters are, no doubt, in some instances, poisonous to vegetable growth; the ultimate

cause of the disease to which some plants, as the potato or the clover, the vine, &c., in America and Europe are liable, may be due to poisonous products formed in the soil.

The theory of the rotation of crops, which at first was explained, simply by supposing different plants absorbed different substances from the soil, and while those of one plant were being removed by it, those of another were accumulating, has become more complicated of late, by certain considerations which seem to indicate, that substances poisonous to one plant and not to another, may disappear from the soil, during the growth of the latter, and hence leave the land in a state adapted to the wants of the Farmer.

All substances which are nutritious to plants in ordinary circumstances, will prove destructive to them if presented in too large quantity, and hence it is not always easy to decide what is a poison in the sense of the definition just given.

#### Thirdly. STIMULANTS.

None of the substances which are usually considered stimulants, are such in the sense that this is applied to animal life. Nothing is more absurd and ludicrous than the common notion that certain substances, as guano, or plaster of paris, stimulate the land in any sense of the word.

It is not easy to apply this term to substances affecting vegetable nutrition, yet if we must use it, substances like lime, which do not afford nutriment directly to plants, in the same degree that they promote their growth, could more appropriately be called stimulants, than those just noticed. Some chemical substances which promote the sprouting and early growth of plants without affording them any nutriment, might also be called *stimulants*, and others which retard this action might be called *sedatives*; but as these terms convey *improper meanings*, and imply that we know a great deal more about vegetable physiology than we do, it is best to discard them altogether.

#### PRACTICAL CONSIDERATIONS.

From the above we might infer,

1st. That soil to be productive must contain every one of about eight different substances, and four to five other substances must be present in the soil or the air.

2nd. That if any one of these fails in the soil, barrenness will result, no matter how much of all the others may be present.



Though a sufficient number of all the other substances were present to produce crops for one hundred years, *did it not fail, the absence of this one would render the soil barren.*

3rd. If the soil contain a limited quantity of any one of these substances, and no more be added during successive years, in which crops are grown and removed from the land, this substance must ultimately all be removed, and barrenness must result.

4th. If a soil be barren owing to any of the above causes, the addition to it of the failing element will restore its fertility again; and in consequence of this fertility new crops may be raised, and hence new quantities of all the other seven substances removed from the soil. If this process be repeated, and by successive additions of the failing element, successive crops be raised, a second and a third element, will all be removed, and these, too, must be replaced in the same manner as the first, in order to maintain fertility. *The soil will be poorer after the addition of these failing elements, because with them we are enabled to raise crops which remove from the land, not only the element added, but about seven other elements that were in it before.*

4th. The substances usually called stimulants are simply such as afford to the soil, certain elements of *nutrition*, which are not present in an available form for the demands of vigorous growth. They do not produce the crop, but, united with other substances in the soil and air, they do produce it. They form *a part of a whole*, without which the plant cannot grow, just as the axle-tree of a wagon forms a part of the wagon, without which it could not move. Without the axle tree the wagon could not be worn out, yet it would be a strange kind of logic which would infer, that because the entire wagon was worn out *after* the addition of the axle tree, that therefore the axle tree had acted as a *stimulant* upon the wagon, and worn it out; or that because the same result could not be obtained with the old wagon as with the new, therefore, the axle-tree had *poisoned* the wagon. Absurd as this kind of logic would seem, the farmer may rest assured that it is quite as rational as that which supposes certain substances to stimulate or poison the land. And the farmer might, quite as rationally, refuse to replace the broken axle of his wagon, because after doing so the wagon would be worn out, as to refuse to supply

the failing element in his land because the crops that would follow would exhaust the land of the substances that it already possesses.

These considerations may be illustrated by an example.

Suppose a soil to contain enough of an element A to raise wheat for four years; enough of an element B to raise wheat for six years; enough of C for eight years; enough of D for ten years; and enough of all the other substances S required for twenty years. If such a soil had been grown with wheat since 1856, we would have in

1860, all the A exhausted,  
sufficient B for two years,  
" C for four years,  
" D for six years,  
" S for sixteen years.

This soil is barren now for want of A; let us add sufficient of A to last two years, and then we get two more crops, and we will have in

1862, all the A again exhausted,  
" B exhausted,  
sufficient C for two years,  
" D for four years,  
" S for fourteen years.

The soil is now barren for want of A and B; let us add enough of each for two years, and then we will have in

1864, all the A again exhausted,  
" B " "  
" C " "  
sufficient D for two years,  
" S for twelve years.

Now the soil is barren for want of three elements, A, B, and C. If these were added, we would have in

1866, all the A again exhausted,  
" B " "  
" C " "  
" D " "  
sufficient S for ten years.

Fertility can now only be restored by the addition of four elements, A, B, C, and D.

Now, a farmer commencing to work such a soil in 1856, might have supposed that it was inexhaustible, but in 1860, it becomes barren.

The addition of the manure A to it, then, restored its fertility, he now might get the idea that A would do to restore the fertility

of all worn out land; but after two years more, A ceases to be of any perceptible use; he might then conclude that A had *poisoned the land*, but on the addition of B, he restores fertility. He would, doubtless, now recommend B to all his neighbors; but soon B becomes inoperative, and must be set down as a poison. We need not here dwell upon the fallacy of such conclusions, yet they are entertained by farmers all over the country.

I have avoided the use of the names of the elements of fertility to soils, in order to meet the tastes of those who do not like to be troubled with scientific terms. On some future occasion we may discuss the character of soils in relation to these substances, and to manures, the value of which must be dependent upon how much of them it contains.

*From the Farmer and Gardener.*

### Physical Condition of the Soil.

BY WILLIAM BRIGHT, LOGAN NURSERY,  
PHILADELPHIA.

Too little attention is given by farmers, gardeners, and amateur cultivators of all classes, to the physical condition of the soil. Everybody is hunting after manures and special fertilizers, but few think enough of the great advantage to be derived from a proper plowing and cultivation of the soil. It has been recently proved by careful experiments made in England, that deep plowing, and thorough cultivation, is fully equal to free manuring, even in poor or exhausted soils. One class of chemists tell us that there is mineral matter enough in all soils to meet the wants of crops for a hundred years, if this mineral matter could be rendered soluble and fit for the food of plants. Another class of chemists tell us that if you have mineral matter in proportion in the soil, plants can assimilate carbonic acid and ammonia enough from the atmosphere and rain to stimulate them to the highest degree of perfection. Now we know, as a practical fact, that when soil is constantly stirred, and the particles of matter are frequently thrown into new relations to each other, chemical action takes place more rapidly than when the particles remain for a long time in one position; and hence, much soluble mineral matter is produced by this chemical action or process of decomposition.

Thus a barren soil may be rendered fertile, simply by deep and thorough plowing and cultivation, with the roller, harrow and other implements. It may require a little time after such plowing and cultivation, for the chemical processes to become perfected, but a good result must follow such practice.

But soil must not alone be plowed, rolled and harrowed, to disturb the relation of particles; it must also be shaded from the direct rays of the sun, to produce the best effects. To this end it will be highly useful in all efforts to improve a poor soil, instead of leaving it fallen and uncovered, either to mulch it all over during summer with long litter, or to sow it with some plant which shall not only shade it, but promote the decomposition going on in the field by the influence of its roots, and furnish a mass of green vegetable matter, for after mulching or turning under. Decomposition of soil can only go on when it is moist, warm, and shaded. Light, dryness, and cold, all tend to prevent decomposition. Clover is, beyond all question, the best green crop that can be grown for improving exhausted soils. But sometimes soil is so poor that clover will not grow successfully, and in such cases resort must be had to corn sowed broad-cast, or the southern field pea, or the little soup pea of Jersey and Delaware, which will grow, without manure, on blowy sand, and produce several tons of green matter per acre.

Soil in its most perfect state should be wrought into a condition of the most minute divisions of particles; it should be light and porous, and of a friable character, free from lumps and sodden masses; dry, yet moist; sweet, but not strongly alkaline; and so supplied with sand, or other opening substance, that it will not bake upon the surface.

And here we come to the main point of this article, which is to warn all young cultivators of the soil not to work it, or to tramp it, or run horses or carts over it when wet or frosty but not frozen. More harm is done in this country, by the careless working of the soil when wet and sticky than can be repaired by the best cultivation and the most expensive manuring. To the young farmer and gardener we say *strongly and earnestly*, never work your soil or allow your men or carts to run over it when it is wet and mucky. No matter how backward may be the season, *wait, wait* till the soil is



in a condition to be worked before you attempt to plow it, or put in your seed. The whole advantage of plowing is destroyed by "bunching up" the soil in wet weather. You may break up the old lumps of soil, but for every lump so broken you create a dozen balls of earth as hard as a mass of mortar, which years of after culture will scarcely reduce to a state of fine divisions suitable for the resting place of plants. Work your soil freely and constantly in fine, dry weather, when not too windy, and you will be richly repaid for improving the physical, and mechanical condition of your land; but beware how you touch it, or tread upon it even, when wet and pasty. We know of no error so fatal to good farming or gardening as this of working wet and half-frosted soil.

### Advantages of Pulverizing the Soil.

The effects of pulverization or stirring the soil are numerous:

1. It gives free scope to the roots of vegetables; and they become more fibrous in a loose than in a hard soil, by which the mouths or pores become more numerous, and such food as is in the soil has a better chance of being sought after and taken up by them.

2. It admits the atmospheric air to the spongioles of the roots—without which no plant can make a healthy growth.

3. It increases the capillary attraction or sponge-like property of soils, by which their humidity is rendered more uniform; and in a hot season it increases the deposit of dew, and admits it to the roots.

4. It increases the temperature of the soil in the spring, by admitting the warm air and tepid rain.

5. It increases the supply of organic food. The atmosphere contains carbonic acid, ammonia, and nitric acid,—all most powerful fertilizers and solvents. A loose soil attracts and condenses them. Rain and dew, also, contain them. And when these fertilizing gases are carried into the soil by rain water, they are absorbed and retained by the soil, for the use of plants. On the other hand, if the soil is hard, the water runs off the surface, and instead of leaving these gasses in the soil, carries off some of the best portions of the soil with it. Thus, what might be a benefit becomes an injury.

6. By means of pulverization, a portion of the atmospheric air is buried in the soil,

and it is supposed that ammonia and nitric acid are formed by the mutual decomposition of this air and the moisture of the soil—heat also being evolved by the changes.

7. Pulverization of the surface of soils serve to retain the moisture in the sub-soil, and to prevent it from being penetrated by heat from a warmer, as well as from radiating its heat to a colder atmosphere than itself. These effects are produced by the porosity of the pulverized stratum, which acts as a mulch, especially on heavy soils.

8. Pulverization, also, as the combined effect of several of the preceding causes, accelerates the decomposition of the organic matter in the soil, and the disintegration of the mineral matter; and thus prepares the inert matter of the soil for assimilation by the plants.—*Genesee Farmer*.

### Advantages of Moistened Food over that which is Dry.

Besides the benefit secured by causing the ground grain to adhere to cut hay or straw when wet, it has been ascertained by Boussingault in some well conducted experiments, that soaked fodder forms a more suitable food than that which is dry. He found that heifers fed with soaked hay gained in weight over those fed during the same time with dry hay. By reversing the order of feeding, the results were the same. The experiments referred to appear to have been simply to test the advantages of moistened food over that which is dry. Notwithstanding the moistening of hay will render it more readily digestible, yet the advantages gained would hardly warrant the labor. But in ruminating animals a great advantage results from feeding the grain in combination with the hay or straw, and this can only be done by grinding the former, and cutting and wetting the latter. But to do this economically all the necessary appliances must be at hand for grinding, cutting, wetting, &c. With these, arranged as they may be, a large number of cattle may be fed with no great increase of labor. This system of feeding in stalls affords the advantage of saving and making a greater quantity of manure than by any other, which ought to be, if it is not, a matter of the first importance to every farmer.

*Valley Farmer.*

*For the Southern Planter.*

### Advice to Young Farmers.

In a former article we told our young farmer friends of the importance of steady government, both of one's self, and of his household. We told him of our preference in regard to the style of building dwelling houses, negro quarters, and the importance of cleanliness about that department of his premises. We told him how we would place our stables, and of the style of construction,—and now we will go on to speak very briefly of the cow houses, the corn houses, wheat barns, wagon sheds, wagons, carts, &c., tobacco houses, the preparation of plant beds, the cultivation and management of the tobacco crop, the cultivation and management of the corn crop—together with the manner of feeding it and other grains. We will talk about the culture of wheat, not theoretically, chemically, but as we have seen it cultivated, and cultivated it ourselves; of making and applying manure,—then of sheep, hogs, and other stock. But lest we tire them with the enumeration, we will jump right into the midst of things, and continue our sage remarks—sage, we say, because all old men think their observations and practices are *sage*.

#### COW SHELTERS.

We prefer these to be open sheds, closed up on the north and west side. Like the stables, these also should be built on posts; eight feet apart; seven to eight feet pitch in front; let into the ground two and a half or three feet; twelve feet wide, and as low behind as will cause the water to run off readily. These shelters should be divided into at least three compartments, for the milch cows, for the oxen, and for the young cattle. They should also be built adjoining, or as near to the stable and the fresh water as possible, for the double reason, that this kind of stock are especially liable to suffer for water, and because the master can take all these things into his eye at a glance—without which eye daily, 'tis vain for you "to sit up late, or eat the bread of carefulness." Suffice it—'tis more than corn or foddering to the poor beasts!

#### CORN HOUSES.

We would build these at least twenty by twenty feet, in order that full room might be had in front for shelling, &c.; this outer

apartment, however, might be covered overhead with plank, so that the corn thrown in through an upper door may fill overhead in this space. We prefer these houses framed in the usual manner, with strong studding six or eight feet apart, and stripped perpendicularly on the inside, with strips four inches wide and one thick. Ten or twelve feet pitch will admit of a wagon shelter on each side of it sufficient for two or more of these important implements in good husbandry. Be sure, however, to have these sheds built so as that it is easier to leave the wagons in them of a night than 'tis to leave them out, or you will find the shelters comparatively useless, as negroes don't understand how exposure can hurt these things.

But we have something more to say about wagons, carts, &c. Will our young friends be warned by us, who have had thirty years experience, against buying old wagons, old carts, or anything old that runs on wheels? Aye, and we will heartily, most heartily, extend the warning against anything that walks on legs, either two or four. No, we know they will not, nevertheless we will sound the warning! When (we were younger then than we are now) Kentucky and Tennessee were considered the "far west," we knew a very observant old man, who had made the trip thither and back some thirty odd times in the removal of families in his wagons, who remarked to us while talking on the subject, "I make it a rule to get me a wagon at ———, a famous wagon factory, and never to run it after the screws become loose in the taps; I sell it immediately,—calculating, from my experience, that when they come to the patch, they are the most costly property a man can own." This advice was from an old wagoner who had done nothing else for thirty years; and with our thirty years experience, we testify to the truth of the declaration. Some great writer, (Carlyle, we think,) says, "Experience is an excellent teacher, but he does charge such a high price!" We'll suppose, however, that our young friends will be warned by our old wagoner friend, Carlyle, and OURSELF,—and that because of their apparent cheapness he has not been taken in, but has had good, new vehicles, of all sorts, made by faithful workmen,—he will find these sheds worth to him fifteen times the cost of them in the twenty years that a



good wagon will last, if he will only pitch the wheels once in a summer or two, and keep the running-gear all tight.

#### WHEAT BARNS.

Every farm should have on it one or more of these convenient receptacles for grain. We prefer them small, and in number according to the size of the plantation. We would build them with the boarding nailed perpendicularly, because it takes less framing, and because the weather-boarding lasts longer, especially when rough-dressed and painted.

#### TOBACCO BARNS.

We prefer these to be built according to the convenience of the material—either of logs cut for the purpose from the woods, or with posts set firmly into the ground, and weather-boarded as in the manner prescribed for our other buildings,—leaving off the stripping, however, but having the plank straight-edged and pressed closely together in order to allow for shrinking. This latter is much the cheaper plan of building, if the lumber can be obtained near and cheaply. We think the size generally preferred is twenty by twenty feet in the clear, with four firing tier, and what is called the ground tier. This with a steep roof will house with ordinarily large tobacco from 1000 to 1200 sticks, with from eight to twelve plants on a stick.

#### PRÉPARATION OF PLANT BEDS.

It is with diffidence we speak upon this subject, for, while we have tried all the various plans suggested by others, as well as those suggested by our own observation, we must confess that we have found it an unceasing business. Our failures have generally, however, been owing to our not having burned land enough. We can say this, though, without the fear of successful contradiction, that no man can make a crop of tobacco unless he has more plants than he wants; hence I would say that if your land is light and rich, and moist, and thoroughly burnt, and carefully covered, that one hundred yards to every 10,000 hills would be a safe dependence; but if the land is of a contrary character, no matter how well burned or covered it may, (and I have found the covering to be of the greatest importance,) the 10,000 hills will require at least one half more plant land. We

have found no substitute for hard-burning and very heavy covering, in the preparation of plant land, whilst others have found this substitute in guano. The quantity of wood and trash necessarily consumed in yearly preparation of plant land is immense; but if the young planter, in opposition to the advice of our most esteemed friend, Gen. Cooke, will make the "noxious weed," let him go at it say we, as he should at all things else of the kind he may undertake, with the determined resolution to succeed if foresight and industry will take him through. Having, then, as soon after Christmas as possible, or during the month of December, prepared his beds on any other but a *red stiff soil*, and sowed them, let him be sure to keep them well tramped, well covered, and the leaves off; and have them in the woods if it can be so, because the fly eat them less. The land on which he plants it should, if possible, be gray, or at any rate *not red and stiff*; and before setting out the plants, which ought to be done certainly by the 10th or 20th June, the land should be thoroughly pulverized; if new land, every root got out, and if old land, every clod reduced, until there can be no probability of the root of the young plant coming in contact with obstacles of this kind. If it does, you not only lose the plant which is of vast import, but the season also; and this makes it important, too, that the plants be stuck with great particularity.

Having had the land gotten into good tilth with manure, or guano, or some aid of this kind, (for all lands almost, however rich, want something of the kind to quicken the plant in the ripening process,) you will find that if it has been planted, and has grown as fast as a well prepared soil should make it grow, that it will have to be stirred with the hoe, if possible, but certainly with the plow just a few days before the harvest in Eastern Virginia commences. This must be done, or it will be all overrun with weeds and grass before the wheat is secured; and just at this stage of the crop, let me assure our young friends, it is especially needful that they remember that one stroke of the hoe or one hour's labour is worth at least nine at another season. If he intends to be quick at any time during the year, just about this time he should be stirring. Neither overseer nor negroes will be able to comprehend the im-

portance of this rush; but let the master be caught once with a full crop of tobacco spreading the hill, at this season, unworked, without even ever so little stirring, and he will afterwards remember it, and follow our advice, if he has to do it by moonshine. A single furrow, or two at most, struck in the centre of the row, will, at this stage of the crop, greatly expedite the few chops which will be sufficient now for each hill. After harvest, as soon as possible, it should be worked thoroughly both with plow and hoe, and if large enough to top, it should be primed, or have the bottom leaves taken off about from five to six inches from the ground, and then topped according to the quality of the land or the fancy of the planter; the high topping having a tendency to make it fine, and the low topping making it coarse. Old planters say that a plant topped to eight leaves will make more in weight than when topped to any other number. If this second working has been efficiently done, unless under adverse circumstances, it will rarely be found necessary to do more to the crop than chop it over again. When planted, as the crop should have been, pretty much at the same time, (and in this is showed the necessity of an abundance of plants,) the land having all been prepared with equal care, the crop will come in about half and half,—that is, when the first half is ripe, the other half will just about allow you time to get that in and well cured down, when you may proceed to take in the remainder. Another advantage of making but two cuttings of a crop is, that it is cured with much more uniformity, both as regards colour and quality. We prefer to let it all stand, however, unless it fires, as long as the season will justify, being fully persuaded that we much oftener cut it, at last, green than ripe. From the hot sun of the season—latter part of August and first September—when the first cutting is made, the tobacco will burn frequently before it will fall enough to take up; great diligence should be used, therefore, to prevent this, as it destroys the plant entirely if thus suffered to be sun-burnt; better run the risk of breaking it than burn it. It may either be hung at this stage, and put on scaffolds in the field for a week or ten days, if the weather will permit, or taken immediately to the house as it is hung from the piles, and placed away there. If this

latter plan is adopted, however, not more than a day or two at farthest should be suffered to elapse before little bark fires, a double handful in a place, should be kindled all over the floor, so as to create in the house about as much warmth as is produced by a warm sun of a summer's day. Under this process, in the course of a day or two, the tobacco will have become sufficiently yellow to begin to cure, when these little fires may be increased, carefully, however, as the tobacco cures until they may take large logs on them, or the heat may be so great that 'tis disagreeable to be in the house. In from four to five days from the time of commencing to cure, the operation will have been completed. When beginning to cure, the heat should be increased gradually, and the tails of the tobacco watched carefully, as to the lower tiers, for the slightest extreme of heat will coddle or turn them black. Before any of this process begins, we should have remarked, the house should have been made tight, by cramming mud into the interstices of the logs. If the planter cure by charcoal or by fires in the house, the same temperature will have to be observed during the whole process, as if he had used the common wood fire plan.

A very great advantage, which we omitted to mention in the proper place, of suffering the tobacco to stand in the field to as late a season as circumstances will admit, is that, the riper the plant becomes, the more disposed it is to become yellow, and the more easily it is made to assume that colour after being housed. Indeed, its being of that colour is generally considered by the purchaser as evidence of the stamina, or full maturity of the plant. This, then, is an important consideration in suffering the tobacco to remain in the field as long as circumstances will admit. Being entirely cured, 'tis well to take it down in November or December at farthest, and pack it away in a tight room to prevent it "going and coming," and thereby losing much of its qualities. To take it down, a warm season should be sought, and care taken that there is not too much moisture in it. The planter need never fear its spoiling if the stems will crack when the fingers are applied to them.

If our advice in regard to the management of the article has been carefully observed, and the tobacco nicely assorted and



stripped, and grown on the right sort of land, we will introduce our young friend to the gentleman who will pay him from \$20 to \$50 per hundred for his crop, if he will come to us in the month of June next.

But, fie! fie upon us! we have been so wordy upon this subject, the which is so objectionable to some of our readers that we wot of that we shall not now be able to talk on those other subjects to the extent we wished. . . We would like to say a word to our young farmer friends about making and applying manure, which is to the farm what Mrs. Jenkins said "grease" was to religion. "Ah, Mary," says she, "remember there is no religion without grease!" So there is no farming without manure. We would like to talk about sheep, about the hogs, the attention needed for each kind of stock; then we should have to talk of the culture of wheat and corn—whew! Will our dear young friends suffer us to bore them with another treatise, devoted to these inexhaustible themes? We will risk it.

Jan. 7th, 1860.

L. M.

### The Early English Agricultural Authors.

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

That the early inhabitants of our island practised agriculture is well known. That the districts bordering on the English Channel were better cultivated than those of the interior of the island, we learn on the authority of Cæsar. After his expedition to England, B. C. 55, he described the Cantii, or inhabitants of Kent, and the Belgæ, inhabiting our counties of Hants, Wilts, and Somerset, as the most advanced of our island tribes in the habits of civilized life. They cultivated the soil, employed manure as a manure, stored their corn unthrashed, and separated it from the chaff and bran, only as their daily demands required. The interior inhabitants lived chiefly upon milk and flesh, being fed and clothed by the produce of their herds. "The country," adds Cæsar, "is well peopled, and abounds in buildings resembling those of the Gauls, and they have a great abundance of cattle. They are not allowed to eat either the hen, the goose, or the hare; yet they take pleasure in breeding them." Cicero, in one of his letters, remarks, "There is not a scruple of money in the island; nor any hopes of booty but in slaves"—a description that the

industry and intelligence of succeeding ages have rendered singularly inapplicable.

Such are the earliest yet meagre allusions to the farming of our island, in our possession. There is no doubt but that our ancestors had more agricultural knowledge than we are always willing to believe. And that this skill in the art of tillage did not diminish in succeeding Saxon and Norman days, is equally certain. To the very earliest existing notices of the farming of Saxon times I do not, however, propose now to direct the reader's attention. My intention is to commence these retrospective glances, with some of those writings or official notices which appeared from the ninth or tenth centuries to about the year 1532—the year when old Fitzherbert published his work on the English farming of those days.

The conciseness and spirit with which these early English writers addressed their contemporaries is well worthy of our notice. They had evidently little faith in the effect of long arguments or half measures. Their works could only be known in manuscript. Printing was, in the days to which I refer, either unknown or merely rudely commenced. Our earliest authors, therefore, imitated, almost of necessity, the terseness of our early law givers, who practised brevity to admiration. Now it is in the statute books of England, Wales, and the sister-kingdoms, that we find some of the earliest notices of the agriculture of our islands. And it is not only an amusing but an instructive inquiry to trace in these laws the primitive notions of our ancestors with regard to husbandry—how bravely former English senates endeavoured to teach farming by acts of parliament; tried to keep not only the prices of food below its market value, but of labourers' wages also; how they earnestly strove to protect his growing corn from vermin, from trespasses of all kinds, excepting game, and how they even endeavoured to teach the men of those times what they should eat, what clothes they should wear, and in what rural sports they should indulge.

Their very limited knowledge of the true principles of political philosophy, indeed, more recent senates have not always exceeded, and modern parliaments have rarely equalled in their laws even the vigor of those of the Houses of Plantagenet and Tudor.

The reader when he is following me through some of these early legislative

writings, must remember that in those days the population of England was in all probability not much larger than that of London now. That the country was undrained, ill cultivated, and that only the richest portions of the land were enclosed, commons and forests occupying the remainder. Of the produce of that portion under the plough, every notice which has escaped to us betrays the poverty. For instance, in 1387, on the manor farm of Hawstead in Suffolk, 66 acres of wheat produced 69 quarters of grain, 26 acres of barley yielded 52 quarters 2 bushels of seed. And about the same period the manor farm of Dorking, in Surrey, produced from 30½ acres of barley 41 quarters 4 bushels of grain, 28 acres of oats only 38 quarters 4 bushels.

The writers, whose works I propose to hereafter notice, are Greathead or Grotehead and Fitzherbert. But previous to this it will be well to take heed of the laws which before and during their time were made to regulate the proceedings of the farmer.

The value of his corn early attracted the attention of our parliaments. In a statute supposed to have been made in 1266, the 51st of Henry III., the municipal authorities of towns were thus directed:—"First, they shall enquire the price of wheat, that is to wit, how a quarter of the best wheat was sold the last market day, and how the second wheat, and how a quarter of barley and oats."

In 1360, by the 34th Edward III., c. 20, the exportation of corn was prohibited. It was 33 years after that time, that in 1398, by 17 Richard II., c. 7, all the king's subjects were allowed to export corn to any but to the king's enemies. This act was not repealed till the year 1603.

In 1436, 15 Henry VI., wheat was allowed to be exported when it was 6s. 8d. per quarter at the place of shipment, and the preamble of the act indicates that the produce of wheat had increased beyond the demands of the population, since it says, when alluding to the restrictions on the exportation of corn, "For cause whereof, farmers and other men *which use manurement of their land*, may not sell their corn, but of a bare price, to the great damage of all the realm."

It is evident from this statute that only some of the most enterprising farmers then manured their corn land. Still they did not

so increase the produce of grain as to render their country quite independent of foreign corn; for only a quarter of a century afterwards, we find the first symptom of protecting duties.

In 1453, by the 3rd of Edward IV., c. 2, it was declared that "the labourers and occupiers of husbandrie, within the realme of England, be dayly grievously endamaged by bringing of corn out of other lands and parts, into this realme of England, when corn ~~of~~ the growth of this realme is at a low price." It then proceeds to enact that corn shall not, under pain of forfeiture, be imported into England, until wheat exceeds in price 6s. 8d. per quarter, rye 4s., and barley 3s.

Our old British ancestors long before this time had, however, absolutely prohibited the exportation of corn.

By the old laws of Wales, made certainly not later than the tenth century, (*Ancient Laws and Institutes*, p. 655,) it was ordered that "three things are not to be conveyed to a foreign country, without the permission of the country and the lord—gold, books, and wheat. And three things that an aillt (alien) is not to sell without the permission of his proprietary lord, lest he should want to buy them of him—wheat, money, and horses. And where his lord shall not buy them of him, he is at liberty to sell them wherever he willeth, so that he do not sell them to a foreign country."

In 1533, the act of 25 Henry VIII., c. 2, for a time put an end to the exportation of English corn, and absurdly enough gave the lords of the council the power to declare by proclamation the prices at which farmers and others should be compelled to sell their commodities, although, as the preamble of the act much more wisely allows, "dearth, scarcity, good cheap, and plenty of cheese, butters, capons, &c., and other victuals, happeneth, riseth, and chanceth, of so many and divers occasions, that it is very hard and difficult to put any certain prices to any such things."

Long before the resolute days of stout old Harry the VIII., the legislature had been at work heartily endeavouring to reduce the price of provisions below their market value, for in 1266, by the 51 Henry III., it was ordained (and this statute was not repealed until the 8th of Ann. c. 18) that "when a quarter of wheat is sold for 11d. then wastel bread of a farthing shall weigh 6 lbs. and



16 pennyweights, (a pennyweight round and without any defacing, was to weigh 32 wheat corns in the midst of the ear, and 22 pennies do make one ounce, 12 ounces a lb.) And by the same statute it is provided that "when a quarter of wheat is sold for 3s., or 3s. 4d., and a quarter of barley for 1s. 8d., or 2s., and a quarter of oats for 1s. 4d., then brewers in cities ought, and may well afford to sell two gallons of beer or ale for a penny, and out of cities three gallons for a penny."

The parliament of those times were evidently in earnest in their endeavours to keep the bakers and brewers in order, for during the same year (1266) was passed the "statute of the pillory and tumbrel," which also continued in force till the time of Queen Anne. This, like all our early statutes, eschewed all unnecessary verbiage. The stout barons of that year thus commenced their act: "If a baker or brewer be convict because he has not observed the assize of bread and ale, the first, second, and third time, he shall be amerced according to the offence, if it be not over-grievous; but if the offence be grievous and often, and will not be corrected, then he shall suffer punishment of the body, that is, to wit, a baker to the pillory, the brewer to the tumbrel or some other correction."

We may suspect by this marked distinction between the punishment of the bakers and the brewers, that even then brewers were held to be in a larger and more dignified way than the bakers, since they were to be allowed the privilege of riding in a tumbrel.

A certain degree of humanity was displayed by the legislature, even in punishing rascally bakers, for by another statute made about this time, (Ruffhead, vol. i., p. 186,) it was provided that a baker should only be amerced "if his bread be found lacking one farthing in two-and-sixpence;" but if his short weight exceeded this, he was to be placed in the pillory. And further, it was humanely provided that "every pillory, or stretch neck, must be made of convenient strength, so that execution may be done upon offenders without peril to their bodies." The unprincipled butcher, by another statute, (*ibid.*, p. 187) was subjected to the same punishment, "who selleth swine's flesh mealed, or flesh dead of the murrain."

The lawgivers of the iron days of Cressey and Poitiers had evidently an interest in other viands beyond mere beef and mutton,

for in the act of 1363, (37 of Edward III., the statute of Westminster, made by the king, lords, and commons,) we find that "for the greath dearth that is in many places of the realme of poultrie, it is ordained that the price of a young capon shall not pass threepence, and of an olde capon fourpence, of a pullet one penny, of a goose fourpence, and in places where the prises of such vittailles bee less, they shall holde without being enhanced by this ordinance. And that in the townes and markets of upland, they shall be sould at a less prise according as may be agreed upon between the seller and the buyer." This wise law was not repealed until the year 1624.

More than two centuries after this absurd poultry statute, we find the parliament imitating this necessarily abortive attempt to run counter to market prices, by an act to regulate the price of butchers' meat. In the year 1532, by the 24 Henry VIII., c. 3, an act which was not repealed till the year 1541, it was declared in "an act concerning flesh to be sold by weight," that all beef, mutton, veal, and pork, should be sold by "haberdupois" weight, and moreover that no person should thereafter take "for any pound weight of flesh of the carcasses of beefe or porke, above the price of an halfpenny, and of mutton or veale, above the price of one halfpenny and half farthing," and after endeavouring to enforce these prices by a penalty of 3s. 4d., it gravely continued: "Provided alwaies that the heads, necks, inwards, purtenances, legs, nor feet, shall be counted no part of the carcasses aforesaid, but such to be sold for a lower price."

The parliament were not content with fixing the price of calves' meat: they even declared what a butcher should not kill; for instance, in 1529, we find in the old statute books (the 21st Henry VIII.), "An Act against the Killing of Calves" for three years, because, as the framers of the Act gravely inform us, "of late yeeeres now passed the breeders of such calves, of their covetous minds, have used to sel their calves young sucking to butchers, weining, rearing, and bringing up few or none, whereby the increase of the old cattell is marvelously minished and decreased." A penalty of 6s. 8d. is then imposed upon any one who should kill a calf during the next three years.

As might be reasonably expected, the far-

mers evidently evaded this act very extensively. But the Legislature was not to be turned aside from their grave resolves; so, in 1532, by the Act of the 24th Henry VIII., c. vii., after explaining in its preamble that the act of 1529 was intended to provide "that calves once wained should not be put to slaughter before they were of convenient yeeres and meete for beefe," but that since the last act divers bad persons had continued "to kill young beasts called wainlings, steers, bullocks, and heifaies, of one or two yeeres old, or little more," it goes to enact that no person shall, under a penalty of 6s. 8d., cause any cattle to be killed under two years old.

Then, again, the same parliament had evidently discovered another mare's nest; they deemed the increase in the price of mutton to have arisen from the flocks of England having become too large: so, as usual with them, they were prompt in attempting the remedy of an Act of Parliament.

In 1533, therefore, the 25th Henry VIII., c. 13, is an act entitled, "Concerning the number of sheep one should keep." After describing at some length the several enormities that do ensue by the greedy desire of having many sheep—some persons then having 24,000 and 20,000 sheep—"by which a good sheep for victual that was accustomed to be sold for 2s. 4d., or 3s. at most, is now sold for 6s., or 4s., or 3s. 4d., at the least;" it goes on to enact that no one shall have more than 2,000 sheep in future, under a penalty of 3s. 4d. for every sheep above that number. And by sec. 14 of the same act, it is provided that no one shall hold more than two farms, under a penalty of 3s. 4d. per week they shall hold any land contrary to the act.

And the legislatures of those days were not content to regulate the number of sheep a farmer should keep, and the price he should obtain for his mutton, but they regulated the trade in his wool. It was not to be exported, or, when it was allowed to be sent out of the kingdom, it was carefully provided that it should be sent only to the staple at Calais. I have not found in the English statute-book any direction as to how he should *shear* his sheep; but the Scotch government early issued directions similar to that of the Irish parliament of 1634.

The public acts of those days inform us

that even as late as the seventeenth century the flockmasters of Ireland and Scotland had a summary way of gathering the wool from the sheep, which their rulers were enlightened enough to restrain. Thus, by the act of the Irish parliament, (11 and 12 Charles II., c. 15.) entitled "An act against plowing by the tail and pulling the wool off living sheep," it is declared that "in many places of this kingdome there hath been a long time used a barbarous custome of ploughing, harrowing, drawing, and working with horses by the tayle, whereby (besides the cruelty used to the beast) the breed of horses is much impaired in this kingdome. And also divers have, and yet do use the like barbarous custome of pulling off the wool yearly from living sheep, instead of clipping or shearing them." These miserable practices were then declared to be illegal, and to be punishable with fine and imprisonment.

It is evident, however, that there had been a previous Irish ordinance on this subject, since such a reformation is referred to in a letter written to his Scotch council by King James, in 1617. Chambers' (Annals of Scotland, vol. i., p. 471,) gives an extract from a curious entry in the Scotch Privy Council Record. The document states that "In some remote and uncivil places of this kingdom an old and barbarous custom was still kept up of *plucking the wool from sheep instead of clipping it.*" The king hearing of the practice, wrote a letter to his Council, denouncing it as one not to be suffered; telling them that it had already been reformed in Ireland, under a penalty of a groat on every sheep so used, and was "far less to be endured in you." The Council immediately (March 17, 1617) made an order to the same effect; and after stating that many sheep died in consequence of this cruel treatment, concluded with a threat of severe fines on such as should hereafter continue the practice. "It is remarkable," adds Mr. Chambers, "that in the Faroe Islands there is to this day no other way of taking the wool from sheep than that which was then only kept up in remote parts of Scotland."

It was as early as the year 1337 that we find the exportation of English wool prohibited. The same measure of injustice to the farmer was conferred in 1521. And in 1696 the *wisdom* of Parliament was evinced by the prohibition of the export of wool



from England, or even from Ireland into England. It was not till the year 1824 that the Acts of Parliament restraining the exportation of wool were repealed.

The Scotch Parliament were by no means to be outdone by that of England; for so late as the year 1581, in the seventh Parliament of James VII., of Scotland, it was enacted, "That no manner of wool be transported, or put in schippes or boates to be transported, furth of this realm in time cumming." A law had been previously made, in 1467, that no cattle or sheepe should be sold out of the realm of Scotland; and again in 1535, by the fourth Parliament of James V., of Scotland, it was directed, with all becoming gravity, "That na manner of men in time cumming sell nolt, sheepe, or other cattle, auld nor young, to ony English-men, be himselfe or ony other mediate person, nor have nor send the samin in England to be sauld."

It sounds strange in our ears to read in these Scotch acts the title of "James, by the grace of God, King of Scotland, England, France, and Ireland."

We have seen how, previously to 1634, the Irish were wont to fasten their horses to the plough by their tails; and there is some reason to conclude, from a print in a Saxon manuscript, now in the Harleian collection, that our Saxon ancestors did the same. I find no act in the English or Scotch statute-books relating to so barbarous a custom: not but that the Caledonian senate legislated upon the horse; they regulated his shoeing, and restrained his owner from over-feeding him. For in 1477, by the tenth Parliament of James III., it was enacted, "because ignorant smithes, through ignorance or drunkennesse, spillis and enrickis mennes horse," that a smith shoeing a horse in the quick should pay the cost of the horse till he be whole, and furnish the owner with another; and if the horse will not mend, that the smith hold the horse. And in 1581, by the seventh Parliament of James VI., of Scotland, "that none under a baron or landed man, worth a thousand merks of yearly free rent, keep horse at the hard meat after the 15th of May, or take them in before the 15th of October, on pain of forfeiting the horse." And the reason assigned is "that amangis the monie uther occasions of deurth of victuallers, there is ane speciallie very unprofitable to the commonweill, quhilk is the holding of horses at

hard meat all the summer season, used commonlie be personnes of mean estaite, cowpers of intention to make merchandise of the said horsis, being for the maist part small nagges, and na horses of service."

The parliament who, in 1533, regulated the number of sheep a farmer should keep, had more enlightened views in regard to the encouragement of the linen manufacturers. They erred strangely, however, when they tried to enforce the cultivation of flax on all soils. It was in 1532 that, by the 24th of Henry VIII. (repealed in 1592 by the 35th Eliz., c. 7), it was enacted, after a well-drawn preamble, setting forth the advantages of encouraging the home manufacture of linen, that every person having arable or pasture land "apt for tillage" should every year for every sixty acres in their possession sow "one rode or one quarter of an acre with line-seed, otherwise called flax-seed or hemp-seed."

Here, again, the Scotch parliament had long preceded that of England in regulating the husbandman's crops. In 1426, by the fifth parliament of James I. of Scotland, it was enacted that "ilk man tailand with a plauch of aucht oxen sall saw at the least ilk zeir a firloft of quheate, half a firloft of pease, and forty beanes, under the paine of ten shillings to the baronne of the lande that he dwellis in."

When the English Parliament regulated the crops and the prices of the farmer's produce, they proceeded to consider what they deemed the enemies of his growing corn. We find, indeed, that they thought of the crows, for in 1532, by the 24th Henry VIII. c. 10, intituled "An Act for the Destruction of Crows and Rooks," the preamble informs us that "Forasmuch as innumerable numbers of rooks, crows, and choughs do daily breed and increase throughout this realm, which do yearly destroy, devour, and consume a wonderful and marvellous great quantity of corn and grain of all kinds, in the sowing, ripening, and hemelling, and over that a marvellous destruction and decay of the covertures of thatched houses, barns, reeks, stacks, and other such like, to the great damage and undoing of a great number of all the tillers, husbands, and sowers of earth;" it therefore provides that every town and hamlet shall provide crow-nets; and that takers of crows have two-pence a dozen by way of reward. This sage law was repealed in 1576, by the 18th Eliz., c.

15. It is noticeable that a century before this the Parliament of Scotland had made an onslaught on the poor rooks, for in 1424 was passed an act against the "bigging of Ruikes in Trees," because, as the statute adds, they "dois greate skaith upon cornes."

Straying cattle were not neglected. It might be moreover concluded, from the great minuteness with which the damage done by stray cattle is specified in our old Welsh laws; that either the farmers' fences in those times were generally in a dilapidated state, or that the Welshmen were as litigious then, as sometimes they are supposed to be now. By the laws of Howell Dda, made in the early part of the tenth century, it is provided that, "to release an animal impounded, money payment only is due—a penny for a horse, a half-penny for a bullock; for a colt 14 days old one penny."

Every crop that a person shall harvest he is to look after, and the cattle are free. By the crop is understood corn after it is severed from the land, wherever it grew, the produce of an orchard, cabbage, flax after it is cut, or in a garden uncut, tedded hay, thatch for houses, and their fences, leeks, and everything that pertains to a garden. "Let him fence so strong about his garden that beasts cannot break into it; and if he do not, and it should be broken into, he is not to be compensated; except for the trespass of poultry and geese, because it is not possible to fence, so as to exclude them, since they can fly." Then the law continued: "The barns are to be open from the time the first sheaf is brought into them until the calends of winter, to admit the air; and if the corn be damaged during that period, the owner is to be compensated. From the calends of winter onwards, the barns shall be closed in the manner required: they are to be closed by three eatherings on the sill, and a wattle upon the doorway, with three bands thereon, two on the back, and one on the front; and if that be broken, the corn and the barn are to be compensated, the corn in the barn by giving a whole sheaf for every damaged sheaf." (*Ancient Laws and Institutions*, p. 158.)

Former, and indeed, all subsequent Parliaments, have treated other enemies of growing crops, viz., game, much more gingerly than they did the cattle and the crows. This is shown by their forest and their game laws. The abhorrence of poachers, in fact, amongst the landowners of those iron days,

was evidently as great as in our more silken, or cotton times. They took very decisive measures, however, in the 13th century to abate such unqualified destroyers of game. In 1293, by the 21st Edward I., it was enacted, "To the intent that trespassers in forests, chases, parks, and warrens, may more warily fear hereafter to enter and trespass in the same than they have heretofore," that they might be *killed* if they refused, on demand, to surrender themselves to the keeper or his assistants. This slaying, however, the statute gravely and humanely provided, must not be done by the keepers out of malice, and merely on the pretence of a trespass.

A century afterwards, we find that even slaying poachers did not stop poaching, for in 1494, 11th Henry VII., c. 17. It was provided, that no one should set "snares, nets, or other engines," to take "fesants or partridges." And a quarter of a century nearer our own time, by another act, that of 1522 (14th and 15th Henry VIII., c. 10), the hares were protected, since it was then rendered felony to kill hares by tracing them in the snow; the fine being 6s. 8d. upon all breakers of the law.

The treatment of the farm labourers in the times of which I am speaking was evidently harsh and unfeeling. They were, indeed, serfs, who only very slowly participated in that freedom for which the Commons of England so long, and at last so successfully struggled. But the state of the poor labourer from the time of which I am speaking, down to the days of Henry VIII., was still that of serfdom. Runaway idlers were to be enslaved; sturdy incorrigible beggars might be executed as felons. This unhappy state of the poor labourer in husbandry must be remembered, when we read the harsh statutes by which their work, their wages, and even their dress, was regulated by grave acts of the rude Parliaments of other days. The labourers were then not even allowed to abstain from work when they did not require to be hired; for 1349, 23rd Edward III., by "the statute of Labourers," it was provided, as the preamble states, in consequence of the great pestilence having carried off so many of the ploughmen, and labourers having increased their demands for wages, that "every person able of body under the age of 60 years, not having to live upon, being required, shall be bound to serve him that doth require him, or else



committed to the gaol until he find surety to serve," at the old wages. And he was not allowed to learn any craft or trade; for in 1388, by the 12th Rich. II., it was ordered, that whosoever served in husbandry until he was twelve years of age, should so continue. The Irish Parliament in 1447 passed an act to the same effect; and in 1425, the Scotch Parliament, to prevent idlers in rural populations, made a law "that ilke man of simple estate that suld be of reason labourers have onther (either) halfe-an-oxe in the pleach, or else delve ilk day seven fute of length and seven of breadth under the paine of ane oxe to the king."

Seldom was the husbandman to have the market value of his labour, for in 1350 by the Act of the 25th Edward III., c. 1, which remained unrepealed until the year 1563 (Eliz. c. 4), it was enacted "That carters, ploughmen, drivers of the plough, sheapheardes, swineheardes, and all other servantes, shall take liveries and wages accustomed the soil twenty yeeres, or four yeeres before (by the previous acts of the same reign), so that in the country where wheat was wont to be given, they shall take for the bushell ten pence, or wheat at the will of the giver, till it is otherwise ordained. And that they be allowed to serve by an whole year, or by the other usual termes, and not by the day. And that none pay in the time of sareleng or heiemaking but a penny the day; and a mower of meadowes for the acre fivepence, or by the day fivepence; and reapers of corn in the first weeke of August twopence, and the second weeke three-pence, and so on till the end of August; and less in the country, where less was wont to be given, without meat or drinke or other courtesie to be demanded, given, or taken. And that all workmen bring openly in their hands to the merchant towns their instruments, and there shall be hired in a common place and not private. Item—That none take for the thrashing of a quarter of wheat or rie over 2½d., and the quarter barlie, beans, peas, and otes 1½d. if so much were wont to be given; and in the country where it is used to reape by certain sheeves, and to thresh by certain bushells, they shall take no more, nor in other manner than was wont the said twenty yeare and before. And that the servants bee sworne two times in the year before lord stewards, bailliffs, and constables of every town, to holde and doe these ordinances. And that none of them

go out of the towne where he dwelleth during the winter to serve the summer, if he may serve in the same towne, takeing as before is said. Saving that the people of the counties of Stafford, Lancaster, and Derby, and the people of Craven, and of the marches of Wales and Scotland, and other places may come in the time of August and labour in other countries, and safely return as they were wont to do before this time. And that those who refuse to take such oath, or perform that that they be sworn to, or have taken upon them, shall bee put in the stocks by the said lord stewards or constables, by three dayes or more, or sent to the next gaol, there to remaine till they will justifie themselves. And that stockes be made in every towne by such occasion betwixt this and the feast of Pentecost."

By the same statute, threshers, "tyler and other coverers of ferne or strawe, were to have 3d. per day, and their knaves 1d." We might reasonably conclude with such wages there could be little fear of the labourers decking themselves in fine garments; but it seems that the Parliament of that time thought differently, for in 1363, by the 37th of Edward III., it was enacted "That carters, ploughmen, drivers of the plough, oxherds, kowherds, shepherds, and all other keepers of beasts, threshers of corne, and all manner of people of the estate, of a groome attending to husbandry, and all other people that have not fortie shillings of goods nor chattels, shall not take nor wear no manner of cloth, but blanket and russet wool, of twelve pence, and shall weare the girdles of linnen, according to their estate, and that they come to eate and drinke in the manner pertaineth to them, and not excessively; and it is ordained, that if any weare or doe contrary to any of the points aforesaid, that he shall forfeit against the King all the apparel that he hath so worne against the form of this ordinance." This wise statute was not repealed till the year 1533, 24th Henry VIII., c. 13. The Scotch labourers in husbandry were probably more economical in their dress, for it was not till about a century after this English Act, that the Parliament of Scotland in 1457, resolved "That na labourers nor husbandmen weare on the warke day, bot gray and quliite, and on the halie daie bot light blew, greene, redde; and their wives right swa, and couchies of their awin making, and that it exceed not the price of xi pennyes the elne. And that na

woman cum to Kirk nor mecat with her face mussalled or covered that she may not be kend."

But not only, it seems, did the English peasantry of that time indulge in fine clothes; but they had, it seems, a taste for wearing arms and bucklers, and for certain amusements. As, in 1388, (by the 12 Richard II., c. 4, made at Canterbury.) it was enacted that "no servant of husbandrie or labourer shall henceforth wear any buckler, sword, or dagger; . . . but such servants shall have bowes and arrowes, and use the same the Sundayes and holy dayes; and leave off playing at tennis or football, and other games, called coytes, dice, casting of the stone, kailes, and other such importune games."

As time wore on—it became necessary to alter in some degree the wages of the rural population and to decide the length of their working hours. So the Parliament again interfered; and in 1513, by the 6 Henry VIII., cap. 3, (repealed very soon, however,) the wages of a bailiff were slightly raised to 26s. 8d. per annum, and meat and drink, with 5s. for clothing; and a common farm labourer 16s. 8d., and meat and drink, and 7s. for clothing; but then the labourers of those days were evidently not very fond of their hard work, so it was resolved to try and stimulate them by a section of the Act, in the following word: "And furthermore were divers artificers and labourers retained to work and serve, waste most part of the day and do not deserve their wages, sometimes in late coming to their work, early departing therefrom; long sitting at their brakefaste, at their dinner, and at their noone meate, and long time of sleeping at afternoone to the losse and hurt (of their masters.\*)" It then proceeds to enact, that from the middle of March to the middle of September every labourer "Shall bee at worke before five o'clock in the morning, and that he have but half an hour for his breakfast and an hour and a halfe for his dinner, at such time as he hath season for sleepe appointed him by the said statute, and at such time as it is herein appointed that he shall not sleepe; then he to have but an hour for his dinner, and that he depart not from his work till between the hour of seven and eight in the evening." And then the labourer was not to give up his service without due notice to his master. There was no provision, however, against the master

suddenly discharging his labourer; but in 1444, by the Act 23 Henry VI., cap. 12, it was ordained that all servants in husbandry should give warning before they left their service, and that the wages of a bailiff should be 24s. 4d. by the yeare, and clothing price of five shillings, with meate and drinke; of a chiefe hind, a carter, or chief shepherd, 20s., and clothing 4s., with meate and drinke; a common servant of husbandry 15s., and clothing 3s. 4d.; a woman servant 10s., and clothing 4s., with meate and drinke."

Long before this time—even as early as the tenth century—the laws of Wales regulated the ploughman, placed a value upon his gear, and protected him at his work. One law says, "There are three common protections: The protection of a session, or court of country; the protection of a place of worship; and the protection of a plough and team at work."—*Ancient Laws and Institutes of Wales*, p. 666.

By another law it was ordained that "the legal value of a yoke and its bows shall be one legal penny, a beam 1d., a coulter 4d., a cleansing hurdle 1d., a cleansing spud 1d., a harrow 1d., a thorn harrow 1d."—*Ibid.*, p. 150.

By a third law it was declared that neither horses, mares, or cows were to be put to the plough; and again, "No one is to undertake the work of a ploughman, unless he know how to make a plough, and nail it; for he ought to make it wholly from the first nail to the last, or from the smallest to the largest."—*Ibid.*, p. 156.

The value of domestic animals was also fixed by the ancient laws of the Cymri, (*Ibid.*, p. 128.) A foal till fourteen days old was to be deemed worth 4d., afterwards 2s.; at a year, 4s. A working horse that shall draw a ear and a barrow, 60 pence; a cow calf, 4d.; of a cow ready to calve, 40 pence; of a steer, 16d.; a lamb, 1d.; of a sheep, 4d.; of a sucking pig, 2d.; of a pig, 1s. 3d.; of a kitten 1d.; of a cat, 2d.; of bees, an old stock, 24 pence; of a 1st swarm, 1s. 4d., of a "bull swarm," 1s.; of the 3rd swarm, 8d.

The old Welsh laws also limited the amount of grass land which a farmer should hold, and the trees he should cut down. By one law: "No one except a lord was to have more than two reserves of grass—a field and a meadow (land appropriated for hay only, and enclosed by a fence;) and if he will to keep it, let him obtain a cross



from the lord; and, under sanction of that, let him keep it."—(*Ant. Laws of Wales*, p. 169.) Another declares that there are "three trees that it is not free to cut without the permission of the Country and the Lord an acorn tree or oak, and a birch tree, with a witch elm."—(*Ibid.*, p. 676.)

The breadth of the ancient roads of our island, as fixed by the ruling powers, indicates the limited extent of the traffic they were intended to accommodate. One law declared that "The measure of a lawful road is a fathom and a half, (9 feet;) of a bye-road, seven feet. Every habitation ought to have two footpaths, one to its church and one to its watering place."

I have continued my notices of these legislative interferences with the farmer and the labourer down to the time of Groteland, Fitzherbert, and Henry, the Eighth. Before their age there were no English writings on agriculture that can give us any material information with regard to the practice of our early husbandry. (Of Grotehead and Fitzherbert I shall speak in a subsequent paper.) Those doings of our early Parliaments, which I have been endeavouring to trace, do not give us, it is true, a very elevated opinion of either the state of the tillers of the soil in the olden times of England, or of the wisdom of their Parliaments. These, however, yield us not only considerable information with regard to some of the practices and habits of farmers at a distant period; but, moreover, they may well serve to warn the Parliaments of after and more enlightened times that the less the agriculturists of England are interfered with by acts of Parliament, the better it will be for their prosperity, and that of the country they so admirably cultivate.

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*From the American Stock Journal.*

### Importing Stock instead of Breeding it at Home.

*Editor American Stock Journal:*

As it is supposed that none but animals of superior excellence are imported, it will be understood that the following remarks apply to animals procured on account of apparent superiority, which however may or may not ultimately prove to be a matter of fact. We are one of many who deny that either as to appearance, quality, size, health or intrinsic value, the average of British

cattle are superior to the average quality of those in our midst. But admitting that superior results in the niceties of form, quality, color, or all of them, have been wrought out by English breeders, are there not reasons, cogent and numerous, against generally importing thorough-bred cattle?

It is the prevalent sentiment of most competent English breeders and judges, that no national improvements have for several years been effected in the three old breeds of Herefords, Devons and Short-Horns; and it was the accumulated evidence of this fact which led to a change in the long established policy of the Royal Agricultural Society—such change consisting in the offering of premiums for specimens of new breeds, instead of limiting their patronage to those in which no further real excellence appeared likely to be developed. It is contended that not only has no improvement of importance been effected by giving white faces, for instance, to the Herefords,—which, however, does not affect their intrinsic value; and greater tenderness, probably resulting from more general confinement, with a slight increase of size, perhaps, in the Devons, but that actual deterioration has taken place in the Short-Horns—the most numerous of the whole. In view of this result, the Royal Agricultural reviewer, Robert Smith, in his review of the Chester exhibition, says of this breed, that "it would be well if more attention was paid to their lean meat, and less to superfluous fat. \* \* \* Rather than to encourage male animals of a smart heifer-like cast, without lean meat-quality with substance being really essential." This to our view is affirmation, not only of depreciation but also of the necessity of an improved method of breeding the Short-Horns. And if the British breeders, whose skill we so much patronize, have committed such radical errors, what can be expected of the imported animals so bred? What but the repetition of similar errors, already abundant here?

If, however, the present standing of these breeds was entirely satisfactory, still the fact remains that for many years they have been bred in sufficient numbers in this country to admit ample selections being made, without risking deterioration from too close breeding. Thus for years there has been no particular necessity requiring the importation of animals for the sake of new or better selections. But if there were such a necessity, there is still the fact of inevitable deteriora-

tion generally in the animals thus introduced, not necessarily so much in consequence of excess as of great changes in the natural quality and bulk of feed, unless in some excepted instances, from favorable local resources and great care, is to be checked for at least a while, and in instances such as here contemplated deterioration be partially prevented, the product of breeding in such conditions would not be a means of general improvement, because similar deteriorations from causes of the same nature must inevitably befall such animals when transferred to our general quality of feed and conditions of climate; and, moreover, animals produced in unusually favorable conditions obtain a fictitious reputation that could not accrue to them nor be justified under less favorable but more usual circumstances.

It is reported that Mr. Alexander, of Kentucky,—the largest breeder in the South—believes he has bred a better bull for his purpose (which is that of raising stock for breeding from,) than he could import; and in this he is most likely correct, and certainly his spirit and judgment in this matter are most admirable, and cannot be initiated without advantage on all hands. The general superiority of the American horses is admitted, of which the creditable achievements of some of them on English Turf is an illustration at hand. Then as to fine woolled sheep, England itself is certainly not up with us. If we consider the extent of intelligence and capital of our successful horse breeders—generally by no means of unequalled amount—what in these respects is lacking to prevent our breeders of good cattle achieving equal, or even more important improvements? All that is attainable by importing the old breeds is novelty—not improvement—a mere economical fiction. For no material advance having been made in them for years in England, it is absurd to anticipate further advantage, from that quarter, except on the principle of “light from no light,” which is equivalent to hugging a most egregious illusion.

We export pork, and beef, and grain in large quantities. Should we not rather convert a portion of our grain into improved stock, and export it in a more concentrated and living form, equally for economical reasons, and to illustrate American skill in breeding animals, as entitled to rank with that of other arts? Must American breeders of stock accept a position not only de-

pendent as to British skill, but also a secondary, as practical men in their own day and country? We hope not, for we believe that from its number and aggregate value, every leading branch of agriculture should be distinguished by the skill displayed in it as much beyond that of other professions as it is more general and vital in importance in every respect.

When improvement is a probable result, the importation of animals of *new* breeds cannot reasonably be objected to; but on the other hand, caution and judgment—such as Sanford Howard appears to have exercised in making examinations and selections of recent importations, are highly necessary in deciding on the probabilities of improvement: for as failure will ensue in some cases, it is necessary to know beforehand the reasons why success should follow in others. Importing under such circumstances, is not a one-sided dependent policy, like that of constantly importing old established breeds, for reasons frequently humiliating and absurd. Importations of this character are made either because Britain is supposed to have greater skill, or a better climate, if that of England be really better—of which we say nothing here—then it is nothing less than sheer recklessness to transfer *their* animals to the inferior and consequently deteriorating conditions of a different climate, and the necessarily equal different character of its productions—devoted to feeding stock. A little credulity is doubtless a very good thing, because the “pleasure is as great of being cheated as to cheat.” But to say that a great stock country like this, can most advantageously import, instead of produce superior animals for the purpose of general improvement—which construction is justified by the present practice—is a little too much trifling and dallying with a too confiding credulity.

The policy of importing, having too slender grounds to avail by reason of the numerous weighty objections against it, ought to be changed as that of the Royal Society has been—a precedent for you, Messrs. breeders—or more properly, *reversed*. And this because while imported stock will inevitably continue to deteriorate generally, stock sent from here to England would as certainly improve, and consequently create a demand for more of our animals. This would result because their crisp, watery, sweet and tender root feed and grasses must produce



greater bulk and rotundity in the animal, and more tenderness and juiciness, though not nutriment, in his meat. The handling qualities of American animals would generally much improve with English feed, from the increase of suppleness in their hides, and mellowness of flesh, resulting from, and corresponding to, the greater nutrition of feed. Moreover, the manufacturing "beef eaters" of England would be sure to pay "Brother Johnathan," a good price and find him a steady market for a superior article. A creditable degree of spirit, and the general interest alike dictate the policy of at least reciprocal exchange, rather than exclusive importation on our part; and if American breeders cannot produce cattle with equal skill to that of English breeders, and with points and qualities peculiarly American, after a fair trial, let us know the reason why? for a great flock country like this, ought to produce its own breeders, and at least some peculiar breeds, and the sooner this is done the better it will be for the general stock interest and all parties concerned.

J. W. CLARKE.

### Vegetable Ivory.

The Ivory Nut Tree, or, as it is popularly called by the natives of South America, the Tagua Plant, is common in that country, and we believe also in the southern portion of our State. If this should prove to be the fact, and from the testimony before us we have no reason to doubt it, it will eventually form no small element among the resources of our still wealth-prolific country. It is a tree which belongs to the numerous family of palms; and in one division of that order denominated by botanists, the Screw Pine Tribe. In South America, where they are found in great abundance the natives use them to cover cottages, and from the nuts they make ornaments, buttons, and various other articles. In an early state, the nuts contain a sweet, milky liquid, but afterwards assume a solidity nearly or quite equal to ivory, and will admit of a high polish. Europeans and our own countrymen call it the Ivory Nut Tree, or Vegetable Ivory; and it has recently been introduced into the bone and ivory manufactories of both England and the United States, where it is brought into use quite successfully, for various purposes as a substitute for ivory.—Ex.

### The "Prof." Done Over.

A few weeks since we copied from the *Homestead*, a sterling agricultural paper published at Hartford, Conn., the analyses by Prof. S. W. Johnson of four specimens of Prof. Mapes' Super-phosphate of Lime. It was the report of Prof. J. to the State Agricultural Society of Connecticut.

In that table Prof. J. demonstrated that the actual value of Mr. Mapes' compounds ranges from \$12 10 to \$22 24 per ton, while the price charged for the same by Mr. Mapes is from \$40 to \$50 per ton!

For placing this reliable and valuable information before our readers, Mr. Mapes addressed a long communication to us charging us with attacking *him*, asking us to publish a column or two in laudation of this same compound, which Prof. Johnson had shown to be worth not half the price charged for it.

In reply, we assured Mr. Mapes, that should he furnish the *Homestead* with the evidence of error on the part of Prof. Johnson, we should take pleasure in transferring such communication to our paper. Mr. Mapes saw fit to forward to the *Homestead* the paper addressed to us. We therefore give him the full benefit of the article, with the commentary of the *Homestead*.

Prof. Johnson tried Mr. Mapes' super-phosphates in the crucibles of the Laboratory of Yale College. The results are far more favorable than in the experiments we made ourselves in the great laboratory of nature. In our greenness with such special manures, we paid Mr. Mapes one hundred dollars for two tons of his "super-phosphate of lime," and caused the same to be carefully applied to various crops, but without the evidence that the first dollar of benefit was derived from its use.

In applying it to the corn crop, two rows through the middle of a large field were omitted in its application. At harvest these two rows, with the two beside them, were carefully husked and measured separately, and without the first half bushel's difference. The application was made by the "Prof.'s" own rule! No more advantage was seen in its application to any other variety of crop, as it was applied to several. Science and nature decide against it.

We purchased, the same season, super-phosphate prepared in Connecticut, which

gave a decided increase to the crops where it was applied.

What Mr. Mapes chooses to call "a history" of Prof. Johnson's "conduct towards" him, is substantially the history of the conduct of the editors of a large number of the leading agricultural papers of our country for years past. Till now, we have remained silent.—*Eds. Observer.*

#### MAPES ON PROFESSOR JOHNSON.

We have recently received a letter from "Prof." Mapes, of super-phosphate (with the super-phosphate left out) notoriety, requesting us to publish an article addressed to the editor of the *New York Observer*, who some weeks since transferred to the columns of the *Observer* the report of the chemist of the Connecticut State Agricultural Society, upon a class of fertilizers, of somewhat varying qualities and prices, which are known as "Mapes' Super-phosphates of Lime." This report originally appeared in *The Homestead*, and was, as our readers remember, in no way calculated to increase the confidence of the public, either in the manufactures or the representations of the Mapeses, father or son.

Mr. Mapes writes: "You have seen proper to attack me in your paper." We attack no one, but comment freely on the public statements, actions, and pretensions of men, as well as the principles they advocate, and the facts they adduce in support of their views. If a man proves himself a charlatan, it is no attack if we show up the truth so that he can deceive fewer people. We beg our readers (and Mr. Mapes is one of them) to note our position; it is purely defensive, in warning the public and putting farmers and others on their guard against just such abominable impositions as those exposed in the report referred to. Errors of theory or practice, however, we are always happy to *attack*, acting on the *offensive* as long and as far as there is any fight left in them, or as there is any advantage to accrue to our readers.

As for the testimonials, so far as we know, they are from very respectable people: several of them we are personally acquainted with; but what are they worth? Are they testimonials in favor of the application of ammonia to certain soils? Yes. Are they in favor of the action of sulphuric acid? Yes. Of gypsum? Yes. Of soluble or

super-phosphate of lime? In some cases, yes; in others, probably no—for we know that the material sent to Hartford and sold by J. W. Royce & Co., had no super-phosphate in it, at most no appreciable amount.

All these various substances, each valuable where needed, are in Mapes' manures; they may be of very great agricultural value if needed, but of very little if not needed. Nobody doubts their value, but the question only is, are they worth \$13, or \$50. A ton of plaster may be applied so as to increase the yield of grass land, or other crops, the value of \$100; yet who will say that man is not a *knave*, who sells plaster to the owner of such land for \$50 per ton?

But Mr. Mapes attacks with misrepresentations and false imputations a gentleman, and man of science, who, even in these days of elastic consciences, is as firm and inflexible for right and truth, as if he got blessings instead of curses for it. Our readers know and respect Prof. Johnson, and we publish this letter that they may the more effectually know Mr. Mapes.

*Editors of the New York Observer :*

GENTLEMAN :—\* \* \* Taking it for granted that in common with many others you have suffered yourselves to be deceived by Prof. S. W. Johnson, I beg to give you something of a history of his conduct toward me.

In the early part of 1853, one of the imitators of my Phosphate caused to be published an analysis, (a) said to have been made by Prof. S. W. Johnson, of Yale College, (b) of my Phosphate, in which he makes the value to be \$46, for which I charge \$50, and also stating the sulphate of lime necessarily formed by the action of the sulphuric acid on calcined bones, in the making of Super-phosphate, as Plaster of Paris; leaving it to be inferred, that I had added crude plaster in the manufacture. I wrote to Prof. Silliman, senior, to ascertain who Prof. Johnson, of Yale College, was, and then learned that no person of that name held a Professorship in Yale College, nor was there even a student in the College of that name. (c) I subsequently learned that this self-styled (b) Professor S. W. Johnson, was a student in the analytical laboratory in the yard of Yale College, the use of which had been given to Mr. Porter, to enable him to re-



ceive pupils in chemistry. The associate pupil of S. W. Johnson was Mr. Sol'n Mead, who informed me that Johnson was a fresh student at chemistry, and that this analysis was among the first that he had made, and that he acknowledged to Mr. Mead that my phosphate was better than any of the others he had tried, which included two specimens of English phosphates. This analysis by Mr. Johnson was full of evident errors, (*d*) all of which were pointed out by Dr. Charles H. Enderlin, the former associate of Baron Liebig, and a well known chemist of high standing. This paper will be found in the *Working Farmer*, vol. v. p. 121, and most clearly shows S. W. Johnson to be egregiously in error. For a long time this gentleman was, we believe, absent in Europe; on his return, vituperation seemed to be his aliment, and he immediately published a statement, that although my phosphate was of exceeding good quality when he first examined it, it had deteriorated, giving a new analysis, and evidently repeating the errors pointed out by Dr. Enderlin; he also attached the result of my experiments carefully made on my own farm, with the mineral phosphates from Dover, Crown Point, and elsewhere, which I pronounced to be valueless in practice, and which have proved so in England and elsewhere, where they have been shipped. In a book lately published by Prof. Johnson, called his "Essays on Commercial Manures," (*e*) he clearly states that mineral phosphates are as valuable as those from bones; consequently, in his opinion, the chlorapatite or phosphatic rock of New Jersey, containing ninety per cent. or more of phosphate of lime, must be superior in quality, when finely ground, to the best bone dust; instead of which these mineral phosphates, even after being finely ground and treated with sulphuric acid, have no value as manure.

All the attacks of this gentleman we have passed by unnoticed, not only those written over his signature, but his anonymous communications published in the *Homestead*. (*f*) We published the affidavit of the foreman and all the workmen at the factory, that no change in quality had ever taken place in the Phosphates there manufactured, and supposed this to be an entire refutation to the assertions of S. W. Johnson, founded upon an analysis, the correctness of which had been entirely

disproved, not only by the communication of Dr. Charles H. Enderlin, but by the analysis (*g*) of Dr. Enderlin, Prof. Horsford, of Cambridge, Dr. A. A. Hayes, of Mass., Dr. Antisell, and others, and by the opinion of Prof. Shepard, formerly of Yale College, Prof. Higgins, of Baltimore, and others, and still further disproved by the certificates of hundreds who had used the Phosphates for a series of years.

In the article referred to in your paper, Prof. Johnson commences thus:

"Of all the many fraudulent and poor manures which have been from time to time imposed upon our farmers during the last four years, there is none so deserving of complete exposure and sharp rebuke, as that series of trashy mixtures known as Mapes' Superphosphate of Lime. It is indeed true that worse manures have been offered for sale in this State, but none have ever had employed such an amount of persistent bragging and humbuggery to bolster them up, as has been enjoyed by these."

Now permit me to ask whether this language is befitting the office of a chemist who wishes to do a service to the public, or that of a special puffer, which Prof. Johnson has most undeniably proved himself to be, of volcanic Guanos, which are valueless as compared with Superphosphates. In his recent writings he has lost no opportunity for puffing these mis-called guanos, and his late book is but a card for the vendors of these inferior products in his neighbourhood. He then says:

"Seven or eight years ago, Mapes' improved Superphosphate was almost the only manure of the kind on sale in our northern markets; then it was of good quality," etc.

He afterwards says:

"And had a value (calculated on present prices) of \$44 per ton; it was sold at \$50 per ton."

Why should Prof. Johnson calculate present prices on an article which he states was sold at \$50 per ton seven or eight years ago. (*h*) In his accompanying analysis, after admitting the presence of sulphuric acid, he denies the presence of soluble phosphates. This is, as he is well aware chemically impossible.

My answer to the whole of this tirade is, that the sale of Superphosphate in the very district where he resides, and where the

paper is published in which he has written most, namely, Hartford and New Haven, have been five times as great in the year 1859 as any former year, (*i*) and the following certificates from men of the highest standing as agriculturists in his State and elsewhere, received within the current year, are better evidences of the value of the Phosphates, than any analysis or opinion which may be offered by this self-constituted servitor of the public. (*k*)

As you have given place to this unwarrantable attack upon me, I ask in common fairness that you will publish the above, together with the following abridged certificates: (*l*)

Yours, respectfully,

JAMES J. MAPES.

#### NOTES.

*a.* This analysis was made by Mr. Johnson when he was an assistant in the Yale Analytical Laboratory, shortly after the publication of sundry papers on manures by Prof. Way, chemists of the Royal Agricultural Society, (if we mistake not,) in which papers the author adopted certain standards of valuation for the different ingredients of high priced fertilizers; and the analyses referred to were made with a view to apply the rule suggested, and compare American superphosphates with English. The importance of the knowledge obtained to agriculturists led Mr. J. to send them for publication to the *Country Gentleman*. We are familiar with the facts because we were at that time connected with the College.

*b.* The title *Professor* was by error given to Mr. Johnson at that time in some agricultural paper in which the article was published. *He never used* the title till he was elected to the chair he now so ably fills, though previously he had occupied a position which would have authorized its use had he chosen. [What college is "*Prof.*" Mapes a Professor in?]

*c.* He was an assistant, not a student. A mere quibble to draw attention from the real issue.

*d.* This analysis was the best for the manufacturer ever made of any manure bearing Mapes' name, so far as we have seen published analyses, for the reasons that, first, it showed it to be a *first rate* article, and second, it was expressed in the simplest possi-

ble form, names being used that everybody understood, and the statement was so explained that everybody could understand it, just as they now can understand every analysis which we publish from Professor Johnson's Laboratory. Dr. Enderlin was employed by Mr. Mapes to find the analysis and the statement of it at fault, and did his best to do so. All the basis for fault finding was in the use of simple terms instead of chemical terms, and the doctor succeeded in throwing some dust in the eyes of a few people, perhaps. The analysis was not only scientifically accurate, but it conveyed to every one who read it exactly the just view—a very favorable view too—of the manure. Mr. Mapes did not know enough to know it; and so went directly counter to his own interests, in employing a *chemical attorney*, so to speak, to do for him what he thought ought to be done, but could not do himself.

*e.* See Prof. Johnson's reports in the Transactions of the Conn. State Agricultural Society, 1857 and 1858, and the same embodied in the work alluded to, published by Brown & Gross, Hartford—the most valuable publication on manures ever issued from the American press.

*f.* No anonymous communications from Prof. Johnson have ever appeared in our columns.

*g.* Were they analyses of the *can* samples or of the manure as found in the market? For the fact must be known to our readers that Mapes furnishes samples in cans of a very fair quality for trial, and far superior to the common stock in market. Whatever certificates of actual trial on the land or of chemical analyses of his manures Mr. Mapes publishes hereafter, or now asks us to take in evidence, he must prove that he has not had them prepared as he did the can samples, of a superior quality to what he offers for sale in the market. How a man who was *caught* doing such a trick as that has the face to ask us to publish such an article as this, we cannot conceive. We do not doubt Mr. Mapes can make an article of super-phosphate equal to anything in the world, or that anybody in the world can make, and can get it analyzed, etc.,—but the question is, *Does he send it to market?* and to this we answer, *No*, he does not; and more than that, he does send an article which deserves the criticism of Professor Johnson, which Mr. Mapes sees fit to quote.



h. In order to compare it better with that in market now, and calculated on present prices, of course.

i. This may be true, but the sales have been very small in Hartford at any rate, amounting to only four tons all told, as stated by Mr. Mapes's agents here.

k. The State Agricultural Society, in appointing Mr. Johnson their chemist, impose upon him certain definite duties, in fulfilment of which he certainly is no *self-constituted* servitor of the public.

l. We shall not publish the certificates, except as an advertisement, if Mr. Mapes chooses to present them to our readers in this form. The Connecticut men from whom they come are—A. Bagley, New Haven; Morris Ketchum, Westport; John S. Beach, New Haven; Nathaniel Weed, Darien; Nathan Moore, Jr., Stafford, and A. Wetmore, Jr., Stamford. We should be happy to hear from these gentlemen as soon as convenient, or from any other, in regard to their use of this manure—where they obtained it, of whom they obtained it, how much they used, the character of the soil, its previous culture, manuring, etc., the effect of plaster, lime, guano, or any other concentrated or special manure on the same, if known, etc.

[N. Y. Observer.]

### Poultry House.

A good, warm poultry house for fowls in winter, and a cool one in summer, is a useful structure to every man who keeps a dozen or more fowls.

We annex some good suggestions from one of our exchanges, as follows:

"In selecting a site for a poultry house, attention should be paid to the quality of the soil on which it is to be erected, as also its aspect. The soil should be of a warm and dry character, and gently sloping from the front, that the wet may easily run off. The aspect should be such as will secure the greatest possible average quantity of daily sunshine; and it should be as sheltered as possible from sharp or biting winds, or from the driving rain. Every house should be provided with a sufficient quantity of small sand; or, if such cannot be procured, clean ashes are a good substitute; pieces of chalk are also a useful—nay, necessary adjunct; *crude lime* acts, however, as a poison. Some horse-dung or chaff, with a little corn through it, is also a source of amusement to the

birds; and recollect, that *amusement*, even in the poultry yard, is materially conducive to health. The ashes and litter should be frequently changed, and had better also be kept in little *trenches*, in order that they may not be scattered about, and may not thus contribute to give a dirty or untidy appearance to the yard. When, however, your fowls have run in a garden or field, of average extent, this *artificial* care will be replaced by nature.

If the court be not supplied with a little grass-plot, a few squares of fresh grass sods should be placed in it, and changed every two or three days. If the court be too open, some bushes or shrubs will be found useful in affording shelter from the too perpendicular beams of the noonday sun, and probably in occasionally screening the chicken from the rapacious glance of the kite or raven. If access to the sleeping room be, as it ought, denied during the day, the fowls should have some shed or other covering, beneath which they can run in case of rain; this is what is termed "*a storm house*;" and lastly, there should be a constant supply of *pure, fresh water*.

*Keep your yard as clean as possible.* Fowls frequently suffer much annoyance from the presence of vermin, and a hen will often quit her nest, when sitting, in order to get rid of them. This is one of the uses of the *sand* or *dust* bath; but a better remedy, and one of far speedier and more certain efficacy, has been discovered at Windsor by her Majesty's feeder. The laying nests at Windsor are composed of dry heather (*Erica tetraix*) and small branches of hawthorn, covered over with white lichen. These materials, rubbed together by the pressure and motion of the hen, emit a light powder, which, making its way between the feathers to the skin, is found to have the effect of dislodging every sort of troublesome parasite.

Lichens may easily be collected from rocks and trees, and the nests furnished with them. Rotten wood, thoroughly dried, produces a powder equally destructive to vermin.

The fowl house should also be frequently and thoroughly cleaned out, and it is better that the nests be not fixtures, but formed in little, flat wicker baskets, like sieves, which can be frequently taken down, the soiled straw thrown out, and themselves thoroughly washed; hay is objectionable, as tending to the production of a parasite of the *louse*

tribe, the annoyance of which will often drive the hen from her nest. Fumigation at no very remote intervals, is also highly to be commended. Nothing is of more importance to the well-being of your poultry, than a good, airy walk.

Cleanliness, a free circulation of the air, and sufficient room, with proper kinds and quantity of food, are the conditions on which success in raising poultry principally depends.

Among the most necessary appendages to every poultry house, is the *Hen Ladder*. This is a sort of ascending scale of purchases one a little higher than the other; yet not exactly *above* its predecessor, but somewhat in advance. By neglecting the use of this very simple contrivance, many a valuable fowl may be lost or severely injured, by attempting to fly down from their roost—an attempt, from succeeding in which the birds are incapacitated, in consequence of the bulk of their body preponderating over the power of their wing. This would not, of course, take place among wild birds; but we are not to forget that our *improvements* in the breed of all animals tend to remove the varieties on which we expend our care, gradually farther and farther from their primitive condition, and conduce to deprive them of much of their native activity, and as our improvements proceed to render them ultimately almost useless; hence the necessity for such artificial aids as the hen ladder; and perhaps, even in the stable, this accessory is more absolutely required than in less humble poultry houses, on account of the great height of the roosting-place.”—*Southern Homestead*.

### Results of Art and Science.

SIR DAVID BREWSTER, the eminent Scotchman, whose successful researches into natural science have covered his name with universal honor, was lately inducted into the office of Principal of the University of Edinburgh, to which he had been unanimously elected. On that occasion he addressed the professors, graduates, and matriculated students of the University, as well as a large crowd of other dwellers in the Scottish metropolis. What he said upon the indebtedness of mankind to the arts and sciences is so true, that we take pleasure in presenting it here. Speaking to the students, Sir David Brewster said:

“There is only one other branch of study to which I am anxious to call your attention. The advances which have recently been made in the mechanical and useful arts, have already begun to influence our social condition, and must affect still more deeply our systems of education.—The knowledge which used to constitute a scholar, and fit him for social and intellectual intercourse, will not avail him under the present ascendancy of practical science. New and gigantic inventions mark almost every passing year; the colossal tubular bridge, conveying the monster train over an arm of the sea; the submarine cable, carrying the pulse of speech beneath two thousand miles of ocean; the monster ship, freighted with thousands of lives; and the huge rifle-gun, throwing its fatal but unchristian charge across miles of earth or of ocean. New arts, too, useful and ornamental, have sprung up luxuriantly around us. New powers of nature have been evoked, and man communicates with man across seas and continents, with more certainty and speed, than if he had been endowed with the velocity of the race-horse or provided with the pinions of the eagle.—Wherever we are, in short, art and science surround us. They have given birth to new and lucrative professions. Whatever we purpose to do they help us. In our houses they greet us with light and heat. When we travel, we find them at every stage on land, and at every harbor on our shores. They stand beside our board by day, and beside our couch by night. To our thoughts they give the speed of lightning, and to our time-pieces the punctuality of the sun; and, though they cannot provide us with the boasted lever of Archimedes to move the earth, or indicate the spot upon which we must stand could we do it, they have put into our hands tools of matchless power, by which we can study the remotest worlds; and they have furnished us with an intellectual plummet by which we can sound the depths of the earth, and count the cycles of its endurance. In his hour of presumption and ignorance, man has tried to do more than this; but though he was not permitted to reach the heavens with his cloud-capt tower of stone, and has tried in vain to navigate the aerial ocean, it was given him to ascend into Empyrean by chains of thought which no lightning could pace and no comet strike; and though he



has not been allowed to grasp with an arm of flesh the products of other worlds, or tread upon the pavement of gigantic planets, he has been enabled to scan, with more than an eagle's eye, the mighty creations in the bosom of space, to march intellectually over the mosaics of sidereal systems, and to follow the adventurous Phaeton in a chariot which can never be overturned."—*Christian Observer*.

### The Farm and the Farmer.

"Much of the character of every man may be read in his house." This was a remark of the late Dr. Downing, and though true in the main, must be taken with some modification. Many, had they the ability, would cause their houses to tell a far different story of their character than they now do. The log cabin or the cottage that has weathered the storm for a score of years, would soon come down, and on its ruins a mansion would arise bespeaking its owner a man of taste and munificence, with a spice of vanity and love of display. In one half the cases, persons who build are dissatisfied with the work after it is completed, and too late to make a change without subjecting themselves to great expense. The house may show the character of the architect, but not of the proprietor, unless it is according to his taste. Not one in a thousand, if under the necessity of rebuilding, would make the second house like the first, while many who build fine houses, have little to do with the work aside from furnishing the means.

The *character of the FARMER*, however, may be *read in his FARM*, in the most unmistakable language. He may *write* most elegantly and truthfully, lay down the best of rules, and exhort all to observe them with energy and zeal; he may talk most fluently, deliver agricultural lectures for the enlightenment of his fellow farmers, which all may hear with profit; lay down maxims, which, if followed, would make every man a good farmer, but all this tells not the character of the man. He may violate his own rules, disregard his own maxims, and, like the drunkard who preaches temperance, be a living example of the evils which he condemns. But the farm tells the character of the man in language so truthful and unmistakable that "he who runs may read."

There is no opportunity for concealment—no chance for disguise. If the farmer is an enterprising, diligent man, it is told by the horses and cattle in their rounded forms, sleek coats and bright eyes; in their playful, happy freaks, and in their quiet, comfortable repose. It is read in the growing crops and the well filled barns—related to every traveller by the fences and the gates, the barns and the stables. It is heard in the lowing of the sheep, and satisfied grunts from the pig-pen, and proclaimed from the very house-top in the clarion notes of the cock. It is seen in thrifty orchards, in the air of neatness and thoroughness that pervades the whole domain. The farm may be small, the land naturally none of the best, the buildings cheap; but natural difficulties are, as far as possible, overcome, and the owner, it is very plainly to be seen, is the master, instead of the slave of circumstances.

The slothful, negligent farmer cannot hide himself. His character and his faults are emblazoned on the dead tops of his orchard trees, chattered by the loose boards that dangle in the wind; bleated by the half starved calves; told in the pitiful looks and speaking eyes of forlorn horses and cattle. The poor fences and poorer crops, the fine weeds among the corn and potatoes, and finer thistles in the meadow, speak in living words the habits and character of the owner. The farm may be naturally the best in the county, the buildings costly, but these things only set off in more brilliant colors the forlornness that pervades the whole. Were this truth ever remembered, that the character of the farmer is seen in the farm, we think many would strive to have their farms speak for them better things than they now do.—*Rural New Yorker*.

### Thick Wind.

BY G. W. BOWLER, V. S.

This disease, though very common in the United States, is more particularly confined to those horses owned by farmers.

It is an affection which prevails more or less in every village, and the true nature of the disease appears to have been buried in obscurity. The causes assigned by many authors, are too numerous to mention. A horse may be what is termed thick winded

from a great many different causes. But what I allude to, is the affliction under which animals are suffering to such an extent at the present time.

We have horses that are thick winded or as they are termed, roarers; which arises generally from a malformation of the larynx. Again we see horses so affected arising from a collection of lymph in the trachea, thereby acting as an impediment to the free passage of air into the lungs.

We also see it in cases where the lungs are slightly tuberculous. But the common every day thick wind arises from no such cause. It is simply brought on by the neglect of the person who raises or has charge of the animal. This may at first sight appear rather strange, and saying a great deal. But from my own personal observations, I have found that the greater number of cases of thick wind, arises from no other cause. We have other diseases before us daily which arise from similar neglect, but take on a different form: I allude to staggers. Some animals are affected by this treatment earlier, and in a different form to others.

That the staggers, as it is termed, arises from overloading the stomach, does not admit of a doubt. And in the same way is thick wind brought on. The stomach and intestines become overloaded with food; which has the effect in course of the time, of increasing the capacity of both the stomach and intestines, from their being continually overcharged with a mass of undigested food. Evidence of this may be seen, if we only observe the vapor which is so frequently passing from the animal.

The enlarged states of the stomach, and intestines, has the effect of causing pressure on the diaphragm and lungs, thereby causing an impediment to the free action of the lungs, and producing the difficulty in respiration which is observed in animals thus affected. The continued exertion to inflate the lungs with air, has the effect in some cases of producing a rupture of the air cells, and when this has taken place the animal is forced to suffer on, so long as he lives. Let more attention be paid to feeding your stock at regular hours, and with a reasonable quantity of food, and you will soon find, that thick winded horses will be as scarce as gold at Pike's Peak.—*Farmer and Gardner.*



## The Southern Planter.

RICHMOND, VIRGINIA.

### Diseases in Horses.

SWINNEY.

We take it for granted that every Virginian (as he ought to be) is fond of horse-flesh, and that he is always glad to have "a new wrinkle" added to his stock of knowledge in veterinary science. Consequently, we owe no man any apology for devoting some of our time and space to an endeavour to improve the condition of that most noble animal, the horse. In speaking of "swinney," we do not propose to do more than explain the philosophy of the causes which lead to the disease; the existence of which, to our utter amazement, is entirely ignored by some English veterinary surgeons of acknowledged eminence in their profession. It is hard, however, to convince a man that a thing does not exist, when his eyes so often prove to him the contrary, and a satisfactory cause is presented for the phenomena to which his attention is directed. Every man in Virginia, who has ever owned a horse, knows that "swinney" is of frequent occurrence, particularly on farms whose "force" is composed of a negligent overseer and careless negroes. Horses and mules, improperly geared, with collars too large, and employed at any hard labor, are almost sure to have it.

*Causes.*—Pressure applied to the shoulder at improper points, produced by large collars, or badly adjusted harnes; lameness from any injury, or "splint," which may "throw him off his feet" for a while.

Thus, if a horse stands for any length of time, with one fore-foot resting, he is almost sure to have "swinney" in the shoulder of that side.

Anything which obstructs the proper circulation of the blood through the muscles of the shoulder, will as surely bring on "swinney" as a failure to take food in proper quantities, and



at the times, when the system demanded it, would produce emaciation. Every muscle is nourished and fed by the blood which runs through its blood-vessels; and, of course, when this supply is cut off, "swiuney" results as a natural consequence, since *the disease is simply a wasting or emoriation of the muscles—a want of the accustomed nourishment.*

*Treatment.*—The first indication to be observed, with a view to restoring the diseased parts to a natural condition, is, to re-establish a proper "circulation" through the parts, by giving to the muscles a supply of their natural sustenance, which shall be capable of supplying the waste they have undergone. The first thing to be done, then, is, to use a remedy which will bring to the spot a *flow of blood*, and this can be effected easily on the principles, well known to medical men, that "*wherever there is an irritation, there will be a flow of blood.*"

Blisters and counter-irritants, liniments and frictions, are, therefore, the remedies generally employed. The old-fashioned remedy of inserting a "split" of wood under the skin, and separating the skin from the cellular tissue and muscle, is so barbarous that it should be always discountenanced by every humane man.

The remedy easiest of application, and as effective as any other we have ever seen tried, is, to make a small incision or puncture through the skin, at the lowest point of the disease, into which put the end of a quill, and blow up the skin thoroughly. This operation is almost painless, and may be repeated as often as may be desired with very little trouble, while the skin by the process is very thoroughly lifted by this aerial pressure from the muscles. The next step is to produce as active an inflammation as possible, *between the skin and muscles*, which may be brought about by injecting with a small syringe, through the puncture, any stimulating mixture. Tincture of cantharides is perhaps the best article, or diluted tincture of iodine. A strong decoction of red-oak bark, with some whisky or brandy added thereto, would answer as a substitute for the other articles where they could not be conveniently procured. The effect of the application of these remedies will be the establishment of an active inflammation over the whole surface of the injured muscles, which will be speedily followed by suppuration of a healthy character, the deposit and organization of lymph, by which, the sunken places will be filled up, and the horse brought again to a sound and useful condition.

The worst case of "swiuney" we ever saw was cured by this method, which, although not *new*, is known to comparatively few horse owners.

#### "HOOF BOUND."

This name is given to a thickening of the crust, or external wall of support to the foot. A great many cases of lameness are produced by it, which are usually attributed to other causes. The horse with his foot in this condition, is able to move about as well only as a man would do who wore boots smaller than his feet. There can be no expansion of the foot whatever when his weight is thrown upon it, and he is consequently compelled to limp, and when he does move, to go in the most cramped and stiff manner possible.

The *cause* may be either the fault of the blacksmith, who neglects to rasp the hoof properly, or to trim the heels; but by far the greater number of cases are produced by keeping them on plank floors, and paying no attention to moistening the feet. The hoof begins to grow thick, becomes perfectly dry, and to have a white rim visible around its top, next to the hair of the leg, by which it is often concealed from view.

*Remedy.*—Rasp the "quarters" of the hoof until, upon pressure being made from side to side, it is discovered the heels can be easily moved towards each other. In fact, rasp the hoof until the unnatural pressure of the thickened crust is removed. Trim the heels low, and if the horse is to be used, have the shoes slightly bent downwards at the back part, so as to allow the heels to expand as much as they can. At each successive shoeing, have the shoe made a little wider at the heels, until the hoof is thus gradually brought into its natural shape, viz: about as wide at the heels as it is at the toe.

The dryness of hoof may be overcome by having the horses' feet "stopped" every night with cow-dung, and using a little oil on the outside of the hoof occasionally. A less troublesome and better plan, we think, is to remove a portion of the dirt floor of a stall, which should be re-filled with clay, to which cow-dung and salt may be added, and after it is well chopped up with a hoe, add water in sufficient quantity to make the whole floor into a consistent paste. The horse should be kept in this stall during the day, and at night (for the sake of cleanliness) be removed to a dry stall.

### The Farmer and Gardener.

We are indebted to the Farmer and Gardener, an excellent monthly, published in Philadelphia, for the very interesting article written for that paper by Professor E. Pugh, on "Poisoning Land," for which credit was omitted inadvertently in printing the article for this number of our paper. We are also indebted to that paper for a very good article on the Physical Condition of the Soil, by Wm. Bright, Logan Nursery, Philadelphia.

### Errata.

In our January number, two provoking errors occur in the article of Mr. Ruffin on "Slavery and Free Labour," &c., which the reader is requested to correct. For "rates of improvement," occurring near the middle of the second column, page 8, read *ratio of imprisonment*, and 18 lines above—whole number of "[negro]" criminals, &c., strike out the word negro.

### United States Agricultural Society.

The *Eighth Annual Meeting* of this society was advertised, to be held at the "Smithsonian Institute" in Washington, D. C., on the second Wednesday in January, 1860, for the election of officers and the transaction of business.

We regret that we received its announcement too late for our *January number*. Especially as it was intended to have public discussions on various agricultural topics—among them "the establishment of a Department of Agriculture;" Physical Geography in its relation to Agriculture; The Steam Plow; Under Draining, &c., &c.

As soon as we learn the particulars of this meeting, we will, with pleasure, lay them before our readers.

Below, our readers will see the views of a Massachusetts Editor, as to the course we should pursue, to develop our resources, and secure the prosperity of our section of the Union. He is undoubtedly right in his opinions, *except as they relate to the character of our laborers*.

We believe that it is to our system of negro slavery alone that we owe our entire exemption from all those "isms" which at present so strongly war against all the dictates of Christianity, common sense, and good citizenship, in those parts of the United States, where the "laboring population is free and intelligent!!" albeit they

are in so many instances such slaves to factious prejudice and evil passions.

WHAT A MASSACHUSETTS EDITOR THINKS.—The people of Virginia and other sections of the South, in their ill feeling toward the free States, talk of establishing manufactories and direct commercial communication with Europe for themselves. If such should be the effect of the late foray—as unfortunately it will not be—there would great good come out of evil. The dissolution needed by the South is not of the political union of the States, but one that shall give them greater independence in their industry. Let them manufacture cloth and shoes and hats; let the cotton of the South be worked into fabrics where it grows, the iron be laid in rails over the soil beneath which it now rests, the gold of the Carolinas and Georgia be melted and wrought in those States, the wood of Texas be turned into the new built factories of that vigorous commonwealth, while the timber of Florida and Virginia is made into ships to sail from and to their ports, if so the South will. It is such a diversity of pursuits that is needed to make the Southern section of this country the most prosperous land in the world, and such it would be if its laboring population were free and intelligent.—*Newburyport Herald*.

### TRADE OF NEW ENGLAND WITH THE SOUTH.

The Boston *Post* contains a long and able article showing the extent of the trade between New England and the South, from which we make the following extract:

The aggregate value of all the merchandise sold to the South annually we estimate at some \$60,000,000. The basis of the estimate is, first, the estimated amount of boots and shoes sold which intelligent merchants place at from \$20,000,000 to \$30,000,000, including a limited amount that are manufactured with us and sold in New York. In the next place we know from merchants in the trade, that the amount of dry goods sold South yearly is many millions of dollars, and that the amount is second only to that of the sales of boots and shoes. In the third place, we learn from careful inquiry, and from the best sources, that the fish of various kinds sold, realize \$3,000,000 or in that neighborhood. Upwards of \$1,000,000 is received for furniture sold in the South each year. The Southern States are a much better market than the Western for this article. It is true since the establishment of branch houses in New York, Philadelphia and other cities, many of the goods manufactured in New England have reached the South through those houses; but still the commerce of New England with the South, and this particular section of the country receives the main advantage of that commerce. And what shall we say of New England ship building, that is so generally sustained by Southern wants? What shall we say of that large ocean fleet that by being the common carriers of the South have brought so large an amount of money into the pockets of our merchants? We will not undertake to estimate the value of these interests, supported directly by the South. If many persons have not become very rich by them, a very



large number have either found themselves well-to-do, or else have gained a living.

Now, what does New England buy of the South to keep her cotton and woollen mills in operation—to supply her lack of corn and flour, to furnish her with sugar, rice, tobacco, lumber, etc.? Boston also received from the slave States in 1859 cotton valued at \$22,000,000; wool worth \$1,000,000; hides valued at \$1,000,000; lumber \$1,000,000, flour \$2,500,000; corn \$1,200,000; rice \$500,000; tobacco estimated at \$2,000,000. We thus have \$31,200,000 in value, only considering eight articles of consumption. Nor have we reckoned the large amounts of portions or all of these articles which arrive at Providence, New Haven, Hartford, Portland and other places. Nor have we reckoned the value of other articles that arrive at Boston, very considerable though it be, such as molasses, naval stores, beef, pork, lard, and other animal produce; hemp; early vegetables; oysters and other shell fish; game, peaches, etc. May we not estimate then, with good reason, that New England buys of the South her raw materials and other products to the amount of some \$50,000,000 annually? In 1858, about one third of all the flour sold in Boston was received from the commercial ports of the Southern States, and in the same year seven-twelfths of all the corn sold in this city, was received direct from the States of Delaware, Maryland and Virginia. The value of the product of sugar and molasses, principally produced in Louisiana in 1858, was about \$33,000,000, and though but a small portion of it came to New England, nearly one-half the crop is consumed in the Northern States, reaching the points of consumption by the Mississippi river.

For the Southern Planter.

### Loudoun County Agricultural Society.

MIDDLEBURG, Dec. 17, 1859.

*Mr. Editor.*—In your notice of the Agricultural Societies of the State, in the December No. of the Planter, you omitted one which I think deserves notice—the “Loudoun County Agricultural Society.”

I enclose a paper containing a detailed report of its last exhibition, from which you will ascertain that this Society is in a very flourishing condition. We have at our exhibitions some of the best stock in the United States. The exhibition of horses, by far, the best in the State. The other departments very good.

We own a lot of ten acres—well arranged and substantially improved—nearly paid for. We expect at our next fair to be entirely free from debt, and to distribute a much larger amount in premiums. This year we gave upwards of five hundred dollars in premiums.

The officers of the Society are. Col. Norborne Berkeley, President; Thomas Edwards, Esq., Secretary and Treasurer.

The Colt Club we call the “Upperville Union Club,” for improving the breed of horses; and as its name imports, comprises several counties: Loudoun, Clarke, Warren and Fauquier. The

latter county, perhaps, contributing a majority of members.

The officers are, Col. Norborne Berkeley, President; Dr. Joseph G. Gray, Vice President; Alexander Grayson, Secretary and Treasurer.

J. Z. G. H.

Our correspondent will pardon us for publishing this note, which so well expresses the information as to the Society therein mentioned, inadvertently omitted in the article to which he alludes, in our December No.—EDITOR.

### Lectures on Agriculture,

To be given during the Agricultural Convention, at New Haven, February, 1860.

*Agricultural Chemistry; Prof. S. W. Johnson.*

LECTURE 1. Composition of the Plant. The Organic Elements—Oxygen, Nitrogen, Hydrogen, and Carbon. Lec. 2. Proximate Organic Principles of the Plant—Cellulose, Starch, Dextrine, Sugar, Gluten, Albumen, Casein, Vegetable Oils and Acids. Lec. 3. Atmospheric food of Plants—Water, Carbonic Acid, Ammonia and Nitric Acid—their sources and supply. Lec. 4. The Ash of Plants—Potash, Soda, Lime, Magnesia, Oxyd of Iron, Oxyd of Manganese, Chlorine, Sulphur, Phosphorus.

*Entomology; Dr. Asa Fitch.*

LEC. 1. Great losses sustained from depredating insects; their classification, structure, metamorphoses, habits, and means of destruction. Lec. 2. Insects injurious to grain crops, with a particular account of the wheat midge and Hessian fly. Lec. 3. Insects injurious to fruit trees, with a particular account of the Curculio and the apple tree borer.

*Vegetable Physiology; Daniel C. Eaton, Esq.*

LEC. 1. The vegetable cell—its form, size, structure, contents, origin, and mode of growth. Lec. 2. The seed, root, and stem. Nature and growth of seeds. Structure of roots. General structure and minute anatomy of stems. Lec. 3. Arrangement of leaves; their parts, forms, structure, and economy. Food of plants. Relations of the vegetable kingdom. Lec. 4. Flowers and Fruits. Arrangement of Flowers; their parts and offices of parts; development of fruit.

### SECOND WEEK.—PROMOLGY, &c.

*Pear Culture; Hon. Marshall P. Wilder.*

American Pomology; the best method of promoting it; with practical suggestions on the cultivation of the pear.

*Grapes; Dr. C. W. Grant.*

LEC. 1. Preparation of the soil, and propagation of the vine. Lec. 2. Culture of native varieties, with account of different varieties and

their qualities. Lec. 3. Foreign varieties; culture and treatment.

*Berries; R. G. Pardee, Esq.*

LEC. 1. Strawberries, Raspberries, and Blackberries; soil, cultivation, varieties. Lec. 2. Currants, Gooseberries, Cranberries and Whortleberries; soil, cultivation, varieties.

*Fruit Trees; R. G. Pardee, Esq.*

LEC. 1. Propagation and treatment of Fruit Trees in the Nursery. Lec. 2. Transplanting and management of Trees in the orchard and garden.

*Fruit; Lewis F. Allen, Esq.*

LEC. 1 and 2. The Apple. Lec. 3. Uses of Fruits economically considered; profits as farm crops; their consumption as food for man; as food for stock; value for exportation.

*Arbourniculture; Geo. B. Emerson, Esq.*

LEC. 1. Character of various Forest Trees, as found growing in the forests of Europe and America. Value for various purposes. Forest culture. Lec. 2 Shade and Ornamental Trees; modes of cultivation.

*Agricultural Chemistry, continued; Prof. S. W. Johnson.*

LEC. 5. The soil; its chemical and physical character. Lec. 6. The mechanical improvement of the soil by tillage, fallow, and amendments. Lec. 7. The Chemical and Mechanical improvement of the soil by manure. Lec. 8. The conversion of Vegetable into Animal produce. The Chemistry and Physiology of Feeding.

### THIRD WEEK.—AGRICULTURE PROPER.

*Drainage; Hon. Henry F. French.*

LEC. 1. The sources of moisture. What lands require drainage. Drainage more necessary in America than in England. Lec. 2. Various methods of Drainage. Direction, distance, depth and arrangement of Drains. Lec. 3. Effects of Drainage. Drainage promotes pulverization, warmth, absorption of fertilizing substances from the air. Lec. 4. Over-drainage; obstruction of drains; remedies; effects of drainage on streams and rivers.

*Grasses; John Stanton Gould, Esq.*

LEC. 1. Amount and value of the grass crop. The great increase practicable; destruction of the Grasses; obstacles to profitable culture. Lec. 2. Classification and description of Grasses. Lec. 3. On the principles of laying down and seeding meadows and pastures. Lec. 4. On irrigation and drainage of meadows.

*Cereals; Joseph Harris, Esq.*

On the cultivation of Wheat and Indian Corn.

*Root Crops; T. S. Gould, Esq.*

The field Turnip, Ruta Baga, Beet, Carrot, Parsnip; varieties, soil, culture, composition,

uses. Root culture essential to high farming. Preservation and feeding of roots.

*Tobacco and Hops; Prof. Wm. H. Brewer.*

LEC. 1. Range of Cultivation; preparation of soil; care of plants; gathering and curing; advantages and disadvantages of cultivation. Lec. 2. Hops, ditto.

*Sandy Soils; Levi Bartlett, Esq.*

On the cultivation of Winter Wheat, and the management of sandy and other light soils.

*English Agriculture; Luther H. Tucker, Esq.*

LEC. 1. Causes of its pre-eminence. An outline of the chief improvements accomplished. Lec. 2. Examples of English Farming; High Farming; visits to great Dairy establishments; remarkable results of Irrigation. Lec. 3. The Agricultural Shows of '59. Improvement of Stock. Lessons of English Agriculture.

*German Agriculture; Dr. Evan Pugh.*

President Pennsylvania Agricultural Society.

*Agricultural Statistics and Education; Prof. Jno.*

*A. Porter.*

### FOURTH WEEK.—DOMESTIC ANIMALS.

*Cattle; Cassius M. Clay, Esq.*

LEC. 1. On the five leading breeds, with notice of some other varieties. Lec. 2. Breeding as an Art.

*Stock Breeding in the United States; Lewis F. Allen, Esq.*

LEC. 1. Cattle, Sheep, Pigs; their various breeds; adaptation to climate, soil and purpose. Lec. 2. Best methods of breeding, physiologically considered. Present condition of stock breeding and rearing in the United States, as compared with some portions of Europe. Lec. 3. Poultry, economically and aesthetically considered; varieties, as adapted to climate and locality; utility and markets.

*The Dairy; Charles L. Flint, Esq.*

LEC. 1. Breeds and breeding of Stock with special reference to the Dairy. Lec. 2. The management and economy of the Dairy.

*Horses; Sanford Howard, Esq.*

Characteristics of Breeds, and Breeding for special purposes.

*Breaking and Training Horses; Dr. Daniel F. Gulliver.*

On the methods of subduing and educating the Horse. The Baucher and Rarey systems. Great enhancement of intrinsic and market value of Horses by these means.

*Sheep; T. S. Gold, Esq.*

LEC. 1. History and description of the various breeds; localities and uses to which they are adapted. Lec. 2. Winter, Spring and Summer



mer management of Sheep. Diseases Adaptation of our country to Sheep raising. Comparative advantages of Sheep husbandry. Care and sale of wool.

*Pisciculture; John C. Comstock, Esq.*

LEC. 1. Decrease in natural supply of Fish. Reasons. Application of artificial fish breeding to renewing supply. History of Pisciculture. Lec. 2. Raising Fish in private waters. Practical questions. Accounts of experiments in Fish breeding in this country. Importance of Fish breeding as a branch of agriculture. Fish as an article of diet, &c., &c.

*Agricultural Associations; Mason C. Weld, Esq.*

Organization and uses of Agricultural Societies and Farmers' Clubs.

*Rural Economy; Donald G. Mitchell, Esq.*

### ARRANGEMENTS.

An average of three Lectures per day will be given from February 1st to February 25th, inclusive, making sixty-six lectures in all. For the accommodation of persons desiring to spend Sunday at home, there will be no lecture Saturday afternoon or Monday forenoon. Each lecture will be followed by questions, and a discussion. Persons attending the lectures will have the liberty of introducing other topics besides those of the above list, and thus eliciting information adapted to their own case. Among other distinguished gentlemen, besides the lecturers, who will attend, John Johnston, Esq., of Geneva, the pioneer in American Tile Drainage, will be present during the Third week of the Course, to give any information desired as to his own experience in Drainage. This Course of Lectures will be made intelligible and useful to beginners in Agriculture, as well as to experienced farmers. Applications for Tickets have already been received from nearly half the States of the Union. Early application is advisable. Board at very reasonable prices can be engaged beforehand for early applicants. Tickets for the whole Course, \$10 00; for any single week, \$3 00. Single lectures, 25 cents. For further information, address

PROF. JOHN A. PORTER,  
New Haven, Conn.

*The Year Book of the Farm and Garden, for 1860.* Beautifully illustrated. Price 25 cents. A. M. Spangler, 633 Market St., Philad'a.

This is another valuable addition to the library of the farmer, gardener, and house-keeper, and everybody who is either the one or the other, ought to have it.

We know of no publications, offered at a small price, which contain so much information, valuable to the persons we have mentioned, and the "rest of mankind," as this "Year Book,"

now offered by Mr. Spangler, and the "Annual Register," published for several years by L. Tucker & Son, Albany, N. Y.

These books contain something of everything useful, and we know they *must* give satisfaction to every sensible man, who is fortunate enough to possess one.

The "*Valley Farmer*" and "*Country Gentleman*."

Two of our most highly prized *Exchanges*—make their appearance this year in new dresses. We congratulate the editors of these papers, as cordially on their good *taste* in "getting up" the *outside* of their respective sheets, as we commend and admire the good sense, dignity and ability with which they have ever filled up the *inside*. Success to both of them.

*The American Stock Journal.*

We are glad to see that D. C. Lindsley, the competent editor of this paper, who is already well and favorably known to the stock breeders of the United States, has secured the services of Dr. George H. Dadd, (editor of the *Veterinary Journal*), to conduct the veterinary department of the paper.

*The Journal of the New York State Agricultural Society*

Is received, for which we return our thanks to B. P. Johnson, Esq., the able Secretary of the Society.

*The Ohio Farmer*

Comes out for 1860 in a new dress, and with a promising "bill of fare" for all those who are desirous of becoming participants in an agricultural "Entertainment" of a literary and practical character. We append his terms:

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THO. BROWN, Cleveland, O.

*The Horticulturist,*

Published by the well-known house of C. M. Saxton & Co., we are glad to welcome to our list of exchanges.

This is an able and well sustained paper. Price \$2 per annum. Address C. M. Saxton. Barker & Co., 25 Park Row, New York.

We commend the "*Advice to Young Farmers*," by L. M., to our readers. We hope we shall have the pleasure of hearing from him very often. Our columns will always give him a place, and if they are crowded at any time, we will gladly *make room* for any article he may be kind enough to send us.

We return our thanks to CHARLES L. FLINT, Esq., the author of that capital work on Dairy Farming, and Secretary of the State Board of Agriculture of Massachusetts, for a copy of the *Circular* issued by them, offering aid to farmers in establishing Farmers' Clubs.

**The Labour and Profits of a Dairy Farm.**

In the previous chapter we endeavoured to give a fair idea of the amount of land, buildings and labour which would be required to supply a herd of forty milch cows with food and shelter, together with the labour necessary for their care and management. We have now to deal with the indoor work, incident to the changing of the raw products, into the manufactured article fit for merchandize.

What amount of labour will be necessary for the manufacture of milk into cheese and butter? Much will depend upon the conveniences and fixtures furnished by the proprietor; and also whether the proprietor himself can superintend the whole manufacturing process, or has to entrust it to an experienced cheesemaker, either male or female. We believe that with the vats, boilers, milk and whey conductors, washing and cleansing apparatus, hot and cold water pipes, cheese presses, shelves and tables, all arranged with a design to economise work, that one smart experienced woman with the assistance of another to be had at the usual rate of wages, would be able to do all the manufacturing. But where the dairy business forms only part of the business of the

farm, much of the work must be done by a man. The labour of the manufacture would consist, therefore, of a man's time for two-thirds of the year, and of a woman for the same time. Their whole time would probably be occupied in the business of the farm, but only this proportion should be charged to the cost of manufacture.

As to the plan of milk rooms, cheese rooms, and the fixtures, with the best methods of manufacturing either cheese or butter, they do not belong to the matter now in hand, which is only to inquire into the cost and profit of a dairy of forty cows in this State.

What should be the average produce of the forty head of cows for the season, and what amount of cheese should be yielded from their milk; and what would be their other products?

In starting a dairy it will not be found possible, the first year, to have all the cows come in at just such seasons as may be most desirable; but after that, by a little attention and proper management, the calving of the whole lot may be regulated so that all may be in full flow of milk by the 15th of May; and from that time to the first of August, the whole forty should average twelve quarts each per day; which, for the 77 days would be 9,240 gallons. The usual yield of cheese per gallon, for this season of the year according to the records furnished by the best Herkimer county dairyman, ranges from a pound to one pound two ounces, the largest yield of cheese being in the spring and summer months. According to this ratio, therefore, there should be made 10,395 pounds of cheese in the first 77 days. For the next term of three months the average yield of each cow will decrease at least one-fourth, leaving it at the rate of nine quarts per day. This would afford 8,100 gallons of milk for the whole of this second term, giving at the rate of one pound one ounce of cheese per gallon, or a total of 8,606 pounds of cheese. This would bring the cheese-making season to an end about the first of November, from which time until the cows are dried off, the manufacture of butter would be probably most profitable, as at that season the milk is richer in oil, affords less curd, and fresh butter commands the highest price.

The whole product of cheese for the year would be as follows:



|  |        |
|--|--------|
| 77 days, 9,240 gallons of milk at 18 oz. |        |
| per gallon,.....                         | 10,395 |
| 90 days, 3,100 gallons of milk at 17 oz. |        |
| per gallon,.....                         | 8,606  |

Total cheese made from May 15 to November 1,..... 19,001

From November 1 to March 1, the average produce of milk per day may be calculated at four quarts from each cow; some of course will yield more; but if from a herd of 40 that amount is obtained from the first of November till the first of March, they may be considered a good lot, and well taken care of. The total amount of milk for this third term will be 19,200 quarts, or 38,400 pounds. If we take the ratio of milk to butter as given by Mr. Thomas Hoskins in the Farmer for April, or one pound of butter from 25 pounds of milk, we would have 1,536 pounds of butter. But milk at that season should give a greater proportion of butter, and with feed in kind and quantity, suited to promote the production of butter, it might be that a pound of butter would be produced by every 20 pounds of milk, which would make a difference of 20 per cent.

For the third term, from March 1st to the middle of May, the whole produce must be considered as belonging to the calves, and to be in part repaid by their sale.

The whole yield of the 40 head, in butter and cheese, would be as follows:

|                                     |                  |
|-------------------------------------|------------------|
| 19,000 pounds of cheese at 9 cents, | \$ 1,710 00      |
| 1,920 pounds of butter at 18 cents, | 345 60           |
|                                     | <hr/> \$2,055 60 |

This would make an average of \$56.14 per cow, or 475 pounds of cheese, and 48 pounds of butter from each cow per year. This is not an extraordinary yield. A. L. Fish, of Herkimer, N. Y., reported to the New York State Society, that in 1844, the produce of his dairy was at the rate of 700 pounds of cheese per cow, and in 1845, it was as high as 775 pounds of cheese from each cow of his herd.

Mr. J. C. Morton gives 500 pounds as the annual yield of a cow in the celebrated cheese district of Gloucestershire, England. In the Ayrshire districts the average is something above this, whilst in some places of Great Britain the average does not reach much over 350 pounds per annum. This difference arises from local systems of manufacture, feeding and other causes.

Cheese and butter, however, are not all

that the dairy yields. There are, besides the whey, the skim-milk, and the butter-milk, which ought all to be used in the manufacture of pork of the best and sweetest kind sent to market. This offal of the dairy is not to be relied upon alone; it too requires management, and to be mixed with the offal of grain, and a certain proportion of grain itself. No dairy should be without a piggery attached to it. The number of hogs which may be kept by a dairy will vary according to the fancy of the proprietor for the small quick maturing breeds, such as the Improved Essex, the Suffolk or the Chinese, or for the large breeds, such as the Leicester, the Byfield or the Berkshire. The number of pigs which may be kept will also vary with the season. In the summer there is a demand for lean light young pork, or pigs that will dress from 100 to 150 pounds, by the butchers of the large cities. It should be a point with the dairyman to thin out his young stock, as they increase in size, by fitting those most suitable for the butcher. This leaves the store hogs a larger share of food to each, as they increase in size. It is plain therefore, that the dairyman may begin in the spring with some fifty young suckers from four to eight weeks old, and thin them down with profit to himself, to fifteen or twenty. For this kind of feeding we incline to favour the Suffolk or Essex breeds, or high grades of them. Of the large breeds, one hog of three or four months old to two cows will be found almost as many as the offal of such a dairy will sustain.

For the food of these hogs, there should be calculated that at least 75 per cent will be the quantity of the offal which will be available, and which, during the time from May to November, should be equal to 80 gallons per day. This slop, with an average of four quarts of mill feed to each, counting them at 20 head, should give a fair growth of pork that will make a considerable addition to the receipts of the dairy, as will be seen by the following estimate, which only includes the store hogs, and does not make any allowance for the pig-pork sold during the summer and fall seasons:

|   |         |
|---|---------|
| 20 six weeks pigs, worth on the 15th  |         |
| May \$1.50,.....  | \$30 00 |
| Use of a five acre clover pasture for the season,.....                            | 15 00   |
| 4 quarts of feed per day to each hog, for 280 days, being 7 tons at \$12 per ton, | 84 00   |

8 quarts of marketable corn to each hog for 50 days, being nearly an average of six bushels to each hog, given when put up for fattening, and worth 35 cents per bushel, ..... 48 00

Total cost of 20 hogs besides the dairy slop,..... \$177 00

We do not believe it would be unreasonable to calculate that each of these hogs, after being kept in this manner for nine months, should weigh 255 pounds when killed and dressed; and if they are sold at five cents per pound, each one would bring \$12.50, or for the whole \$250, leaving for labour and for the whole offal of the dairy \$73, or a profit on each hog of over \$3.50. We consider, however, that where either the Essex or the Suffolk breeds are kept, or high grades of either of these, the same amount of feed and care would enable the dairyman to keep thirty instead of twenty, and that instead of a profit of only \$73, he would get from his hog-pen, if rightly managed, \$200 for the offal of the dairy. Mr. J. S. Tibbits of Livonia, has stated to us that he has raised at the rate of two pigs to each cow, following a method somewhat similar to the above, and he had most of his store hogs reach 300 pounds within the time specified. He also stated that the calculation with regard to his hogs, when he was in the dairy business, was, that they should pay for the labour of making the cheese.

We come now to the subject of estimating the whole cost of the conduct of a dairy of 40 cows, and to a comparison of that cost with the estimated income.

The cost of buildings to accommodate the cattle, and the cheese and milk rooms, including horse powers, cutting machines, boilers, milk vats, presses, and all the apparatus and fixtures necessary for economical feeding, and the most perfect manufacture of cheese and butter, should not cost over \$800, and the interest on this for wear and tear and use of capital, would probably be 12 per cent., making an annual average rent of \$96 to be charged to the dairy. Mr. Paris Barber, of Homer, New York, erected a barn for his 50 cows, a cheese room and milk room, with all the requisite apparatus, for \$582.92, as reported to the New York Society in 1851. Mr. Moses Eames, of Jefferson county, in the same year, gave the plan and cost of a very extensive cheese house, with copper boilers, caldrons, vats of tin, and all the necessary fixtures, which

amounted to but \$432. It will thus be seen that our estimate will certainly cover the whole cost, and is within reasonable bounds.

The following table will give a recapitulation of the money or market value of the various crops grown for the use of the dairy, the labour incident to the work outside and inside, and of the returns which the various productions will yield.

Interest and wear of buildings, - - - \$96 60  
Summer feed:

|   |              |
|---|--------------|
| 40 acres of pasture, at \$5 per acre, - - - - -                                 | \$200 00     |
| Cultivation of 3 acres of sorghum or millet, at \$6 per acre, 18 00             |              |
| Cultivation of 5 acres of green rye for spring feed, at \$3 per acre, - - - - - | 15 00        |
| Value of meadow pasture in the fall with pumpkins and other feed, - - - - -     | 100 00       |
| One ton of mill feed, - - -   | 12 00        |
|   | <hr/> 345 00 |

Winter feed:

|  |              |
|--|--------------|
| 50 tons of hay, at \$6 per ton. \$300 00 |              |
| 40 tons of corn stalks, at \$4, 160 00   |              |
| 443 bushels of corn at 35 cts., 155 05   |              |
| 10 tons of straw, a \$3 - - -            | 80 00        |
|  | <hr/> 645 05 |

Total money value of food required during the year for 40 head or cows, being at the rate of \$25 per head, \$1,086 05  
Labor:

|  |              |
|--|--------------|
| The labor incident to feeding and outside work is equal to 444 days of one man at 75 cents per day, \$333 00 |              |
| 240 days of one horse, at cost, 30 cents, - - - - -  | 72 00        |
| Labor in cheese room, half a man's time, for one year, at 10s. per day, - - - - -                            | 225 00       |
| Time of one woman at \$5 per month, and board, the same, 120 00  |              |
|  | <hr/> 750 00 |

Total money value cost of carrying on a dairy of 40 head of cows, - - \$1,836 05

Against this estimate of the expense, we have the following as the estimated income:

|  |            |
|--|------------|
| The cheese and butter sold as per rates above given, - - - - -   | \$2,055 60 |
| The profit on the amount of hogs sold, 73 00   |            |
| 30 calves fed during the time between the 1st of March, and the commencement of cheese-making, principally, at \$3 per head, - - - - - | 90 00      |
| Money value of three hundred loads of manure made by the cows and hogs, at 50 cents, - - - - -   | 150 00     |
|  | <hr/>      |

|  |            |
|--|------------|
| Total value of products, - - -   | \$2,363 60 |
| Balance, the actual clear profit after a fair market value has been allowed on every article consumed, - - - | \$527 55   |



In placing these statements before our readers, it has been for the purpose of showing what are the real profits of the dairy business. There is no single item in the above estimates, which has not been carefully compared with the printed or verbal reports of practical men of our own State, or of the great dairy districts of New York, or of Great Britain, so far as was possible.

We were led into it, by meeting with a practical friend, who, with a farm of four hundred acres, was about to "rush" into the dairy business for the first time, and wanted to know how much of his farm we thought it would take to keep the number of cows he had then on hand, and whether we thought it "would pay." In passing through the agricultural districts we come in contact with many such questions, and much practice that is adapted to the West alone, and they can find expression and answer usefully only in the form we have above given.

It is too much the practice of many farmers to jump from one department of their business to another, without considering whether they have strength to carry a somewhat encumbered body over the fence or not. The above brief estimates of land, of labor, of capital and profits involved in the management of a dairy farm, are therefore submitted with the hope that they will be of use, and also that they will draw out observations and experience from those who are interested in this complicated division of farm labor. Of the care, skill, constant attention, and exercise of judgment requisite to make a first rate cheese, it is impossible to give an adequate idea; that must be learned by actual practice and observation, with the aid and example of competent instructors.—*Michigan Farmer.*

From the Columbus Times.

### A Suggestion to Planters.

I have been long convinced that every consideration of benefit and advantage to owners and managers, recommended a change in the employment of overseers—making the year to commence and end on the first of October, instead of the first of January. All that remains of the year's work on the first of October, are cotton picking and corn gathering. A manager taking charge at that time, would prosecute them with more energy and care, than one who expected to leave at the end of the

year. He would hurry the cotton picking in order to have all the time possible to prepare for next year's crop. He would gather and carefully house the corn, with an eye to its use by himself. He would put down the crops of small grain with more care, expecting himself to reap them. He would more carefully fatten the pork-hogs, expecting himself to use the bacon. The plough and grazing stock would be taken in charge at the commencement of winter, and he would feel, in taking care of them, more interest and responsibility, than if he had to carry them half through it and then turn them over to a successor.

Between the first of October and first of January there is much time that cannot be devoted to cotton picking, this he would feel more interest in appropriating to repairs, ditching, &c., preparatory to the next crop, than would one who expected to leave at the end of the year. Again, thus taking charge on the first of October, his means of ascertaining the capacities of the plantation and the force upon it, would be far superior to what they would be under the present plan.

But I forbear to extend this article, believing that I have said enough to call the attention of the planting community to it. It is easy enough of accomplishment. Will not the *Southern Cultivator*, the *Soil of the South*, the agriculturalists soon to assemble at Atlanta, and the Cotton Planter's Convention of Houston county, give these suggestions such consideration as their importance seem to demand, in the opinion of, at least, one

PLANTER.

### Training Oxen.

A word on training oxen. I have found that by far the best time to train steers is when they are calves, say the first winter. Oxen that are trained when quite young, are much more pliable and obedient, and this adds much to their value. Steers that run until they are three or four years old, are dangerous animals to encounter. They are always running away with the cart or sled whenever there is a chance for them, and often serious injury is the result. I would not recommend working steers hard while young, as it prevents their growth; there is a difference between working them and merely training them. I have observed that very little attention is paid by our farmers to train their steers to back, but as

they become able to draw a considerable load forward, they are often unmercifully beaten on the head and face, because they will not back a cart or sled with as large a load as they can draw forward, forgetting that much pains has been taken to teach them to draw forward, but none to teach them to draw backward. To remedy the occasion of this thumping, as soon as I have taught my steers to be handy, as it is called, and to draw forward, I place them on a cart where the land is a little descending; in this situation they will soon learn to back it. Then I place them on level land, and exercise them. Then I teach them to back a cart up land that is a little rising, the cart having no load in it, as yet. When I have taught them to stand up in the tongue as they ought, and back an empty cart, I next either put a small load in the cart, or take them to where the land rises faster, which answers the same purpose; thus in a few days they can be taught to back well, and know how to do it, which, by a little use afterward, they never forget. This may appear of little consequence to some, but when it is remembered how frequently we want to back a load, when we are at work with the cattle, and how convenient it is to have our cattle back well, why should we not teach them for the time when we want them thus to lay out their strength? Besides, it often saves blows and vexations, which is considerable when one is in a hurry. I never consider a pair of oxen well broke until they will back well with ease any reasonable load, and I would give a very considerable more for a yoke thus trained.—CHARLES A. HUBBARD, in *New England Farmer*.

### Hog Pasture.

It being generally understood that hogs live by "special providence" until it is time to fat them, there is little attention paid to the most economical way of growing them up. Certain it is, that a good, easy-keeping variety will make commendable progress on grass, and it is worthy of investigation whether hog-raising may not be profitably carried on in any section of country by the aid of good pastures and other appliances. It may be safe to calculate that a good-sized thrifty pig will gain in six months, on grass, a hundred pounds or more. If an acre of

grass would keep three hogs, and add a hundred pounds to the weight of each, that would be \$12 for the acre of pasture, reckoning the three hundred pounds gain at four cents a pound, live weight.

The particular point which this pastoral letter is ambitious to inculcate is this: grass being a good thing and profitable to swine, attention should be paid to the furnishing of an abundance of it, and of the best quality, to these animals. Instead of being forced to bite twice at a short, dirty and battered spear of June grass by the road side before getting any off, imagine a clean and comely Suffolk in a fresh green pasture, just four inches high filling himself with evident relish. That looks like gain.

### Don't Know, Beans.

A correspondent of the Chicago Times relates the following joke at the expense of an agricultural paper:

I was in the cars going to the State Fair at Freeport some time ago, and unintentionally overheard a conversation. The parties to the conversation were a farmer from Lake county, and an agricultural correspondent. When near Nevada, the member of the "staff" was in the height of an animated explanation of how "we" had benefited the farming interest by having agents always travelling, reporting the prospects of crops, &c.; just at that moment a field of buckwheat in bloom attracted his attention.

"What a fine field of white beans that is," exclaimed the traveling editor.

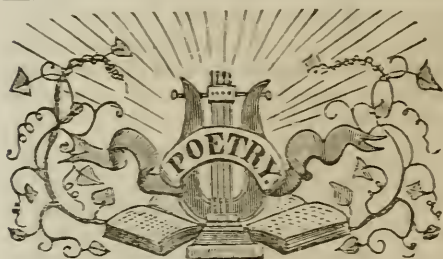
"Beans!" said the farmer, "that is buckwheat."

"Oh! what a beautiful white grain it has; I must make a note of it, and write a letter from Freeport about it. Buckwheat like that is not to be found at the East! The specimens I have been accustomed to see produced a very dark flour."

"Why, of course; this buckwheat will produce a dark flour," rejoined the farmer, "what you saw was not the *grain*—that was the blossom!"

"Oh! Ah!" said the editor, who quickly closed his "notes on buckwheat," and shortly after went into the smoking car.—*Richmond Dispatch*.





*For the Southern Planter.*

### Onward.

Strive like a man! though youth's morning be cheerless.

Though ill-boding clouds thy horizon o'er-spread,

Stand thy ground! be patient, courageous, and fearless;

For all will come right—be a man! go ahead!

Yield not a moment to useless repining,

But press firmly on, in the battle of life,

Hope's star, though obscur'd now, will yet, brightly shining,

Illumine thy pathway—faint not in the strife.

Thy motto be DUTY, in God be thy strength;

No step backwards trace, and with honour He'll crown

Thy brow, if thou quail not; thou shalt conquer at length,

Though poverty sting, and misfortune may frown.

### I Love This Glowing Southern Clime.

BY FRANK MYRTLE.

I love this glowing Southern clime,

With skies so mildly bright;

Where reigns one constant sweet spring time,

So full of fond delight;

Where flowers are blooming all the year,

As beautifully fair

As if the floral queen had made

Her fragrant palace there.

I love the Southern songster's note,

The balmy zephyr's breath,

Where perfumed strains of music float

From out the forest's depth;

Where blithesome hearts are warm and true

As ever breathed a prayer,

And where enchanted pleasures woo

The soul to linger there.

I love the Southern twilight hour,

It breathes a holy spell,

While musing 'neath the orange bower.

Or in some fairy dell;

I love its starry heavens by night,

Its dewy moonlit eves,

Where Luna's silvery beams of light,

Gleam through the orange leaves.

Yon speak to me of happy homes

Far in the snowy North;

I know the heart where'er it roams,

Will love its native hearth;

But say, is not this Southern clime,

So beautifully fair.

More lovely in its sweet spring time

Than aught you cherish there?

[*Memphis Eagle and Enquirer.*]

### Go for the Right, whatever Betide.

BY W. M. MARTIN.

Though beauty entice you

With laughter and smiles,

And strive to ensnare you

With charms and with wiles;

Oh! pass them by lightly,

Their powers deride,

And go for the right,

Whatever betide.

Though wealth may allure you

With diamonds and gold,

The strength of your manhood

Must *never be sold*;

Bid riches avaunt ye,

With power and pride,

And go for the right:

Whatever betide.

Though power oppose you

With strength and with might,

Oh! ne'er be disheartened,

Though hard be the fight;

Oh! never be conquered,

Nor e'er turn aside,

But go for the right

Whatever betide.

In archives of glory

Your name be enrolled,

In songs and in story

Your brave deeds be told,

Along with the heroes

Who fought and who died,

Who went for the right

What'er might betide.

THE  
**SOUTHERN PLANTER,**  
ADVERTISING SHEET.

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No. 2.

RICHMOND, VA.

FEBRUARY, 1860.

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*Principal of Edge-Hill School, Caroline, Va.*

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## CUFF-BRACE PLOW,

With the

### BREAST IMPROVEMENT

thereon, and the

## HANOVER PLOW,

And shall keep constantly on hand a large assortment of these Plows, and Castings of these and other popular kinds, with Cultivators, Harrows, Corn or Tobacco Weeders, Hillside and Subsoil Plows, new ground Coalers, &c

*All of which are made in our own Factory.*

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GEO. WATT,  
HUGH A. WATT.

Richmond, December 23, 1853.

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GEO. WATT, PATENTER.

Richmond, January 1859.

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The subscriber begs leave to return his grateful acknowledgements for the heavy patronage extended to his Mill from the State at large, and North Carolina, and would state that he has made improvements that will double the capacity, and enable him to supply fresh GROUND PLASTER promptly, exceeding any demand that can at present exist.

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JOHN H. CLAIBORNE,

Jan. '60—3t

No. 11 Pearl Street.

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I have for sale, to be delivered at weaning time, a good many pigs of improved breed. I have produced it myself from crosses of the Surry (or Suffolk) genuine Berkshire, (Dr. John R. Woods' stock) Irish Grazer, Chester County, no Bone and Duchess. I think them superior hogs of medium size, and for fourteen years they have not had a bad cross among them. I prefer that purchasers should view my brood sows and my boar on my farm, three miles below Richmond. I will not sell them in pairs, because the in-and-in-breeding would depreciate the stock at once and cause dissatisfaction, but I will sell in one lot several of the same sex.

Price \$10 per head for one, and an agreed price for a larger number. They will be delivered on the Basin or any of the Railroad Depots free of charge.

FRANK: G. RUFFIN

Summer Hill, Chesterfield, March, 30, 1858.

## 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 59.—ly 101 Broad St., Richmond, Va.

## To Farmers and Planters.

## DR. JAMES HIGGINS,

(For the past ten years State Agricultural Chemist of Maryland.)

Agent for the Sale of Real Estate, Dealer in Manures,

and every thing connected with the Farming and Planting interests, offers it his services.

A long experience as a practical planter and farmer, with the constant analytical examination for more than ten years, of every kind of Manure sold in our market, (advantages possessed by none others in the trade.) will enable me always to furnish those, who may favor me with their orders, with the best, purest, and therefore the cheapest Manures.

Farmers, Planters and others will be furnished with the following natural Manures:

PERUVIAN GUANO.

MEXICAN GUANO.

SOMBRERA GUANO.

NEVASSA GUANO.

COLUMBIAN GUANO.

BONE DUST,

and all others in our market worthy of purchase. Also with PLASTER OF PARIS, and PURE or MAGNESIAN LIME, according to the wants of the soil, and too much care cannot be taken in adapting the proper lime to soils; for the want of this kind thousands of dollars have been annually lost to our State. Also the following artificial Manures:

HIGGINS' SUPER PHOSPHATE OF LIME—prepared under his own direction; and

HIGGINS' PHOSPHATED PERUVIAN OR MANIPULATED GUANO, prepared with the greatest care and precision.

This mixture of Peruvian and the Phosphatic Guanos was first recommended by me, and successfully used by many planters and farmers of this State years before it was ever made or sold in the city of Baltimore, by those who have pretended to be its originators. (If this be denied, I can furnish abundant proof of the accuracy of my statement.) Also

HIGGINS' NITRATED SALINE FERTILIZER, an admirable Top-Dressing for Wheat, Oats or Grass, which has been successfully used for many years, and prevents, to a great extent, the wheat from being straw-fallen; where the wheat is pale, sickly or yellow, it at once changes it to a bright, healthy green, and rapidly increases its growth, and greatly promotes the yield.

All Manures sold in our markets are liable to differ naturally, though coming from the same place, and bearing the same mark. Still more are they liable to adulterations, &c., and for these things our Inspection System has never afforded an adequate protection.

All Manures sold by me will have my name stamped on each bag or barrel, be carefully analyzed, and for their purity the buyer is pledged a LEGAL GUARANTEE and my PERSONAL HONOR.

The Manures sold by me will be at the same rate as those sold by others in the trade.

Persons wishing to obtain any of the Manures manufactured by me, or any other of my selection, should so specify in their orders to their agents in town.

TERMS Cash, or accepted city paper.

Office and Laboratory, Second Street, 3d door from South Street, in Gitting's New Building.

May 59—tf

BALTIMORE, MD.

## STRAW CUTTERS.

My patent Straw Cutter is admitted to be the most valuable in use. I guarantee satisfaction.

H. M. SMITH, Agricultural Warehouse,

oc 58—f

4 Main Street.

## SEEDS AT WHOLESALE.

Our new TRADE CATALOGUE of GARDEN, FIELD, FLOWER, and TREE SEEDS, for 1860, is now ready for mailing to all Dealers enclosing a postage stamp.

## OUR STOCK OF SEEDS

Is the finest and most extensive ever offered in this Country, and to parties requiring them in LARGE QUANTITIES we offer unusual inducements.

J. M. THORBURN & CO.,

Feb 60—1t

15 John Street, New York.

## THORBURN'S

## DESCRIPTIVE ANNUAL CATALOGUE

OF KITCHEN, GARDEN, and AGRICULTURAL SEEDS for 1860, is now ready for mailing to applicants enclosing a postage stamp. It contains directions for cultivation and other useful information for amateur cultivators. Send for it.

J. M. THORBURN & CO.,

Feb 60—1t

15 John Street, New York.

## FLOWER SEEDS

## FOR THE MILLION.

We publish on the first of February a new descriptive

## CATALOGUE OF FLOWER SEEDS,

Containing over 1000 standard and beautiful varieties, as well as all the novelties of the day, with directions for cultivation.

We send by mail, post paid, and our own selection,

|                                      |        |
|--------------------------------------|--------|
| 25 varieties choice Flower Seeds for | \$1 00 |
| 50 do do do do                       | 2 00   |
| 100 do do do do                      | 4 00   |

J. M. THORBURN & CO.,

Feb 60—1t

15 John Street, New York.

THE PROLIFIC PEABODY  
CORN.

Farmers desiring to test the prolific virtues of the above celebrated variety of Corn, raised by myself the past year, can be furnished with good seed at (\$2) two dollars per bushel—delivered either in Richmond, or Petersburg, Va.

My crop the past year of the above variety of Corn, was a little over four barrels per thousand hills—fifty per cent more than common corn can possibly make—yet Mr. Peabody raised ten barrels per thousand hills, taking the premium at the Alabama Fair some four years ago. A sample of this Corn can be seen at the office of the Southern Planter, Richmond, Va. My address is SMITHFIELD, ISLE OF WIGHT, COUNTY, Va.

A. G. MOODY.

Orders for the above Corn will be received at this office.

Feb 60—1t

AUGUST & WILLIAMS,

Proprietors So. Planter.



# AUGUST & WILLIAMS'

## Agricultural Registry and Agency Office,

At the office of the Southern Planter, No. 153 Main Street, RICHMOND, VIRGINIA.  
The subscribers are engaged in the business of

## BUYING AND SELLING LANDS

and executing orders for all kinds of

## AGRICULTURAL MACHINERY AND IMPLEMENTS. SEEDS.

## IMPROVED STOCK, of every variety, &c.,

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

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

We are also Agents for the sale of

### "Phelps' Patent Combination Bee-Hive,"

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

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

JULY 1, 1858.

AUGUST & WILLIAMS.

### THE GREAT SOUTHERN

Hat and Cap Manufactory and Depot.

### JOHN DOOLEY,

No. 81, Main Street, Richmond Va.

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

July 1858—1y

### BARKSDALE & BROS.,

## COMMISSION MERCHANTS,

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

CLAIBORNE & BARKSDALE,  
C. R. BARKSDALE,  
CHAS. H. BARKSDALE,

RICHMOND, VA.

Feb 60—1y

### GREAT REDUCTION in THE PRICE OF HATS AND BOOTS.

FROM 15 to 20 per cent. saved by buying from J. H. ANTHONY, Co. lumbian Hotel Building.

Moleskin Hats of best quality, \$34; do. second quality, \$3; Fashionable Silk Hats, \$2 50; Fine Calfskin Sewed Boots, \$3 50; Congress Gaiter Boots, \$3 25; Fine Calfskin Sewed Shoes, \$2 25.

J. H. ANTHONY has made arrangements with one of the best makers in the city of Philadelphia to supply him with a handsome and substantial Calfskin Sewed BOOT, which he will sell at the unprecedented low price of *Three Dollars and a Half*

July 59—1y



### Southern Clothing House RICHMOND, VA.



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

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

E. B. SPENCE,

No. 120, Corner of Main and 13th Sts.  
July 59—1y

## Virginia Land Registry and Agency Office, LYNCHBURG, VA.

The undersigned, by request of land sellers, has established in the city of Lynchburg, an Agency for the sale of Land, the object of which is to afford facilities both to the seller and purchaser of the land. He will keep in his office a LAND REGISTER, containing correct and thorough descriptions of Farms for sale, including quantity, quality, location, price, terms, and all other information essential to be known by one desirous of purchasing.

In this way, persons unacquainted with the country, or wishing to purchase, can, without delay, have such a plantation pointed out to them, as would suit their wishes, and the purchaser and seller at once be able to meet each other. And on the other hand, sellers can bring their land to the notice of those directly concerned, without that notoriety which is often unpleasant within itself.

Persons who wish the aid of this office in selling, must give a full and accurate description of their land, in order that a fair and candid representation may be made to the purchaser.

This Agency will be advertised in the most prominent agricultural papers.

All communications must be post-paid, and if an answer is required, must be accompanied with a postage stamp, and they will be promptly attended to.

Registering Fee, \$10.

Office at Wm. T. Anderson's, Bridge Street, next door to Messrs. Irby & Saunders.

may '59—tf LEYBURN WILKES.

## WM. P. LADD,

No. 319, head Broad Street, Shockoe Hill,

RICHMOND, VA.

Wholesale and Retail Detail Dealer in English, French and American

## DRUGS, MEDICINES, CHEMICALS,

Paints, Oils, Varnishes and Dye-Staffs; Window Glass,

Putty, Glue and Sand Paper; Paint, Camel's

Hair and Whitewash Brushes; Cloth

Hair, Flesh, Nail and Tooth Brushes.

Fine and Choice Perfumery, Fancy Goods,  
PURE LIQUORS AND WINES,

For Medicinal and Sacramental Purposes.

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

Landreth's Celebrated Garden Seeds,

In great variety. Also,

DRS. JAYNES' AND ROSE'S

FAMILY MEDICINES,

MEXICAN MUSTANG LINIMENT.

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

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

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

## Corn Shellers of Various Kinds.

The Cylinder for hand will shell 400 bushels per day, the same for horse power and hand will shell the same by hand and 600 by horse power. The Reading Sheller will shell from 1,000 to 1,500 bushels.

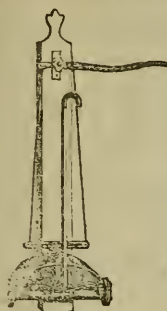
WHEAT FANS, and the usual variety of machinery on hand.

oc 58—tf

H. M. SMITH,  
14 Main Street.

## EDNEY'S AMERICAN PUMP.

Without Packing—Without Suction.



This Pump, patented 1859, is a double acting force pump, without chains, guide rods or pulleys, is the simplest, strongest, cheapest Pump yet invented; can be put in by any one, and without going into the well, and raises from 6 to 60 gallons per minute, according to size; works by hand, water, wind or steam, and is warranted to give satisfaction in all depths, and to raise water by a ten year old boy 60 feet. All depths under 20 feet complete, \$18. Drawings and full particulars sent free.

Address,

JAMES M. EDNEY,  
147 Chambers St., New York.

Mar 59—tf

## FRUIT AND ORNAMENTAL TREES

AT

## SOUTHERN GREENWOOD NURSERIES, Richmond, Va.

THE Subscribers most respectfully call the attention of all lovers of SUPERIOR FRUIT, to their large and well assorted Stock of TREES for sale this coming Fall and Spring. Such as

Apple, Peach, Plum, Cherry, Apricot, Nectarin and Dwarf Pear Trees, Strawberry Plants, &c., &c.

Our Stock of APPLE TREES is unusually large and fine. A new Descriptive Catalogue, with Prices annexed, will be seen on application. We would insist upon those in want of TREES, &c., to send in their orders at their earliest possible convenience.

ADDRESS—LEWIS TUDOR & CO.

Sept. 1859—6m

Richmond, Va.

# \$30,000!

To one or more persons who can command the above sum, and who may be disposed to conduct a large manufacturing establishment in the west, a most advantageous opening is proposed, whereby with reasonably good management, a fortune may be realized in a short time. Address

Reference may be made to } P. WILLIAMS,

Jos. C. G. KENNEDY. } Washington, D. C.

Sept—tf

## Essex Pigs for Sale.

The subscriber has a few pure bred Essex PIGS. Price \$10 each. Also some half Essex, out of Sows of "Berkshire and Grazier" stock. Price of the latter, \$15 for two.

The best only of the litter will be sent to persons ordering them.

May '59.

JAMES E. WILLIAMS.

## Rich's Iron Beam Plows.

A full supply on hand, and for sale by

oc 58—tf.

H. M. SMITH,  
14 Main Street.



# PHOSPHATIC GUANO,

## FROM THE ISLAND OF SOMBRERO, West Indies,

### THE RICHEST DEPOSITE OF PHOSPHATE OF LIME KNOWN TO THE WORLD.

By a careful analysis of an average sample of different cargoes, the annexed eminent Chemists have found this remarkable deposit to contain of Phosphate of Lime, as follows:

|                     |   |                         |            |                |        |           |
|---------------------|---|-------------------------|------------|----------------|--------|-----------|
| By PROFESSOR HAYES, | -   | Boston,                 | -          | of 1st Sample, | \$9.60 | per cent. |
| "                   | "   | "                       | "          | 2d "           | \$9.20 | "         |
| "                   | REESE,  | -                       | Baltimore, | -              | 1st "  | \$5.14    |
| "                   | "   | "                       | "          | -              | 2d "   | \$6.60    |
| "                   | "   | "                       | "          | -              | 3d "   | 72.04     |
| "                   | "   | "                       | "          | -              | 4th "  | 72.04     |
| "                   | CHILTON,  | -                       | New York,  | -              | 1st "  | \$6.34    |
| "                   | "   | "                       | "          | -              | 2d "   | \$4.92    |
| "                   | PIGGOT,   | -                       | Baltimore, | -              | 1st "  | 76.85     |
| "                   | HUSON, Liverpool,                                   | -                       | England,   | -              |        | \$0.20    |
| "                   | DECK,   | -                       | New York,  | -              | 1st "  | \$8.00    |
| "                   | "   | of a selected specimen, |            |                | "      | \$8.25    |
| "                   | MAUPIN & TUTTLE, University of Virginia,            |                         |            |                |        | \$5.16    |
| "                   | WILLIAM GILHAM, Military Institute, Lexington, Va., |                         |            |                |        | \$3.40    |

Thus proving it to average the richest deposit of Phosphate of Lime known to the world.

Pure Bone Dust contains but 55 or 56 per cent. of this important Phosphate; hence a comparison of the relative value of the two, will at once show which is the most desirable for Agricultural purposes.

Guanos are of two distinct species—those in which the Phosphates of Lime predominate, as in Sombrero, and others; and those in which Ammonia predominates, as in the Peruvian. Both experience and theory establish the fact, that Ammonia and Phosphate of Lime are essential ingredients for a general fertilizer, and, consequently, for general purposes, a proper mixture of the two is recommended: whilst the Peruvian and other Ammoniated Guanos, are mere *stimulants* or *quickeners* of the soil, the Sombrero and other Phosphatic Guanos, are permanent fertilizers, but of slower action and less perceptible effect the first year, unless aided by some stimulants. Hence the great importance of combining the two in proper proportions, which, if done, makes the best, most constant, and economical fertilizer known. Assuming the cost of Peruvian Guano at \$62, and Sombrero at \$34 per ton—and with one-quarter of the former, mix three-quarters of the latter, (which proportions are recommended by experienced Farmers,) it gives, at a cost of about \$41 per ton, a fertilizer far more valuable and permanent than the Peruvian alone. The agriculturist need only be reminded of the nature of the two predominating ingredients, in the different species of Guano, to enable him to understand the proper mode of its application. Whilst Ammonia (in the Peruvian) is liable to evaporate or rise, Phosphate of Lime (in the Sombrero) is heavy, and liable to sink below the reach of the roots of plants. Therefore it should be either deposited in the hill, or drill with the crop, or used as a top dressing, in the proportion of from 200 to 400 lbs. to the acre, according to the wants of the soil. If used as a top dressing, the Spring is the best time, when the crop is assuming its strength and sustenance, as, at that time, the benefit of the Ammonia is less likely to be lost than if used in the Fall or early Winter.

**EDMOND DAVENPORT & CO., Agents.**  
RICHMOND, Virginia.

It can also be obtained of A. GARRETT, E. WORTHAM & CO., DUKE & HUTCHINSON, and E. H. SKINKER, Richmond.  
Feb. 1, 1858.



## CO-PARTNERSHIP NOTICE.



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

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

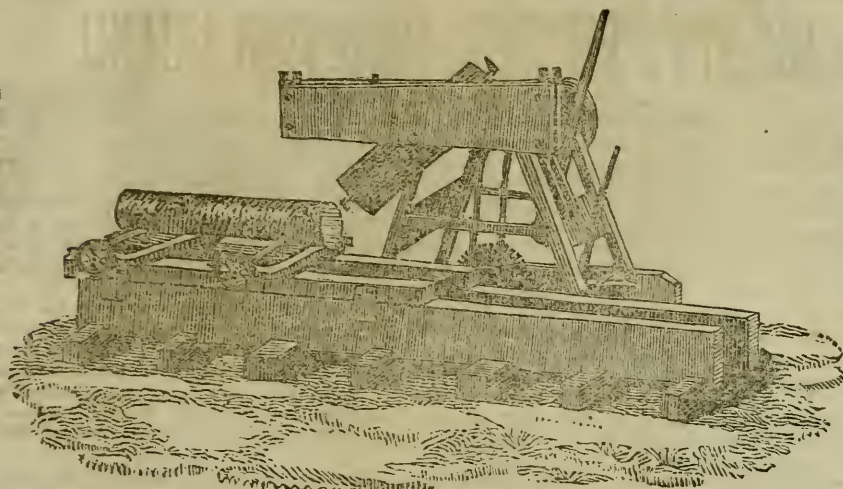
I beg leave to return my sincere thanks to my old friends and the public generally for the liberal patronage heretofore bestowed upon me, and respectfully solicit a continuance of the same to the new concern, pledging ourselves to use our utmost endeavors to please our friends and patrons.

Feb 1859—1y

SAMUEL S. COTTRELL.

HAW'S IMPROVED

PECKER SAW MILL.



The above cut is a representation of J. HAW'S Pecker Saw Mill.

It is simple in its construction, very durable; and is well adapted for plantation sawing. It will saw with from 4 to 6 horse-power from 1,000 to 1,500 feet per day, if properly managed. The carriage is 24 feet long, and will cut logs that will square to 21 inches, and cuts all kinds of timber. The timber is inserted in the oblong plate, and can be renewed when worn out.

I have given the Mill a fair trial, and warrant the performance as above stated. The price of the Mill is \$265, with extra pinions, screw-wrench, cant-hooks, set-punch, and one extra set of teeth. Any good threshing horse-power will answer to drive it. I also make Threshing Machines from 4 to 12 horse power, and Threshers to thresh and clean Wheat at the same operation, for which I can give satisfactory references to the largest farmers on the Pamunkey River. Those wishing further information, will address

October 1858—tf

JOHN HAW, Old Church, Hanover Co., Va.

## NAVASSA GUANO

THE RICHEST PHOSPHATIC GUANO IMPORTED.

Your attention is respectfully invited to the annexed Analysis and Reports on the Guano offered by me, and especially to the fact therein shown, that it contains in a given bulk a greater amount of Phosphates than is found in any other manure, natural or artificial, yet offered to the public. Phosphoric acid is now admitted by the best agricultural authorities to be the one thing above all others necessary to be returned to the soil, to enable it to produce an unfailingly good crop without permanently impairing its general fertility; in this guano we have it presented in the form best adapted for such a purpose. I am anxious to have some of it tried in every district, and also that such as try it, may favor me through my Agents, with the earliest information, as to how far it has practically borne out the anticipations of those who have scientifically examined its constituents, with a view to enable me, and district Agents to make early arrangements for an adequate supply for the following year. Owing to the rapidly diminishing supply of Guano from the Chincha Islands, its yearly advancing price, and the exhaustive effects produced by its too free application to the land, from its possessing too much ammonia, in proportion to its Phosphates, Navassa Guano excels it in practical use, and especially to the farmer as permanently improving to the land, which might yearly receive from the application of NAVASSA GUANO, more Phosphates than the crop would deprive it of.

All local Merchants and Dealers are required to give a guarantee on purchasing that they will sell it to consumers genuine, as received.

Very respectfully,

WM. F. MURDOCK,

No. 29 Exchange Building, Baltimore, April 4, 1858.

Report of Analysis of "Navassa Guano"—Made for E. K. COOPER.

The sample was found upon Analysis to be composed as follows—

|  |   |       |       |
|--|---|-------|-------|
| Bone Phosphate of Lime, . . . . .            | - | -     | 84.73 |
| Containing of Phosphoric Acid, . . . . .     | - | 38.82 |       |
| Fluoride of Calcium, . . . . .               | - | -     | 2.54  |
| Carbonate of Lime, . . . . .                 | - | -     | 5.35  |
| Per Oxide of Iron and Some Alumna, . . . . . | - | -     | 3.00  |
| Water, &c. . . . .                           | - | -     | 4.38  |
|  |   |       | 100.  |

The extraordinarily high per centage of Phosphate of Lime above stated, recommends this article at once as a superior Phosphatic manure, especially at the present time when the want of the better qualities of Phosphatic Guanos is most directly felt. The presence of Fluoride of Calcium is of no slight importance. This substance serves as a direct nutriment to plants and, subsequently, enters the composition of the Bones and Teeth of Animals.

CHAS. BICKELL, Ph. D.

Bone Phosphate of Lime.

Bone Phosphate of Lime.

R. H. Stabler, M.D., Alexandria, 85.92

For sale by S. McGRUDER'S SONS, E. H. SKINKER & CO., Richmond; JOHN ROWLETT & CO., H. C. HARDY & CO., Petersburg; SCOTT, FRENCH & CO., Fredericksburg; GARRISON & MAIGNE, Norfolk; J. C. NEVETT, Alexandria; VALENTINE S. BRUNNER, Frederick, Md.; BENJ'N DARBY, Georgetown, D. C.

May 1859—tf



# RUFFIN'S PHOSPHO-PERUVIAN GUANO.

Peruvian Guano *used alone* is quite costly, and is rarely attended with any permanent, and never with any considerable improvement. Phosphatic Guano *used alone*, though far less costly than the other, is yet not economical, because, being dissolved slowly and with difficulty, it rarely exerts any effect on the Wheat crop, and not much on the subsequent crop of clover. The two used in intimate mixture, and costing less than Peruvian Guano, are said to be superior to either alone, that a far less quantity of Peruvian Guano will produce a crop which would require a much larger application if used singly; and the Phosphatic Guano is made speedily operative on the Wheat, and permanently operative on the succeeding crop of clover, and on the land. One theory is, that the ammonia in the Peruvian liberates the phosphoric acid in the Phosphatic Guano, for the use of both wheat and clover. Another is, that the ammonia enables both Wheat and clover to appropriate the phosphoric acid. Of the truth of all this each man must judge for himself. The mixture would certainly seem to be judicious, because there is a growing demand for it from judicious, practical men—men whose names can stand a reference. Hitherto this demand has been met from Baltimore, or still farther North. I now propose to supply it from Richmond, with an article at least equal to any made elsewhere. It shall contain 8 per ct. of ammonia, and not less than 45 per ct. of phosphate of lime. All who have heretofore satisfactorily used Manipulated Guano, may safely buy their supply of me; and I ask those who have never tried it to try mine now by the side of Peruvian Guano.

There is no secret in my ingredients or mode of manufacture; and every farmer is at liberty to inspect the whole process. If he approves it, but thinks he can mix it more cheaply for himself, I will sell him the phosphates I use, and he may make the experiment, provided he will buy enough of mine to compare them. All I claim to do is to grind and mix far better than the farmer can, to select a better phosphate than he can, and to obtain it on better terms. My experience in the market already assures me that it is far more difficult to obtain a good phosphate than a good Peruvian Guano; and as, besides this, their complete effect depends on their thorough admixture, which can only be accomplished by perfect machinery, it is better for them to purchase the prepared article than the ingredients, when they are satisfied that they will get what they bargain for. That I profess to furnish all who deal with me. I have leased a large house on Cary street, opposite the Basin sheds, and fitted it up with complete machinery, where I shall superintend the manufacture in person, and where I shall be happy to see all my friends.

While I claim that this article, from the fact that it is reduced to a fine dry powder, will broadcast better than Peruvian Guano, there is no question that for the same reason it will be vastly superior for the drill.

Price, \$52 cash per ton of 2,000 lbs., and will vary according to changes in prices of ingredients.

I have appointed the following persons as agents for the sale, from whom it can be obtained, on the same terms as from myself, viz:

CRENSHAW & CO.,  
ALEX'R GARRETT,

S. McGRUDER'S SONS,  
PEYTON & ARCHER, *Richmond*;

M. HOLLINS & CO., *Lynchburg*.

FRANK G. RUFFIN.

*Richmond, July, 1859.—tf*

## SHUCKS WANTED.

The subscriber wishes to purchase for present delivery at his place on 8th street, (opposite City Springs,) Richmond, Va., or for future delivery, loose or in bales, in Richmond, or pressed in bales only in New York, any quantity of Corn Shucks.

Sept 1859—6t

G. B. STACY.

## FOR SALE.

A FARM OF 300 ACRES IN BOTETOURT COUNTY. Land good, and improvements good and sufficient. For further particulars inquire of

AUGUST & WILLIAMS,

Dec.

Richmond, Va.

## PURE BRED STOCK FOR SALE.

Pure Bred Durham Cattle, at \$75 to \$250.  
Spanish Merino Sheep, Silesian Merino Sheep, and French Merino Sheep, at \$7 to \$20  
Essex Pigs, Suffolk Pigs, and Goe's Improved White Pigs, at \$8 each.  
Madagascar Rabbits at \$10 per pair.  
Brood Mares served by "Bush Messenger," at \$125 to \$500.  
Colts got by "Cottrill Morgan," and by "Bush Messenger," 50 to 200.

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

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

POST OFFICE BOX No. 6.

JOHN S. GOE.

Feb 60—1y

## GROVER & BAKER'S CELEBRATED FAMILY SEWING MACHINES.

NEW STYLES---Prices from \$50 to \$125. Extra charge of \$5 for Hemmers.

This Machine sews from two spools, as purchased from the store, requiring no re-winding on thread. It hems, fells, gathers and stitches in a superior style, finishing each seam by its own operation, without recourse to the hand needle, as is required by other machines. It will do better and cheaper sewing than a seamstress can, even if she works for one cent an hour.



Sales Room, under Mechanics' Institute, Richmond, Va., 9th Street.

*To the Grover & Baker's Sewing Machine Co.*—Gents: Perhaps you may like to know how the Grover & Baker machines are doing in Cuba. We have twenty-five of your machines in use, making government clothing for the army, and plantation sewing, which we have had in use now about eighteen months, and their performance has far exceeded our most sanguine expectations. We run the machines constantly by steam, at a high rate of speed, and we find them to require but little repair—indeed, they seem not to be worn at all. We have tried both the Singer and Wheeler & Wilson machines, but they have been long since laid aside in the race. One thing we are sure of—that the Grover & Baker machine is the only machine for our work.

JOHN J. SLOCUM,

*Supt of the Industria, Cabona, Havana.*

Some years since I purchased a Shuttle Machine, and found so much trouble in working it, that I gave it away, and after closely examining the mechanism and working of every machine within my reach, I purchased a Grover & Baker, as best suited to do the sewing of my family. I have found it simple, easily kept in order, and in evidence of its simplicity, will state that my daughter, when about ten years old, without any particular instruction, had no difficulty in working it, and finds it very fascinating employment.

ROBERT CHILSDEN, Beaufort, S. C.

Jan 1860—6t.

## BRIDGEMAN'S Horticultural Establishment,

*Nos. 876 and 878 Broadway,*


**NEW YORK.**

# SEEDS, SEEDS, SEEDS.

THE SUBSCRIBER HAS NOW ON HAND A FULL SUPPLY OF

## Grass. Vegetable, Herb and Flower Seeds,

Embracing the old favorites, and including several new varieties of superior excellence. For sale (at the lowest market price,) for quality, and quantity, or in packages, for retail trade.

 New Catalogues furnished on application.

Also an assortment of

Horticultural Implements, Agricultural and Horticultural Books.

All orders attended to promptly, and with exactness.

ALFRED BRIDGEMAN.

Jan 60—3t





HAVING COMPLETED MY  
**NEW FACTORY,**

ON

FRANKLIN STREET AND WALNUT ALLEY,

*The whole being in connection with my*

**IMPLEMENT AND SEED STORE,**  
**ON MAIN STREET,**

I now invite particular attention to the advantages I have for Manufacturing any kind of

**MACHINERY,**

AND FOR

**Supplying Seeds and Implements,**  
**OF EVERY DESCRIPTION.**

*As heretofore, I shall pay particular attention to my*

**PORTABLE THRESHERS,**

With horse-powers so arranged as to require no digging or delay in starting; and shall keep Machines of the best Plan and Workmanship—such as my patent Straw Cutter, Corn-Shellors for Horse and Hand Power, Wheat Fans, Screws, Cradles, Reapers, Hay Presses, Cider Mills, Seed Drills, Plows, Harrows, Hay Rakes, Gleaners, Cultivators, Gum and Leather Machine Belting.

Repairs of all kinds of Threshers and Reapers if sent early strictly attended to.

☞ Agent for Bickford and Huffin's Wheat and Guano Drills, and McCormick's Reaper.

Jan 60—2t

# RHODES' SUPER-PHOSPHATE.

Every lot offered for sale regularly Analyzed and fully Warranted.

MANUFACTURED BY

**B. M. RHODES & CO.,**

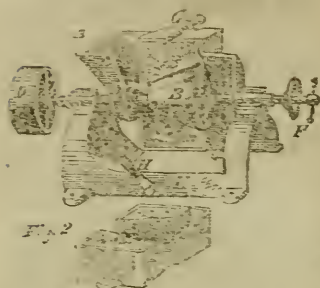
Office 32 South Street. Bowly's Wharf, Baltimore, Md.

Packed in Barrels and Bags. Price \$45 per ton, cash, in Baltimore.

AGENTS IN VIRGINIA.

Richmond—SCHAER, KOHLER & CO,  
Petersburg—VENABLE & MORTON.  
Lynchburg—M. HOLLIINS & CO.  
Norfolk—B. J. ROCKOVER.  
May 1859—ly

Alexandria—WATERS, ZIMMERMAN & CO.  
Fredericksburg—SCOTT, FRENCH & CO.  
Farmville—H. E. WARREN.  
Blacks & Whites—JEFFERSON & WILLIAMSON.



## EXCELSIOR CORN MILL For Planters, AGENCY NO. 45 GOLD STREET, NEW YORK.

THIS is a CONICAL FRENCH BURR STONE MILL, of greatly Improved Construction, combining advantages over all others of same material, in compactness, simplicity, the small amount of power required to operate it, in not heating the meal, and in being adapted to grind on the same Mill, the coarsest feed and finest flour. Negroes of sufficient intelligence to run and keep it in perfect grinding order, are found on every plantation. The Gto power used by Planters is admirably adapted to drive the EXCELSIOR MILL.

Two good horses working on any good power, will grind five bushels flour, or fine meal the hour. It is only 36 inches long, 18 wide, and 18 high—weighs 300 pounds. The best Mill ever invented for plantation use—will last a life time, and therefore must not be confounded with the numberless Iron Mills with which planters have been humbugged for years past. It is a perfect gem, of inestimable value on any plantation.

PRICE—\$100

Descriptive Circulars sent by  
Nov. 1859—6m

J. A. BENNET, Sole Agent.

## MANIPULATED GUANO! MANIPULATED GUANO!

We offer to the Planters of Virginia a Guano prepared by us as follows:

1000 lbs. of the best Peruvian Guano that can be procured;

800 lbs. of the best Sombbrero Guano, containing full 80 per cent of the Phosphate of Lime.

200 lbs. of the best Ground Plaster, for which we pay \$2 per ton extra.

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

Price to Planters, \$48 per ton, or \$2 per ton less, where they furnish bags.

For sale by

EDMOND DAVENPORT & CO.

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

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

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

"I am now able to give you the results of analysis. They show the Mixture to be what you stated in a former letter, and I judge that you are very fortunate in the selection of materials, especially of Peruvian Guano. The per centage of Ammonia shows the pure Peruvian to contain 12.4 per cent., which is more than the average. The Analysis is as follows:

|   |   |   |   |        |
|---|---|---|---|--------|
| Moisture (given off at boiling point of water.) | - | - | - | 10.05  |
| Phosphate of Lime,                              | - | - | - | 43.26  |
| Sulphuric Acid, 5.45 }                          | - | - | - | 9.09   |
| Lime, 3.64, }                                   | - | - | - |        |
| Ammonia,  | - | - | - | 6.80   |
| Insoluble Matter,                               | - | - | - | 1.55   |
| A small quantity of Alkali—undetermined. }      | - | - | - | 24.85  |
| Water in combination and Organic Matter, }      | - | - | - |        |
|   |   |   |   | 100.00 |

Hoping that your Fertilizer may meet with the success which it deserves.

I remain, very respectfully yours,

Jan—tf

D. K. TUTTLE."



# Prospectus

OF

## THE SOUTHERN PLANTER,

### A MONTHLY PERIODICAL,

DEVOTED TO

AGRICULTURE, HORTICULTURE AND THE HOUSEHOLD ARTS.

PUBLISHED AT RICHMOND, VIRGINIA.

J. E. WILLIAMS, EDITOR.


THE SOUTHERN PLANTER, which has been established for nineteen years, is the oldest Agricultural Paper in Virginia, and the Editor and Proprietors feel that they have a right to claim the patronage of the Farmers of Virginia and the South, if they have succeeded in making the paper worth the sum asked for it. That they have fully done that, they do not doubt for one moment. Many of the best farmers, and some of them among the ablest men and best writers of this and other States, have enriched the pages of the Planter with invaluable essays, drawn mostly from their own experience; and in the quantity of good original matter, it exceeds any paper of its size in the Union. In order to diffuse the information thus given, it is necessary to extend the circulation of the paper; and in asking the friends of Agriculture throughout this and other Southern States to aid in doing it, the Proprietors feel that they are not asking a favor but offering a valuable consideration.

The Editor is a farmer engrossed in agricultural pursuits, and wholly dependent on his land for his living. This may be considered to some extent a guarantee of the practical character of the work.

THE PLANTER is published in monthly numbers, on fine paper, containing 64 super-royal octavo pages, exclusive of the Advertising Sheet; bound in a neat cover, making a volume of 768 pages of Agricultural matter, per annum, for two dollars and fifty cents, which may be discharged by the payment of TWO DOLLARS ONLY, *if paid in advance*. 6 copies for \$10; 13 copies for \$20; 1 copy 3 years \$5. INVARIABLY IN ADVANCE.

Subscriptions may begin with any number, but it is preferable that they should begin with the commencement of the volume.

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

 Exchanges favorable to this Journal will please notice.

AUGUST & WILLIAMS, Proprietors.

## IMPROVED HOGS.

The Subscriber has for sale two very fine Essex BOARS, rather more than a year old. Also, one SUFFOLK, one CHESTER COUNTY, and several ESSEX SOWS.

PRICE, \$30 each, delivered on the Cars, or other public freight lines.

JAMES E. WILLIAMS.

Nov. 1st, 1859.

## VALUABLE LOUISA LAND FOR SALE.

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

### SUNNING HILL.

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

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

My manager, Mr. GROOM, will take pleasure in showing the premises to any one who wishes to purchase.

JULIA A. HOLLADAY.

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

Feb 10—1f

## BALTIMORE STOVE HOUSE.

BIBB & CO.,

(At the old stand.)

No. 39 LIGHT STREET, Baltimore, Md.

We particularly invite the attention of our country friends to our large and varied assortment of STOVES, embracing the best selection to be found in the city, and will be sold on the most accommodating terms.

Hot Air Furnaces, Ranges, Cambooses,  
Fire-Place Stoves, Parlor Stoves and Grates,  
Gas-burning Stoves, Improved Old Dominion,  
Heating Stoves, Noble Penn & Globe Stove.  
Repairs for all kinds of Stoves constantly on hand.  
Old Stoves taken in exchange.

Also, LITTLE GIANT CORN AND COB MILLS. AGRICULTURAL BOILERS, &c.  
Sep. 1859—6t

J. R. KEININGHAM,

DEALER IN

BOOKS & STATIONERY,

211 Broad Street, between 4th and 5th, RICHMOND, VA.

March 1859.

## RICHMOND GROUND PLASTER.

The undersigned takes this method of informing the public that our plaster has been selected at the North with great care, purchased with special reference to the interests of our customers, and the trade generally. We hazard nothing in saying that it will be to the interest of those who want, to give us a call, being longer in the business than any one in the city, and attending to the grinding and cooping personally, seeing that every barrel is put up in good order. Farmers sending their own bags, it can be had \$1 per ton less than in barrels.

We tender our grateful thanks for the liberal patronage bestowed on our old brand last season, as well as in years past, and hope, by a strict attention to the business, to merit a continuance of the same.

A liberal discount to the trade.

J. & H. F. SHARPE,

Steam Plaster Mills, South Side Dock,

Oct 59—6 mo—pd]

Richmond, Va.

### Liberal Offer for 1859!

## NASH'S TRIAL PIANOS!

We will take upon ourselves the trouble and responsibility of selecting PIANOS for and forwarding to such persons as may wish to purchase, and if they do not turn out to be really good, we WILL BEAR ALL THE EXPENSE.

We know what the PIANOS are, and have no hesitation in taking the risk of giving satisfaction.

E. P. NASH & CO.,

April 1859.

Petersburg, Va.

## C. H. M'CORMICK,

Offers to the Farmers of Eastern Virginia and North Carolina his Reapers, and Reapers and Mowers, deliverable to order, through his agent,

WM. A. BRAXTON.

Address Acquinton R. O., King William Co., Va.

N. B.—All persons wanting machines, are requested to send in their orders early.

W. A. B.

January 1859—1f

## Macfarlane & Fergusson, BOOK, JOB,

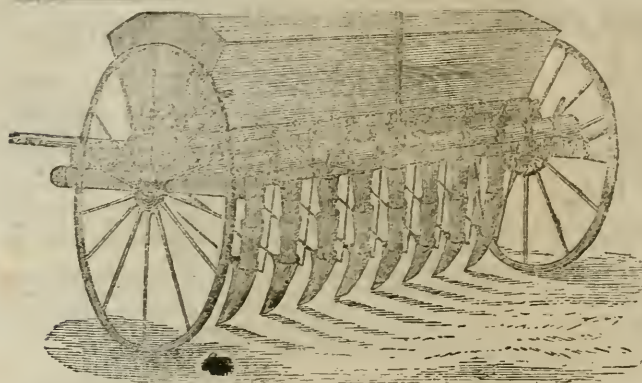
AND

## ORNAMENTAL

## PRINTERS,

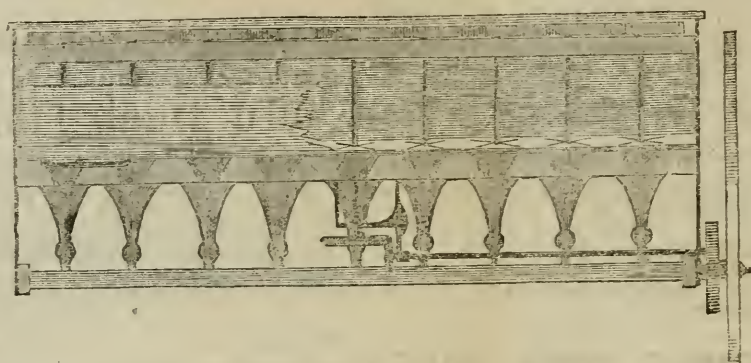
CORNER BANK AND 12TH STREETS,  
RICHMOND, VA.





HEAD-QUARTERS  
FOR THE  
CELEBRATED PREMIUM  
IRON CYLINDER  
Grain Drill,

With the Improved Guano Attachment and Grass Seed Sower.



PATENTED IN 1856 AND 1858.



MANUFACTURED BY

**BICKFORD & HUFFMAN,**  
BALTIMORE, MARYLAND.

Those wishing this article, and one that is universally acknowledged by the Farmers of the South, North and West, and by all that have examined it, to be the best ever offered to the public, will bear in mind that unless they order early, may be disappointed, as hundreds were last season, by delay.

PRICES.

|               |   |   |   |         |                   |   |   |         |
|---------------|---|---|---|---------|-------------------|---|---|---------|
| 9 TUBE DRILL, | - | - | - | \$90 00 | Guano Attachment, | - | - | \$25 00 |
| 8 " "         | - | - | - | 85 00   | Grass Seed Sower, | - | - | 10 00   |
| 7 " "         | - | - | - | 80 00   |                   |   |   |         |

All Orders promptly filled and information given, by application to

**C. F. CORSER,**

General Agent for the Southern States,

Office, No. 90 S. Charles Street, between Pratt and Camden, Baltimore, Md.

For sale by **CHURCH & FLEMING,** Agents, Richmond, Va.

**CAUTION.**

Notice is hereby given to all whom it may concern: That this is to forbid all persons making, vending using or infringing upon our Guano or Compost Attachment, patented April 22d, 1856, re-issued May 18th, 1858. Any person violating our rights, will be held accountable. None genuine except manufactured by us, where they can be had on application to C. F. CORSER, our General Agent, at No. 90 S. Charles Street, Baltimore, Md., or to agents appointed to sell the same by said Corser.

September 1858.—yly

**BICKFORD & HUFFMANN,**

# AMERICAN GUANO,

From Jarvis' and Baker's Islands,  
IN THE PACIFIC OCEAN,

Under Protection of the U. S. Government.

The attention of the Planters and Dealers in Guano is called to this valuable fertilizer, which has been used during the last spring and fall with the most satisfactory results—not surpassed by any fertilizer.

Annexed are Certificates from farmers well known in Virginia, many others can be seen by application to me.

## Certificates:

LOCUST GROVE, Fluvanna Co., Va., }  
October 26, 1859. }

FELIX H. CAVE, Esq.,

*Agent of the Amer. Guano Co., Richmond.*

Dear Sir—By request, I furnish you with a statement of the result of my experience with the American Guano I purchased of you last spring.

I used three kinds of Guano for tobacco—Peruvian, Elide, and American. After laying off the rows, 3 feet 2 inches apart, with a two horse plough, I applied about 350 pounds, broadcast, to the acre, then listed or bedded with the same plough, and planted without hilling.

The part in which I used the American was decidedly the best, though planted two days later than that in which I used the Peruvian.

I also used it on corn, applying about 125 pounds, broadcast, to the acre, at the time of the last plowing, with good success.

The land on which I used it was a very poor broom sedge, old field, that had not been cultivated for many years.

I am so well pleased with my experiment with the American Guano for tobacco, that I am using it altogether this fall for my wheat.

Yours, respectfully,

GEORGE T. THOMAS.

Hyco, Halifax Co., Va., }  
October 17, 1859. }

FELIX H. CAVE, Esq.,

*Agent of the Amer. Guano Co., Richmond.*

Sir—Yours came to hand a few days since, requesting me to inform you of the action of the American Guano bought of you.

I used it last spring on my tobacco. On the same piece of land I applied the American Guano separately, and also an equal quantity of American and Peruvian mixed.

I could not discover there was any difference in the single application and the mixture of American and Peruvian.

I also used it in the same manner on my corn, and can say to you that it acted finely.

Very respectfully,

WILLIAM C. TUCKER.

ORANGE COUNTY, Va., Oct. 10, 1859.

MR. FELIX H. CAVE,

*Agent of the Amer. Guano Co., Richmond.*

Dear Sir—I am much pleased with the American Guano as a fertilizer. I used 100 pounds on 1000 tobacco hills, by the side of 100 pounds Peruvian, on the same number of hills. The American produced as good tobacco as the Peruvian. By the side of each I used 100 pounds of American and Peruvian mixed, 50 pounds of each—the mixed I prefer. The tobacco was much better than either American or Peruvian unmixed. I will try the American on wheat this fall.

Most Respectfully,

REUBEN NEWMAN, JR.

ORANGE COUNTY, Va., Nov. 15th, 1859.

CAPT. F. H. CAVE,

*Agent of the Amer. Guano Co., Richmond.*

Dear Sir—Agreeable to your request I furnish you with the result of my experiment with American Guano. I have only used it on tobacco, and in order to test it fully, I used one ton of American and one ton of Peruvian, side by side, throughout the entire crop. And am happy to inform you that the tobacco is of superior quality, and that produced by the American Guano was, in every respect, fully equal to that raised with the Peruvian. The quantity applied was 200 pounds per acre, broadcast, upon red land.

I have used the American Guano upon wheat this fall.

I remain yours,

Very truly,

T. B. CAVE.

The American Guano will be put up in bags or barrels, at the option of the purchaser, each package bearing the trade mark of the Company, (the American Eagle,) and my name in full, who is the Sole Agent of the American Guano Company for Richmond.

**FELIX H. CAVE,**

Richmond, Va.

Dec. 59—Gmo.



**REESE'S**  
**PHOSPHO-PERUVIAN**  
**(OR MANIPULATED)**  
**GUANO.**  
**INTRODUCED 1856.**

IS COMPOSED EXCLUSIVELY OF  
 BEST PERUVIAN GUANO, AND  
 FINELY GROUND SOMBRERO GUANO,  
 ONE HALF EACH,  
 IN MINUTE, UNIFORM, AND INTIMATE COMBINATION.  
 CONTAINS

AMMONIA, \* \* \* \* 8 PER CENT.  
 PHOSPHATE OF LIME, 50 TO 55 PER CENT.

Sold by the following Agents and Dealers in Virginia.

STOKES & RIVES, Richmond, Va  
 SCHAER, KOHLER & CO., Richmond, Va.  
 HUNT & BROTHER, Richmond, Va.  
 E. T. WINSTON, Richmond, Va.  
 PEEBLES & WHITE, Petersburg, Va  
 WM. A. MILLER, Lynchburg, Va.

KNOX & BROTHER, Alexandria, Va.  
 HUGH SCOTT, Fredericksburg, Va.  
 ROWLAND & REYNOLDS, Norfolk, Va.  
 GRASTY & RISON, Danville, Va.  
 EDWARD F. SIMPSON, Washington, D. C.

**NOTE.**

The SOMBRERO GUANO used in our article is imported direct by us, and is discharged at our Works, where it is FINELY GROUND. Parties wishing to purchase SOMBRERO GUANO alone, will be furnished with it in strong bags, in quantities as desired.

**JOHN S. REESE & CO.,**

Feb 60—tf

77 South Street, Baltimore, Maryland.

4 Silver Medals—3 Diplomas—68 First Premiums!

**J. MONTGOMERY & BRO.**

155 North High Street.

BALTIMORE, Md.

INVENTORS AND MANUFACTURERS

OF THEIR

**DOUBLE SCREENED  
ROCKAWAY GRAIN FAN,***Celebrated for their efficiency, durability and ease in  
working.*

We would state for the information of Farmers and the trade, that our Fan is of the largest size—with 6 large sieves and screens, made of the best bright wire, on good strong frames. It is made especially for the Southern market, where all millers ought to be of the best and strongest make. We do not hesitate for a moment to say, that our Fan (considering the make, the number and quality of sieves, and the amount and quality of work it will do in a given time,) is from \$10 to \$15 cheaper than any in the market. We have started a BRANCH SHOP, at LYNCHBURG, VA., for the accommodation of those located in that section of country. Our Fan is so universally known that it is unnecessary for us to say more than it has not been beaten in a trial any time during the last eight years, and cannot be beat.

As the present wheat crop is unusually full of cockle, every farmer ought to order one of our Double Screened Rockaway Fans at once, as it is the only Fan in the market that will clean the cockle from the wheat.

The price of our Fans in Baltimore is \$34—and in Lynchburg \$36. Orders addressed to us at either place will receive prompt attention. A liberal discount to the trade.

We respectfully refer to S. San's, Esq., ex-editor of the "American Farmer," Baltimore, as to the character of our Fan; and Wm. Palmer, Sons & Co., our agents, Richmond, Va.

July 1856—14

J. MONTGOMERY &amp; BRO., Baltimore, Md.

**GUANO.**

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

**Thirty per cent less than Peruvian Guano,**

and which we claim to be superior to any Guano or fertilizer ever imported or manufactured in this country. This Guano is imported by W. M. H. WEBB, of New York, from Jarvis' and Bakers' Islands in the "South Pacific Ocean," and is sold genuine and pure as imported. It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent and popular Agricultural Chemists, and found to contain, (as will be seen by our circulars,) a large percentage of

**Bone Phosphate of Lime and Phosphoric Acid.**

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

**Free of Insects.**

For orders in any quantity, (which will be promptly attended to,) or pamphlets containing full particulars of analyses and tests of farmers, Apply to

**JOHN B. SARDY, Agent,**

No. 58 South St., corner of Wall St., New York City.

Oct—14

**FRUIT TREES.**

50,000 Peach Trees;

20,000 Apple Trees;

1,000 Pear Trees;

3,000 Grape Vines.

For sale by

C. B. ROGERS,

At his Seed and Agricultural Store,

No. 111 Market St., Philadelphia.

Jan. '60—

**Saddles, Harness, &c.**I manufacture a superior  
COLLAR

which I warrant not to chafe or gall. I have always on hand a good assortment of all articles in my line, which I will sell, wholesale or retail, as cheap as they can be procured anywhere, North or South.

CHARLES I. BALDWIN,

Franklin St., 2d square above Old Market.

Sept—14



## MR. LEFEBVRE'S SCHOOL,

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

THE next session of our School begins on the first day of October, 1859, and terminates on the last day of June, 1860.

Our long experience in teaching, and the very liberal patronage we have received for so many years, have both enabled and encouraged us to make important improvements in our Institution.

A course of Literature, comprising English, French, German, Italian and Spanish classics, (the four last through the medium of the French,) has been successfully tried during the last session, and will be continued and enlarged in the next.

We have engaged Mr. EDWARD C. HOWARD to take charge of the English part of this course, as well as the Rhetoric, Belle-Lettres and First Reading classes of our Institution. Mr. H. is a gentleman of the highest qualifications—and we feel confident that his services will be duly appreciated. We would earnestly recommend our Literature class to graduating pupils.

The new house which we have erected will greatly add to the convenience as well as to the comfort of the young Ladies boarding in our family. Two Young Ladies only will occupy one room, except in cases when three would desire to occupy the same chamber.

HUBERT P. LEFEBVRE, A. M., *Principal*,

Natural Philosophy, Literature, Moral and Mental Philosophy, French.

WILLIAM G. WILLIAMS, A. B., *Vice Principal*, Astronomy, Mathematics, Chemistry, History, Latin.

EDWARD C. HOWARD, Literature, Rhetoric, Belles Lettres, Reading.

MRS. GRACE BENNETT, English Branches. MISS MARY C. GORDON, English Branches.

MISS ELIZA BARTLETT, English Branches. MADAME L. V. BLANCHETT, French Governess.

SEÑOR CARLOS-CARDORVEZ MERA, Spanish and Italian. MADAME MARIE ESTIVAN, Vocal Music.

SIGNORINA ANTONIETTA ERBA, Vocal Music. SIGNORINA MARIETTA ERBA, Piano.

JOHN A. CALYO, Drawing and Painting. WILLIAM F. GRABAU, Piano, Organ, Sacred Music.

C. W. THILOW, Piano. HENRICH SCHNEIDER, Harp. O. ERICSSON, Guitar.

### TERMS.

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

☞ No extra charges.

All letters to be addressed to

HUBERT P. LEFEBVRE, Richmond, Va.

aug—11

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*J. E. Burton*

VOL. XX.

[APRIL.]

No. 4.

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J. E. WILLIAMS, EDITOR.

# THE SOUTHERN PLANTER



DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

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1869.



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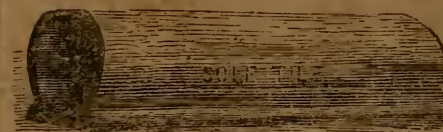
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# THE SOUTHERN PLANTER



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[XENOPHON.]

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J. E. WILLIAMS, EDITOR.

AUGUST & WILLIAMS, PROP'RS.

VOL. XX.

RICHMOND, VA., APRIL, 1860.

No. 4.

*From Josiah Parkes' Essays on the Philosophy and  
Art of Land-Drainage.*

[CONTINUED FROM MARCH NO. SOUTHERN PLANTER.]

## SECTION V.

*On the Quantity of Rain Compared with  
the Quantity of Water Evaporated from  
or filtered through Soil; with some Ob-  
servations on the Quantity of Rain-Wa-  
ter discharged by Drains.*

We are indebted to Mr. John Dickinson, of Abbott's Hill, near King's Langley, Herts, (the eminent paper manufacturer,) for a register, extending over a period of the last eight years, of the quantity of rain which has fallen in his locality, and of the quantity which may be presumed to have passed through the soil. The first datum is determined by the common rain-gauge; the second is derived from a gauge invented many years since for this special purpose, by the illustrious Dalton. And hereby we obtain, very unexpectedly, as regards both the facts and the extensive range of observations, experimental illustrations of the desiderata numbered 5 and 6 [in the preceding section.] The construction of the rain-gauge needs no remark, and the Dalton gauge is equally simple. It consists of an open-top cylinder or rain-receiver sunk verti-

cally in the earth, level with its surface, having a false bottom perforated with holes like a cullender, which supports three feet depth of soil within the cylinder, through which, and through the cullender, the excess of the rain—or the portion not evaporated—filtrates to the close bottom of the vessel; and this communicates, by means of a small pipe, with a vertical tube, whose diameter bears some definite proportion to that of the receiver, and is sunk so much lower in the earth as to have its top nearly on a level with the bottom of the receiver. Thus, all the water which permeates the soil contained within the rain-receiver flows into the tube, and is measured by a float, carrying a divided stem, and indicating, in parts of 1-100th of an inch the quantity of rain which has entered it. The measuring tube has a cock at the bottom for evacuating its contents from time to time and bringing the scale to zero.

Mr. Dickinson's rain-receiver has a diameter of twelve inches, and is thirty-six inches deep to the false bottom; it was originally filled with the soil of the country, a sandy, gravelly loam, and has constantly had grass growing on it. The contents of the receiver, therefore, represent fairly the natural state of the soil; whilst the gauge indicates the quantity of water which a drain, at the



depth of three feet, would have to convey away. The proportion which this quantity bears to the rain is obtained by comparison with the rain-gauge; and their difference gives the quantity evaporated, assisted by the action of the succulent grasses. We may, however, for the present purpose, consider the whole of this last quantity under the term evaporation.

It will be interesting and useful to agriculturists to learn Mr. Dickinson's object, as a manufacturer, in ascertaining and registering phenomena of this nature. Having several mills on the river Colne or its tributaries, it was a matter of importance to him to be able to calculate the power of the water on which he might depend for use at different periods of the year; and, having noticed that a considerable period elapsed after rain, owing to the extent and stratification of the country, before the springs were affected by it, he fixed a rain and Dalton gauge to assist his judgment in forming an estimate of the amount and duration of their flow according to the varying seasons, and the proportionable water-power on which he might count. These registers, combined with observation, have since enabled him to regulate his manufacturing operations, and to foresee what dependence he could place on the mill-streams, and to what extent he should require the aid of steam-power for fulfilling his contracts and engagements. This is a very remarkable and honorable instance of the application of meteorological "science to practice."

Nor is this all—for the knowledge acquired by means of these instruments and the exposition of the results of rain and filtration proved by them, together with a just acquaintance with the area and nature of the soils in the district, supplying the streams (about 120 square miles) enabled Mr. Dickinson, \* \* \* to demonstrate the impracticability of a scheme for furnishing the metropolis with water proposed to be drawn from the valley of the Colne, which must have inflicted irreparable injury on the mill-owners, at the same time that it would have proved, in all probability, an abortive speculation to the adventurers. Such are the various and often unexpected fruits of exact knowledge. It was Mr. Dickinson's communication, of his experiments to the Institution of Civil Engineers last year, which introduced me to his acquaintance, and has enabled me to apply

his acquired facts to the subject of agricultural drainage.

The annexed table, No. I., contains the monthly and annual indications of the two gauges for the years 1836 to 1843 inclusive; those of the rain-gauge being, Mr. Dickinson informs me, generally corroborated by another gauge kept by the Grand Junction Canal Company, about eight miles distant.

Table II. gives the mean result of eight years observations for each month, and the whole period, in terms of the depth of rain which fell on the surface—of the amount which filtered through the Dalton gauge—and of that which was evaporated or again restored to the atmosphere in the shape of vapour—with two columns showing the proportion per cent. of filtration and evaporation.

Table III. presents to view the total amount of rain which fell during each year, with the per centage of filtration and evaporation; and

Table IV. illustrates the quantity of rain, and the proportion of water disposed of by filtration and evaporation during the six hotter and the six colder months of each year respectively. To these last tables I have added columns exhibiting the weight of rain in tons per acre, as that expression may convey to the farmer a clearer idea of its amount, than the more usual mode of stating it in inches of depth. By means of this tabular analysis we shall find the phenomena, as they may be applicable to agriculture, early brought before us.

The first important fact disclosed is, that, of the whole annual rain about 42½ per cent., or 11 3-10th inches out of 26 6-10th inches have filtered through the soil; and that the annual evaporation force is only equal to the removal of about 57½ per cent. of the total rain which falls on any given extent of earth three feet in depth. (Table II.)

By a closer scrutiny we learn (table IV.) that only about 25½ per cent. of the rain which falls from October to March inclusive, passes back to the atmosphere by evaporation in the same period; whereas, from April to September inclusive, about 93 per cent. is evaporated. It appears then that there is even a balance on the side of rain over evaporation during the six hottest months; and we discover only two years, 1840 and 1841, in which no filtration occurred within that period. Table II. shows

that in August the soil is in its driest state; but, even in that month, some filtration took place in three out of the eight seasons recorded. It will be understood, that, though a near balance is shown to subsist between rain and evaporation during the six hottest months, on an average of years, the hygrometric condition of a soil, *i. e.*, its state of wetness or dryness at any particular time, is not indicated by the Dalton gauge. A soil may be in a state of drought or of humid saturation, at different times during these months, and according to the season. It is, however, manifest, from these regis-

ters, that if all the water derived from rain during the six colder months were allowed to accumulate in a soil, such land must be perpetually *wet*; and coupling this fact with the performance of drains, which I am now enabled to exhibit, it appears that six months are expended in maintaining, by the sole unaided force of evaporation, an undrained, retentive soil in a tolerably uniform moist condition, whilst deep covered drains relieve the same soils of excess of humidity in a very few hours after every fall of rain even in the wettest season.

TABLE I.

| MONTHS.    | 1836.   |         | 1837.   |         | 1838.   |         | 1839.   |         | 1840.   |         | 1841.   |         | 1842.   |         | 1843.   |         |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|            | Gauges. |         | Gauges. |         | Gauges. |         | Gauges. |         | Gauges. |         | Gauges. |         | Gauges. |         | Gauges. |         |
|            | Rain.   | Dalton. | Rain.   | Dalton. | Rain.   | Dalton. | Rain.   | Dalton. | Rain.   | Dalton. | Rain.   | Dalton. | Rain.   | Dalton. | Rain.   | Dalton. |
|            | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  | Inch's  |
| January,   | 2.40    | 2.32    | 2.40    | 2.10    | 0.31    | 0.04    | 1.40    | 1.04    | 3.95    | 3.05    | 1.50    | ..      | 1.36    | 1.60    | 1.46    | 1.25    |
| February,  | 2.04    | 2.04    | 2.85    | 2.92    | 2.65    | 0.86    | 1.45    | 1.51    | 1.32    | 1.00    | 1.02    | ..      | 2.02    | 2.10    | 2.42    | 1.95    |
| March,     | 3.65    | 2.51    | 0.75    | 0.01    | 1.55    | 2.73    | 1.92    | 1.22    | 0.31    | ..      | 1.65    | 0.53    | 2.20    | 1.62    | 0.88    | ..      |
| April,     | 2.57    | 1.74    | 1.32    | ..      | 1.35    | ..      | 1.65    | 0.71    | 0.34    | ..      | 1.85    | ..      | 0.47    | ..      | 2.10    | ..      |
| May,       | 0.70    | 0.03    | 0.94    | ..      | 0.84    | ..      | 1.22    | 0.10    | 2.62    | ..      | 1.68    | ..      | 1.85    | ..      | 5.00    | 0.74    |
| June,      | 1.80    | 0.01    | 1.86    | ..      | 2.85    | ..      | 3.31    | 0.05    | 1.33    | ..      | 3.00    | ..      | 2.0     | ..      | 1.56    | 0.25    |
| July,      | 2.29    | 0.10    | 1.30    | ..      | 2.35    | 0.09    | 4.36    | 0.15    | 1.18    | ..      | 2.80    | ..      | 1.93    | ..      | 2.09    | ..      |
| August,    | 2.24    | 0.15    | 3.00    | 0.05    | 0.95    | ..      | 3.65    | 0.09    | 1.90    | ..      | 3.62    | ..      | 1.40    | ..      | 2.65    | ..      |
| September, | 2.60    | 0.07    | 1.38    | 0.05    | 2.47    | 0.63    | 3.92    | 1.50    | 2.31    | ..      | 4.00    | ..      | 4.50    | 1.30    | 0.63    | ..      |
| October,   | 4.55    | 3.82    | 1.55    | 0.02    | 2.68    | 0.07    | 1.68    | 0.09    | 1.50    | ..      | 4.40    | 3.99    | 1.41    | 0.30    | 4.82    | 0.91    |
| November,  | 3.95    | 3.14    | 2.05    | 0.18    | 3.55    | 2.91    | 4.40    | 4.70    | 4.25    | 2.57    | 4.28    | 4.87    | 5.77    | 5.00    | 2.45    | 2.70    |
| December,  | 2.21    | 1.72    | 1.70    | 1.62    | 1.58    | 1.84    | 3.02    | 3.75    | 0.40    | 1.57    | 2.30    | 2.80    | 1.52    | 0.84    | 0.40    | 0.30    |
| Total,     | 31.00   | 17.65   | 21.10   | 6.95    | 23.13   | 8.57    | 31.28   | 14.91   | 21.44   | 8.19    | 32.10   | 14.19   | 26.43   | 11.76   | 26.47   | 8.10    |



TABLE II.

| MONTHS.       | Mean of each Month and of eight Years. |             |              |             |              |
|---------------|--|-------------|--------------|-------------|--------------|
|               | Rain.                                  | Filtration. | Evaporation. | Filtration. | Evaporation. |
|               | Inches.                                | Inches.     | Inches.      | Per Cent.   | Per Cent.    |
| January, - -  | 1.847                                  | 1.307       | 0.540        | 70.7        | 29.3         |
| February, - - | 1.971                                  | 1.547       | 0.424        | 78.4        | 21.6         |
| March, - - -  | 1.617                                  | 1.077       | 0.540        | 66.6        | 33.4         |
| April, - - -  | 1.456                                  | 0.306       | 1.150        | 21.0        | 79.0         |
| May, - - -    | 1.856                                  | 0.108       | 1.748        | 5.8         | 94.2         |
| June, - - -   | 2.213                                  | 0.039       | 2.174        | 1.7         | 98.3         |
| July, - - -   | 2.287                                  | 0.042       | 2.245        | 1.8         | 98.2         |
| August, - - - | 2.427                                  | 0.036       | 2.391        | 1.4         | 98.6         |
| September, -  | 2.639                                  | 0.369       | 2.270        | 13.9        | 86.1         |
| October, - -  | 2.823                                  | 1.400       | 1.423        | 49.5        | 50.5         |
| November, -   | 3.837                                  | 3.258       | 0.579        | 84.9        | 15.1         |
| December, -   | 1.641                                  | 1.805       | 0.164        | 100.0       | 00.0         |
| Total. - - -  | 26.614                                 | 11.294      | 15.320       | 42.4        | 57.6         |

TABLE III.

| YEARS. | Total of each Year. |             |              |                |
|--------|---------------------|-------------|--------------|----------------|
|        | Rain.               | Filtration. | Evaporation. | Rain per Acre. |
|        | Inches.             | Per Cent.   | Per Cent.    | Tons.          |
| 1836,  | 31.0                | 56.9        | 43.1         | 3139           |
| 1837,  | 21.10               | 32.9        | 67.1         | 2137           |
| 1838,  | 23.13               | 37.0        | 63.0         | 2342           |
| 1839,  | 31.28               | 47.6        | 52.4         | 3168           |
| 1840,  | 21.44               | 38.2        | 61.8         | 2171           |
| 1841,  | 32.10               | 44.2        | 55.8         | 3251           |
| 1842,  | 26.43               | 44.4        | 55.6         | 2676           |
| 1843,  | 26.47               | 36.0        | 64.0         | 2680           |
| Mean,  | 26.61               | 42.4        | 56.7         | 2695           |

TABLE IV.

April to September inclusive.

| YEARS. | Rain.   | Filtration. | Evaporation. | Filtration. | Evaporation. | Rain per<br>Acre<br>Filtrated. | Rain per<br>Acre<br>Evaporated. |
|--------|---------|-------------|--------------|-------------|--------------|--------------------------------|---------------------------------|
|        | Inches. | Inches.     | Inches.      | Per Cent.   | Per Cent.    | Tons.                          | Tons.                           |
| 1836,  | 12.20   | 2.10        | 10.10        | 17.3        | 82.7         | 212                            | 1023                            |
| 1837,  | 9.80    | 0.10        | 9.70         | 1.0         | 99.0         | 10                             | 982                             |
| 1838,  | 10.81   | 0.12        | 10.69        | 1.2         | 98.8         | 12                             | 1082                            |
| 1839,  | 17.41   | 2.60        | 14.81        | 15.0        | 85.0         | 263                            | 1500                            |
| 1840,  | 9.68    | 0.0         | 9.68         | 0.0         | 100.0        | ..                             | 980                             |
| 1841,  | 15.26   | 0.0         | 15.26        | 0.0         | 100.0        | ..                             | 1545                            |
| 1842,  | 12.15   | 1.30        | 10.85        | 10.7        | 89.3         | 131                            | 1099                            |
| 1843,  | 14.04   | 0.99        | 13.05        | 7.1         | 92.9         | 100                            | 1322                            |
| Mean,  | 12.67   | 0.90        | 11.77        | 7.1         | 92.9         | 91                             | 1292                            |

October to March inclusive.

|       |       |       |      |      |      |      |     |
|-------|-------|-------|------|------|------|------|-----|
| 1836, | 18.80 | 15.55 | 3.25 | 82.7 | 17.3 | 1574 | 330 |
| 1837, | 11.30 | 6.85  | 4.45 | 60.6 | 39.4 | 693  | 452 |
| 1838, | 12.32 | 8.45  | 3.85 | 68.8 | 31.2 | 855  | 393 |
| 1839, | 13.87 | 12.31 | 1.56 | 88.2 | 11.8 | 1246 | 159 |
| 1840, | 11.76 | 8.19  | 3.57 | 69.6 | 30.4 | 829  | 362 |
| 1841, | 16.84 | 14.19 | 2.65 | 84.2 | 15.8 | 1437 | 269 |
| 1842, | 14.28 | 10.46 | 3.82 | 73.2 | 26.8 | 1059 | 387 |
| 1843, | 12.43 | 7.11  | 5.32 | 57.2 | 42.8 | 720  | 538 |
| Mean, | 13.95 | 10.39 | 3.56 | 74.5 | 25.5 | 1052 | 360 |

NOTE.—The quantities of rain in the columns headed Filtration, represent the required performance of drains in retentive soils. One-tenth of an inch of rain in depth amounts to 10.123 tons per acre.



Table IV. shows that the mean excess of rain-water to be disposed of during the six coldest months by some other process than evaporation, amounts to no less a weight than about 1,050 tons per acre.

Evaporation is the only *natural* agent for diminishing the quantity of water absorbed by retentive soils, but it is not at our command. When such soils are perfectly saturated, the superfluity must either stagnate upon the surface or flow away from it; and proof is here offered, that the force of evaporation is scarcely equivalent to the duty required of it during one half of the year; also that it greatly falls short of the requisite power during the six colder months. This invention of subterranean drains supplies an effective artificial method of compensating the deficiency of the evaporative force in our climate, and it is capable of placing the retentive soil in the same favorable condition as respects meteorological agency and the fruition of every agricultural process, as soils naturally porous, and free from stagnant water. But, it must constantly be borne in mind, that, in order to assimilate this artificial process, to that of nature, drains should be *deeply laid*, as the floor of the drains forms the limit of their action, and determines the depth below the surface at which water must still remain in a state of nearly constant excess and stagnancy.

A study of the results registered in these Tables, puts us in possession of many other facts of import to the agriculturist, as enforcing the warning—which experience cannot have taught him—to adopt every appliance at his command for placing his soil in such condition as to derive the greatest benefit and the least evil from elemental influences; for, so variable are the seasons, that no average can properly display the changing amounts of meteorological quantities and forces. It seems from Table I., that the discharge of water by drains occurs, on the average, during seven months of the year. In 1840 and 1841, however, rain was in excess over evaporation only during four months; though in the first year 21 4-10 inches of rain fell, whilst in the second the earth received 32 1-10 inches, or 50 per cent more rain in the latter than in the former year; yet, the soil was equally dry in both years on the mean of the six hottest months, for the evaporative force was able to relieve the soil of all the rain that fell,

though the quantities were so widely different, being 15 2-10 inches in 1841, and only 9 6-10 inches in 1840. But, turning to the colder months of the same years, we find the case reversed, for the proportionate evaporation in 1840 was double that in 1841. It appears, too, that in 1836, when the quantity of rain was only about one inch less than the maximum in 1841, the force of evaporation was 13 per cent. less, and water filtered through the gauge in various proportions during every month of that year, and the same in 1839. Thus in preparing soil to receive the utmost benefit and the least evil from rain, however slight or excessive, it should be put into a state to refuse holding water in excess, but be capable of absorbing humidity freely, and retaining it deeply; whilst the drains should admit water with facility, and convey it away with dispatch.

*Observations on the quantity of Rain-water discharged by Drains.*

The quantities of rain and filtration denoted by Mr. Dickinson's gauges are daily registered, and this record has enabled me to ascertain a remarkable coincidence between the action of the Dalton gauge and that of Mr. Hammond's inch-pipe drains, as reported by me to the Royal Agricultural Society, in *Journal*, Vol. IV., p. 375. It appears, according to the rain gauge, that 48-100ths of an inch of rain fell on the 7th and 8th of November last; and by the Dalton gauge, on the 9th, 46-100ths, or nearly the whole of this quantity, had passed through it. It was on the 9th that I inspected the drainage of Mr. Hammond's farm, recording the fact that, after a rain of about 12 hours' duration on the 7th, I found the drains on the 9th in a nine-acre piece, 3 feet deep, just dribbling, and those in a hop-ground adjoining, 4 feet deep, exhausted; Mr. Hammond having observed, previously to my arrival, that the greatest stream at the outfall of each drain, amounted to about the half-bore of the inch-pipes. The times occupied in the discharge of the water by the gauge and the drains may, therefore, be considered to be identical, and as comprising about 48 hours from the commencement of the rain. In drawing this parallel between the action of the gauge and these drains, I am presuming that the fall of rain at Penshurst was equal to that at King's Langley; and I think this may

be assumed to be near enough to the truth, as I have learnt that a nearly similar downfall (5-10ths of an inch) was recorded at Birmingham northwards, and a rain of similar duration occurred at Brighton southwards.

This experimental corroboration of the sufficiency of such small drains, will have its weight with practical men; but I am further able to demonstrate, by simple arithmetical computation, how very small is the quantity of water required to enter the crevice formed by the imperfect junction of two pipes. The rain-gauge informs us, that 48-100ths of an inch in depth of rain fell upon each square foot of surface in the observed time of 12 hours. The quantity is equivalent to 69 1-10th cubic inches, or 2½ pounds, which, divided by 12 hours, gives little more than 2-10ths of a pound per square foot of surface per hour for the weight of the rain.

The drains were 24 feet asunder, and each pipe a foot in length, so that each lineal foot had to receive the water falling on 24 square feet of surface, equal to 60 pounds, or 6 gallons; and as the time which this quantity occupied in descending through the soil and disappearing was about 48 hours, it results, that 1¼ pounds, or one pint, per hour, entered the drain through the crevice existing between each pair of pipes. Every one knows without having recourse to strict experiment, how very small a hole will let a pint of water pass through it in an hour, being one-third of an ounce per minute, or about twice the contents of a ladies thimble.

The weight of rain, per acre, which fell during the 12 hours, amounted to 108.900 pounds, or 48 6-10 tons, which on the whole piece of nine acres, is equal to 437 4-10 tons; and each drain discharged 19 tons, equal to about 4-10ths of a ton per hour, on the mean of 48 hours; but when the flow was at the greatest, I find that each drain must have discharged at the rate of five times this quantity per hour, which affords proof of the faculty of the pipes to receive and carry off a fall of rain equal to 2½ inches in 12 hours, instead of half an inch, a fall which is quite unknown in this climate. Half an inch of rain in 12 hours is a very heavy rain. I learn from Mr. Dickinson that his rain-gauge has never indicated so great a fall as 1½ inches in 24 hours; and from Dr. Iek, the Curator of the Birmingham Philosophical Institution, that only on five occasions has the rain

there exceeded 1 inch in 24 hours, during the same period of 8 years, the greatest quantity having been 1 6-10ths of an inch on December 4th, 1841. We may, therefore, consider the fact of the sufficiency of inch-bore pipes for agricultural drainage to be fully demonstrated both by experience and experiment.

I will now mention an experiment which every farmer is competent to make, and which can not fail to throw light on the action and effect of his drains, and on the relative condition of different pieces of land as to porosity, or filtrating activity—I allude to the simple ascertainment by measure, of the quantity of water discharged from different drains, after rain, in the same time. In reply to numerous inquiries on this subject, I have only succeeded in obtaining sufficiently exact information from Mr. Hammond, whose intelligence had led him to make the experiment without any suggestion from me. He states: "I found after the late rains, (Feb. 17th, 1844,) that a drain; 4 feet deep, ran 8 pints of water in the same time that another, 3 feet deep, ran 5 pints, although placed at equal distances." The circumstances under which this experiment was made, as well as its indications, deserve particular notice. The site was the hop ground before referred to, which had been underdrained 35 years since to the depth varying from 24 to 30 inches; and though the drains were laid somewhat irregularly and imperfectly, they had been maintained in good action. Mr. Hammond, however, suspecting injury to be still done to the plants and the soil by *bottom* water, which he knew to stagnate below the old drains, again underdrained the piece in 1842 with inch pipes, in part, to 3 feet, and in part, to 4 feet in depth, the effect proving very beneficial. The old drains were left undisturbed, but thenceforth ceased running, the whole of the water passing below them to the new drains, as was to be expected. The distance between the new drains is 26 feet. their length 150 yards, the fall identical, the soil clay. The experiment was made on two drains adjoining each other, *i. e.*, on the last of the series of the 3 feet, and the first of the series of the 4 feet drains. The sum of the flow from these two drains, at the time of the trial, was 975 pounds per hour, or at the rate of 19½ tons per acre in 24 hours—the proportionate discharge, therefore, was 12 tons by the 4 feet, and 7½ tons by the 3 feet drain.



No springs affected the results. Hence, we have two phenomena very satisfactorily disclosed: 1st, that the deepest drain received the most water; 2nd, that it discharged the greatest quantity of water in a given time—the superficial area of supply, being the same to both drains. It would appear, then, either that the deeper drain had the power of drawing water from a horizontal distance greater by the ratio of 8 to 5 than the shallower drain; or that the perpendicular descent of the water was more rapid into the 4 feet drain; or that its increased discharge was owing to both these causes combined. The phenomenon of a deep drain drawing water out of soil, from a greater distance than a shallower one, is consistent with the laws of hydraulics, and is corroborated by numberless observations on the action of wells, &c.; but the cause of the deeper drain receiving more water in a given time is not so obvious. An opposite result, as to time, would rather be expected from the fact of water falling on the surface, having to permeate a greater mass of earth, both perpendicularly and horizontally, in order to reach the deep drain. A natural agricultural bed of porous soil resembles an artificial filter, and it is unquestionable that, the greater the depth of matter composing such filter, the slower is the passage of water through it. In stiff loams and clays, however, but more particularly as regards the latter earth, the resemblance ceases, as these soils can permit free ingress and egress of rain-water, only after the establishment of that thorough net-work of cracks or fissures which is occasioned in them by the shrinkage of the mass from the joint action of drains and superficial evaporation. These fissures seem to stand in the stead of porosity in such soils, and serve to conduct water to drains rapidly, after it has trickled through the worked bed; it is possible, too, that in deeply drained clays of certain texture, the fissures may be wider, or more numerous in consequence of the contraction of a greater bulk of earth, than when such soil is drained to a less depth. However this may be, it is ascertained by several respectable and intelligent farmers in Kent, who have laid drains very deeply in clays and stiff soils, that the flow from the deepest drains invariably commences and ceases sooner than from shallower drains, after rain. On this interesting and unexplored subject I hope to be able to furnish multiplied observations after

next winter, and trust also to receive the co-operation of the members of the Society in making them in different soils, and with due regard to all those phenomena which may influence the results, or be detected by them.

The consideration of the depth of drains has been too generally limited to the mere exigencies of culture and implements, combined with the natural desire to restrict expense when the materials used were dear, and the cost of earth-work great. These adventitious circumstances have certainly tended to obscure from view the true principles on which drainage should be founded, and on which the utmost benefits to be derived from it depend. The question of distance between drains is important on the score of expense, and it will be wise to err on the right side, and keep within safe limits; but insufficiency of depth can only be remedied by a new outlay. So far as experience can illuminate the subject, we know that many agriculturists have, a second time, drained their fields to a greater depth; it may, however, be doubted whether any one has taken up deep drains, and placed them nearer the surface, or nearer together. The system of deep drainage has, doubtless, been encouraged by the cheapness, lightness and approved action of the pipe-tiles, combined with the more moderate cost of the earth-work incident to their small dimensions, and to the facility of laying them. The aggregate cheapness of the work has set the mind of the farmer free to contemplate more exclusively and attentively the perfection of the end in view; and it is well worthy of remark, that experiment and experience have rapidly induced the adoption of a system of parallel drains considerably deeper, and less frequent, than those commonly advocated by professed drainers, or in general use. I gave several instances of this practice in Kent, in the report of last year, already alluded to, and it is rapidly extending. Mr. Hammond stated (*Journal*, Vol. IV., p. 47), that he drained "stiff clays 2 feet deep, and 24 feet between the drains, at £3. 4. 3. per acre," and "porous soils 3 feet deep, 33½ feet asunder, at £2. 5. 2. per acre." I now find him continuing his drainage at 4 feet deep, wherever he can obtain the outfall, from a conviction, founded on the experience of a cautious progressive practice as to the depth and distance, that depth consists with economy of outlay as well as with superior effect. He has found 4 feet drains to be efficient, at 50 feet asun-

der, in soils of varied texture—not uniform clays—and executes them at a cost of about £2. 5. 0. per acre, being 18s. 4d. for 871 pipes, and £1. 6. 6. for 53 rods of digging. Communications have been recently made to me, by several respectable Kentish farmers, of the satisfactory performance of drains deeply laid in the Weald clays, at distances ranging from 30 to 40 feet, but I have not had the opportunity of personally inspecting these drainages.\*

The following little table shows the actual and the respective cost of the above three cases of under-draining, calculated on the effects really produced, *i. e.*, on the masses of earth effectively relieved of their superfluous water at an equal expense. I conceive this to be the true expression of the work done, as a mere statement of the cost of drainage per acre of surface conveys but an imperfect, indeed, a very erroneous idea of the substantive and useful expenditure on any particular system. This will be apparent on reference to the two last columns of the table, which give the cost in cubic yards and square yards of soil drained for one penny at the above mentioned prices, depths and distances.

| Depth of the Drains in feet. | Distance between the Drains in feet. | Mass of Soil Drained per acre, in cubic yards. | Mass of Soil Drained for 1d. in cubic yards. | Surface of Soil Drained for 1d. in square yards. |
|------------------------------|--------------------------------------|--|--|--|
| 2                            | 24                                   | 3226½  | 4.1  | 6.27   |
| 3                            | 33½                                  | 4840   | 8.93   | 8.93   |
| 4                            | 50                                   | 6453   | 12.00  | 8.96   |

I may here observe, that Mr. Hammond, when draining tenacious clays, chooses the month of February for the work, when he lays his pipes, (just covering them with clay to prevent crumbs from getting in,) and leaves the trenches open through March, if it be drying weather, by which means he finds the cracking of the soil much accelerated, and the complete action of the drains advanced a full season. The process of cracking may, doubtless, be hastened both by a choice of the period of the year in

which the drains are made, and by such a management of the surface as to expose it to the full force of atmospheric evaporation.

Recurring to the foregoing tables, it must be noticed that the mean annual fall of rain, as therein registered, is below the average of Britain, whilst the force of evaporation is probably higher than the average; and the monthly as well as annual amounts of filtration and evaporation may be expected, in different latitudes, localities and soils, to vary greatly from these records. Similar observations obtained on different soils, and in various parts of the country, when combined with the indications of thermometers sunk in the earth, would put us in possession of that condition of soil, which may not be improperly termed *climate*, of which no certain knowledge can be deduced from purely meteorological phenomena, but upon which the atmospheric climate of a district is known greatly to depend.

Meteorologists have recorded, for many years, the amount of terrestrial evaporation; as denoted by a gauge invented by Mr. Luke Howard, and have considered it as indicative of the quantity of moisture taken up by the atmosphere from the earth; but, this instrument only denotes the evaporation from a dish of water placed on the earth's surface, and therefore supplies no fact of direct use to the agriculturist, for cultivated soils are not under these circumstances, and the power of the sun's rays in heating soils is but indifferently represented by their effect in transforming water into vapour. The difference between the indications of the Howard and Dalton gauges is most remarkable. Professor Daniell states (*British Almanac*) the mean annual rain in London to be 22.199 inches, and the mean evaporation 23.981 inches, or 1.782 inches more than the rain; and the results recorded by the Birmingham Philosophical Institution for 1843 are, rain 26.716 inches, evaporation 31.982 inches, or 5.266 inches more than the rain. But we learn from the Dalton gauge that, in Hertfordshire, out of 26.614 inches of rain on 15.32 inches were restored to the atmosphere—the remainder passed through the earth into the rivers; and this is the real fact on comparing the amount of rain with the amount evaporated from soil 3 feet deep.

\* The cost above given can only be taken as that of the particular case. The cost of drainage (See page 63) is affected by the texture of soils, their stoniness, &c.; and rates of work are being paid, varying from 3d. to even 1s. 6d. per rod (5½ yards), causing the cost of drainage per acre to vary from £2. to even £5. per acre, according to circumstances.

We must never forget that accurate and multiplied quantitative facts form the only substantial basis of science; and observa-



tions of the rain and Dalton gauges would be usefully varied by placing the latter at different depths, as at 1, 2, 3 and 4 feet, or more, below the surface, and filled with a diversity of soils, whence information may be expected to arise of great practical value to the agriculturist.

[*To be concluded in our next number, with the author's Lecture on Draining.*]

For the Southern Planter.

### What has become of our Birds?

MR. EDITOR:

The aged and infirm, in general, should not wait to be advised by others to withdraw from much intercourse with the public. The aged, however, ought to be best qualified to answer the question, forming our caption. They have lived during the time that much of the diminution in the number of birds—so much complained of in our agricultural journals of late—has been occurring, and if they have been in the habit of noticing things around them, must be able to tell something of the rapid decrease in the number of birds, as also of the consequent increase in the number of insects.

A scarcity of birds is a misfortune to any country and, agriculturally, it is a calamity. This hardly needs illustration, for it is manifest to all who will recollect what destructive depredations have been committed, even in the experience of our young farmers, on our sprouting and young corn, by clover-worms,\* wire-worms, cut-worms and a variety of other vermin of this description—on our wheat, by chinch-bugs, Hessian-fly, joint-worms, etc. These are the most common depredating insects; space is not allowed to specify all which I could enumerate. Let him who doubts whether birds eat insects to any useful extent, confine his turkeys, or his Guinea fowls—which are said to be better—for one season on a tobacco-lot, and he will have to account for the absence of horn-worms. But, I believe, the fact is admitted by all.

The scarcity of our birds, or rather the decrease of our former supply, is ascribable

to several causes, some of which are hardly removable; but I would fain hope, they are all by a judicious and united public sentiment and effort, capable of mitigation. In enumerating these causes, I would set down as most efficient—

I. Peculiarities in our climate, which have doubtless increased since the settlement of the country and clearing away the forests. These consist in very sudden and violent changes of weather, dependent mainly on the direction whence the wind blows, both in winter and summer, and affect different classes of birds as the season in which they prevail may be present. The varieties of our feathered tribes may be divided into several classes. There are such as may be called the indigenous or aboriginal birds, or those which remain with us all the year round. These are the turkey, pheasant, quail, or, as we call him, partridge; the crested or winter red-bird, the crested titmouse and some others. Of this class, the crow and the wild turkey may sustain life, when the ground is deeply covered with snow—and when food is obtainable, they regard not the cold—by picking the seed from the cones or burs of the pines, so abundant with us. The pheasant at such times finds nourishment perhaps from pine-seed, and doubtless from berries which grow in the ranges which alone he will consent to abide in. I suspect the berries borne by what we call the green-barked swamp-dogwood, and by the bamboo, are his favorites. But poor *Bob White*! All the grass, clover and weed-seed on which he relies for his winter store of provision being covered a foot or two deep, must go supperless to bed and starve, unless he luckily find some rare friend, such as a good man whom I once knew—my blessings on his memory!—who kept an old negro man, skilful in the art, cooping and trapping partridges all the fall and winter. The captives were imprisoned during the winter in a close room, well fed and—except a decimation taken by the wife, when she wanted birds for dinner—turned loose in the spring, to multiply and replenish the earth. Were this practice generally followed, partridges would become numerous; and I learned lately from "The Planter," that they have a taste, surely not to be admired, for eating chinch-bugs. However odd the taste, it is possessed in an equal or stronger degree, as I have learned from the best authority, by a beautiful favorite of some of

\* Most of these little rascals may be defeated in their evil purposes, by soaking the seed corn one night in warm water, smearing with tar next morning, and rolling in flour of sulphur and plaster of Paris. If the soaking be neglected, the corn will not sprout in a dry spell of weather, being coated with tar.

our amateur ornithologists. I mean the common Blue bird. Common chickens, I am told, will also eat them. Can you believe, sir, that any created thing will eat chinch-bugs? I had believed, untill lately, that they were a black little curse upon us, with a mark on their foreheads or elsewhere on their persons, forbidding all creation to touch them; that nothing but natural death could hurt them; and I even feared that instead of dying, they crept out of their skins and went to work again. But when I learned that some birds would eat them, I cast aside despair, buckled on my old armor and determined to make one more blow, even though it might fall as feebly as the last cast of the lance of old king Priam.

II. Another class of birds come to us from the North, in the fall, seek food here during winter, and return northwardly to rear their families, as soon as sustenance for the purpose can be found in their native haunts. These consist chiefly of geese, ducks, skimming or Canada hawks, and very rarely, white owls, and would not require notice in an agricultural article, were it not for the amazing destruction of partridges produced by the hawks. These piratical marauders skim near the surface all day, and the prey must hide well which can elude their vigilant foraging. A law for the destruction of these daring scoundrels would, I think, at least be more dignified than our county crow-laws. I wonder our enthusiastic sportsmen have never formed associations for trapping and shooting all of them that come here. The first I saw of them was about the beginning of this century, I believe in 1807. By 1810 they became numerous. In January 1856 and also in 1857, very deep snows fell, followed by much bitter weather, nearly all our partridges perished. Since then I have seen but one Canada hawk. Cold winter weather can only affect these two classes of birds, as all others generally get out of its way. I believe that most of them could withstand the cold, were they not deprived of food by the accompanying deep snows. Small quadrupeds, such as hares, which do not hibernate, perish in the same way. I have kept in my garden and about my premises, much berry-bearing shrubbery and vines, and I do not recollect a winter during which one or more mocking birds did not abide with me. Did such birds know that the berries would afford them food for the winter? There are

strange mysteries in natural history. My father, nearly sixty years ago, was in the habit of spreading his straw, as he threshed out the wheat, on the next year's tobacco ground. An excellent practice, and none who have not tried it, can believe how much tobacco is improved by having land to grow on manured the season previous to its cultivation. Invariably in twenty-four hours after the straw was spread, countless multitudes of the spotted plover visited the ground; so numerous were they, that I have on several occasions killed eight at one shoot, firing on the wing at the gang. The practice was intermitted for several years, from scarcity of provender for stock. But as soon as it was resumed, the birds returned. Now the mystery to me is, whence they came, whither they went, and how they knew that the straw was spread. I have never seen a spotted plover before, nor since, and know not in what region they could have been reared. Some two or three curlews usually came with them. These were so shy that I never knew one of them to be killed.

III. Another set of our birds consists of those which remain in the State through the year, but retire to the sea coast in very cold spells, such as blue birds, robins, killdeer (perhaps), and a few others. Some of these arrive here so speedily after the wind shifts to a warmer point, that we cannot withhold from them credit for greater weather wisdom than belongs to many of our wisacres who set up for seers in this line. As the weather can hardly hurt these shrewd little star-gazers, we must leave them to the tender mercies of other destroyers fully as relentless, to be noticed in the sequel.

IV. The greatest variety of our birds is made up of those which spend the summer with us, and depart on the approach of winter. It is from this class that I have observed the most striking diminution. So great, indeed, has this been, that I shall hardly gain credence, from any but the aged, in what I shall state. Yet who that can remember Richmond, in the close of the last, and commencement of this century, how its atmosphere was blackened by the myraids of house-martins, and other varieties of swallows, which caroled and twittered and glided through the air, can have forgotten the countless winged-rollickers? I was told that the martins found their way, in vast numbers, into the roof of the capitol,



in which were stored thousands of muskets and other arms of the State, and that they became vexatiously pestiferous to the armors, by defiling these articles. I sometimes go to Richmond, in summer, and miss the birds much, but think the musquitos have greatly multiplied. When I was a boy the maxim prevailed, that martins would fill all the boxes you might set up for them. When I became a man I nearly verified this, for the martins not only filled all the boxes I provided for them, but took possession of the pigeon-house. I believe there were hard upon a thousand about my premises. This was very nearly "too much of a good thing"—too much noise of the same sort. But we began to have very cool spells in spring and summer, and these birds visibly diminished in number, and I think it was early in July, 1836, a wet, cold, spell occurred and lasted for many days, during which nearly every martin died—the young in the nests, and old ones were found dead on fences, and all over the farm. Whether the cold directly killed them, or caused their starvation by destroying the insects on which they fed, or driving them into inaccessible hiding-places, is doubtful. For the last twenty years I have tried much to tempt the martins to abide with me again—but have failed greatly, as with all my efforts I have enticed but five or six to do so, whilst provision for many more has been made.

The swallows, sixty years ago, were also very numerous. They took possession of every chimney-flue under which fires were not kept, and our good mothers and granddames would humanely suffer with cold rather than annoy the swallows by having fires kindled under them. I often bless the mother who taught me to put a nest of unfledged young ones—which had fallen, from its weight, in a damp spell—into a little basket, tied to a pole, and put it up the chimney in reach of its parents. How far birds of the swallow tribe may employ themselves in catching insects agriculturally injurious, I know not, but, as they live so much on the wing, I should think any man who hates musquitos would regret their absence. Birds of this kind certainly resort much to sheets of water, streams, and boggy grounds, to perform their aeronautical evolutions. They usually construct their nests in places out of reach, both of the little urchins, black and white, who rob bird-nests, and also of the hawks, and we would

hope that one sportsman enough to hit one of them on the wing, would find better employment. So that their wonderful diminution may fairly be charged to cold weather, or a change in our climate.

Cold weather can hardly kill snow-birds. Yet there has probably been a much greater decadence in the number of these, within the memory of man, than of any, or perhaps of all others. About the year 1796 or 7, the writer thinks, he was one of four boys, at a boarding-school, who caught, in little pit-fall traps, 180 odd snow-birds in one day. The next day the good lady of the house regaled us with a pot-pie, which, to our boyish taste, produced impressions unequalled by any feasting since. I formerly heard it said, that it was about the best sign of snow falling, when these pretty little fellows congregated thickly enough for one to kill six at a shoot. I rarely, in these days, see more than that number at one view, however scattered. These birds are said to build in ranges, on the Alleghany mountains, affording a supply of suitable food for their young. The settlement of these, in the progress of civilization, and consequent dispersion of the birds, will account, mainly, for their diminution. Some drawback on their apparent numbers, by their scattering over wider areas of cleared lands, in their modern migrations, may be made, but not much, as they chiefly assemble about homesteads in snowy weather.

We have mentioned the weather, the Canada hawks—and we had too many land-pirates of this sort before they came—and the settlements among the Alleghanies, as causes of destruction to our birds. We come now to the knights of the bird-bag. In the first place, I must confess that I once belonged to the fraternity. But while I attempt to plead their cause, I must entreat any young brother, who is in the habit of bagging from fifty to three times fifty at a shooting, to remember that they are now said to eat chinch-bugs. My common custom was to take my gun and pointer, an hour or two before sunset, and I thought I did well if I brought in from ten to twenty birds. I was, however, not a good shot, or I might have done worse than that. I consider shooting as a fine exercise and amusement, and—when not carried to excess—it invigorates both mind and body, affords dexterity in the use of fire-arms, and keeps down the number of squirrels, hares and

other predatory vermin. As to cruelty, it does not compare with the daily butchering and wringing of necks among our brutes and poultry. I would recommend to young sportsmen, in their shooting contests, to let one common hawk count for a tenth, and a Canada hawk for a fifth of the whole number of birds killed, or to agree upon some rule by which all bird-destroyers, except themselves, should be put out of the way. They may rely upon it, that every such destroyer slain is a constantly working rival removed. In this way they may even prove to be friends to the birds—for all they destroy would amount to nothing like a moiety of those devoured by hawks, owls, foxes, minks, and other such vermin. As to a younger class of sportsmen, who, soon after getting out of leading strings, are furnished with accoutrements for the business, and roam the fields, shooting every pretty bird they see, and often themselves, I cannot be apologist for them, or their parents. One such little gentleman, some six or seven years ago, got to visiting my farm with his double-barreled gun, in mid-summer, when almost all the birds had nests. I had often boasted that I had counted twenty red-birds, at one view, in my garden, enticed there, doubtless, by the berries. This young sportsman dropped them along the river-bank with a hand so unsparingly that I have seen but one red-bird on the farm, that I recollect, since. The blue tanagers—also numerous and a very pretty kind of bird—fared as badly. I had thought that such gunners did but little harm. I now retract.

There is a class of bird-killers—and not a small one—which we should not pass by unnoticed. Grown-up men, who, having suffered prejudice to take the place of close investigation, ignorantly and recklessly destroy most useful birds. The killdeer—most faithful guardian of our turnip-patches—charged with eating young turnips; the different kinds of wood-peckers—guardians of our trees—are murdered ruthlessly for making holes in ears of corn, in pursuit of worms, and for feeding their young on cherries. The sweetly-singing thrush is killed for pulling up corn, which the farmer might prevent by soaking, tarring and sulphuring his seed-corn. Ah, but the birds will still pull it up, if they do not eat it. Now, crows, etc., are industrious in gratifying appetite, but, like men, they soon become weary, when they find their work is for

nothing. Another sweet songster, the cat-bird, is hated and killed for scolding when his persecutors go near his nest. I have, several times, dissected the gizzards of killdeer—they have no crops or craws—to show their destroyers that they contain no vegetable substance, and nothing indeed but the little bug so famous for destroying young turnips and tobacco plants. These bugs can be kept out of plant-beds by a perfect fence, three feet high, without a crack. A neat log fence, well-daubed with mud, will answer. I never could raise egg-plants until I elevated boxes, in which the seed were sown, beyond their reach. They can hop like fleas—crawl with difficulty—and if they ever fly, rarely do it, for, with close watching, I have never seen them perform the exploit. These little hopping beetles are a great nuisance in the land—and I fear are rapidly increasing. The killdeer seem to be their natural enemies, and formerly collected in vast numbers, and now in small ones—if even small ones convenient, may happen to exist—to fulfil the purpose of their mission. I seldom, now-a-days, hear the cheery ring of the killdeer's voice. Let no man henceforth, kill one, except to convince himself and others that they eat no young turnips. The sacrifice of one producing such conviction may save hundreds of his brethren. The woodpecker tribe, I look upon as very valuable. The lively, spotted little fellow, who strikingly verifies the adage about giving a dog a bad name, called sapsucker, has often been shot while picking grubs from the rind of some neglected apple-tree, which its owner should have saved by scrubbing the bark well with ley, because his unlucky name seemed to imply that he was sucking out its sap. His handsome compeer, the large, spotted woodpecker, much tinged with yellow,—called lark-woodpecker, and by the boys, yucker—is the only bird I ever saw picking out and eating the worms from the roots of peach-trees. Spare him, ye farmers, and teach your boys to spare him! But where is the red-headed woodpecker—the guardian of the olden forests. His occupation's nearly gone. Civilization has almost banished them all, as it did the snow-birds, among the Alleghanies. We have cut down much the greater part of our forest-lands. We have ceased girdling trees, in the half-rotten parts of which these birds could peck out holes for their nests. We



even search out the old and dead trees for fuel. Where are the poor birds now? Like many of us, seeking homes—from dire necessity—far away. I have known a large community of them actually to arrest the progress of destruction, from the pine-borer, in a forest where one pine-tree had been felled convenient to a field of thickly girdled trees in which they dwelt. They are nearly gone now. A solitary lingerer occasionally startles us with his merry squeal, but it excites rather sad associations. This is no longer a home for them. What is called bat-fowling, also causes great increase of insects. The number of bull-bats has very much declined in modern times. We thresh wheat so much earlier than formerly, that we can better dispense with the bats, as the summer-weevil, a favorite food with them, annoys us less. Leather-winged bats—ignored by ornithologists—should be prized by farmers. They live, I believe, entirely on insects, and in their destruction of them may substitute birds. But prejudice will not spare even these poor, ugly little flutterers. They are accused of breeding chinchies. Such bugs may get into sycamore-hollows, and their other domicils. But would any man destroy his poultry because chinchies infest his hen-house. This they often do. Bats live, by hundreds, under the barge-boards of my dwelling-house. I know no residence, within ten miles, where musquitos are scarcer—(and I may say chinchies, too, if none will call it bragging)—although there is a curved river-boundary, of more than two miles, within half a mile of the house. Pardon this and several other digressions. The whole article is written, mainly, for the good of agriculture, at which these digressions are aimed.

The Great Creator can, by storms and tempests—or, according to His own good pleasure—exterminate all, or any of His creatures. But He has so guarded animals preyed upon, against their marauders, by the law of action and reaction—in other words, of supply and demand—that the latter work against, weaken, or starve themselves, when they approach too near an extinction of the former. A community of cats, feeding only on one of rats, commit indirect suicide on themselves, when they carry on the destruction too rapidly, and must themselves decrease to that point at which the rats and their offspring can sustain them. Well-fed cats—which are much

the most valuable—might succeed in effecting their destruction. Nature shields the birds, generally, in this way, from utter extinction. Even man would, probably, relinquish their pursuit, when it ceased to pay in profit or amusement.

The question has not been settled, and probably never will be, whether—on the whole—crows do most good or harm. I will not shirk it, though I confess ignorance and doubt. It seems as if it hardly need be settled, as in our region, in despite of some very keen crow-killers in my knowledge, their numbers, though confessedly prodigiously reduced, are far greater, in proportion to size, than those of any of our other birds. There are two or three animals which, some say, never die a natural death. I think the crow has as fair a title to this distinction as either of them. He has no destroyer but man, and among men there are so few who possess the genuine crow-killing talent, that, I think, with all his cunning in eluding pursuit, and his great prolificness, the danger of his extermination is not very great.

Some people protect crows as very valuable. The late John Randolph would not suffer one of them to be shot on his farm. Indeed, he fed them liberally when his young corn could be injured by them. I tried this once, but they had not faith in me—the black rascals pulled up the corn close by the bait. Probably they prefer it soured or softened in the ground for their young. In that case, by soaking the feed in water a day or two, they might be accommodated. I suspect that even then, from a proclivity to mischief natural to them, they would continue the depredation, in conformity with the boast of the black-bird to the crow, in the old nursery song:

"Ever since old Adam was made,  
To pull up corn has been our trade."

Some hate crows so much as to put food within their reach, impregnated with a solution of arsenic, and kill them by wholesale. The gentleman mentioned above, declared to me, that he never could bring himself to administer poison to any of God's creatures—not even to rats; that he left arsenic to the doctors, and doubted whether many of *them* used it to advantage.

There is an insolence and audacity about

the crow in the achievement of his thieveries, seeming to defy retribution and challenge assault. Could the warmest apologist for crows—on finding thirty or forty of the best melons in his patch pecked to pieces, while the saucy rogues were chuckling noisily over the feat in the neighbouring trees, beyond the reach of gunshot, however—look at the black thieves, without *wishing* them all dead? If, on the whole, they do more good than harm, it is with a very bad grace, and, like all the good done by scoundrels, with a bad motive. My rule has been, whilst I have by no means loved the crows, to let them alone, except such as took to stealing the eggs and catching the young of my domestic fowls. I have sought the lives of these most sedulously. I would also contend for my melons, savagely, if need be.

As for black-birds, they may readily be cleared out, if they be considered a nuisance, by draining swamps and extirpating willows. Even were they considered valuable, we should not retain the swamps and willows, with all their accompanying evils, for their sakes. Besides, I suspect that they eat but few insects except those peculiar to swamps, whilst at certain seasons they pillage voraciously on all the grain near.

An intimation was made that remedies would be suggested, at least for the palliation of the foregoing evils. Here the writer feels himself much in the condition of a physician, who has great confidence that he could prescribe sanative remedies, but has little hope that the patient will follow the prescription. In the present case, there are too many to be consulted—nineteenths of whom will probably pronounce the whole business a humbug; and of the very few who may approve, hardly one will adopt and endeavour to carry out the suggestions. Such are the difficulties to be overcome.

Public evils often call down public calamities, and the links which bind the various interests of civilized life, are so entangled and complicated that a lofty wisdom is required to prevent confusion and ruin. The feeble old man, who now addresses you, feels his utter impotence to wield the subject when applied to ourselves as a nation. He has no sanative remedies here. No—he begs leave, humbly, to unite with a mighty host of patriots in imploring those who are great and good to face the tempest, and agonize

to avert it. I have already witnessed some stirring—grand displays of patriotic eloquence. But the good and great must not only write and speak, but buckle on their armour and fight for the cause of their country. Perhaps the people will “*reverence*” them. Perhaps they may be enabled to save their country!

“But fools rush in where angels fear to tread.”

The peace of angels is what we need; they are said to bring no railing accusations. Can party spirit heal us? No—this was the demon which hatched the mischief. Angelic peace must sweeten—profound wisdom and virtue give power to the medicine we take. God grant that no judgments from Heaven be necessary for our cure!

But to return to the birds. Often on viewing farms, in some of our richer counties, I have asked, what provision is made for the birds? Where so many good things abound any deficiency becomes the more striking. It is worse in poorer lands, but I choose the richer for examples, on account of the contrast. We see a handsome, sometimes, a splendid dwelling, neat and substantial out-houses, beautiful shadders in the yard, very rare though in the fields, and no superabundance of woodland. How long could a decimal of the feathered races which once inhabited the same lands, be kept here now? The indigenous wild fruits are nearly all gone. Trees, shrubs, and vines, for food and for shelter, from storm and sunshine, are gone. It is true, there is an abundance of grain about its ripening time, soon to be shut up from the birds; an abundance of clover seed for such as feed on it, when it is not under snow. There are also insects enough for the pee-wees, wrens and sparrows, which are not fastidious about selecting secluded spots for their nests. The blue-bird may, perchance, find a hole in an apple-tree, if the little negroes are not permitted to rob him. Many other birds find it no home for them, and fly away. Others would remain, and soon pay for coarse boxes, six inches square, to dwell in, if supplied with them.

Some birds affect particular haunts or localities, as was said of the pheasants. I have seen the scarlet tanager—I know no common name for him—only in a range parallel to the Blue Ridge, and about thirty



miles, south-east from it. This is a very showy bird, brilliant scarlet in colour, with glossy black wings, bill and lower legs. The rain-crow used to be very numerous in the same range, both doubtless attracted by some food unknown to us, or by the charms of seclusion, to these barren wilds.

The mocking bird will rarely abide where there are neither red hawthorns nor large wild rose bushes. The Baltimore oriole greatly prefers the Lombardy poplar to build in.

If we desire birds, we must remember the condition of things when they were plentiful, or, as the politicians say, "recur to first principles." Our forefathers, after they began to clear away the woods, made copses, or thickets, of shrubbery and vines, and crowded them as densely as possible not far from the dwelling. True, they were not made for the birds, but being composed of plum bushes, cherry trees, winter-fox and other grape vines, they formed a fine substitute for the departing forest growth, by affording good shelter in cold and tempestuous spells, suitable privacy for their nests, and much food for their young. The progress of refinement and luxury aided possibly by a hankering after rich ground for tobacco, swept all these away. They might cheaply be restored, and if tastily laid out, might be quite ornamental. Such spots would certainly recall many of our wandering feathered friends. Birds should be treated like roaming husbands—make home pleasant to them.

Other areas, bluffs, waste spots, and yawning gullies, too great to be filled at once at a compensative outlay, might be improved in appearance and put to some use quite cheaply by planting them thus in trees, etc.; and if well started, they would soon become rich. It may be objected that such places breed snakes. One or two pointers or terriers, trained to hunt these, will soon clear them out. Family cemeteries, instead of laying bare in the sun, might be tastefully surrounded by groves, and the music of the birds would sweeten, while it increased the sacred solemnity.

Silk and wine culture would doubtless greatly favour the increase of our birds. The first, however, has, most probably, received its death blow twenty years ago, from the *Morus Multicaulis mania*—whether under the guidance of cautious and watchful experiment it might not succeed, and

whether its success be desirable, I am not prepared to decide. There can be no doubt about the success of the latter, should its prosecution be directed by cautious and enlightened enterprise. Grapes are rarely killed in middle Virginia, by frosts, as they do not bloom until about the middle of May. Their health and productiveness are greatly improved by using phosphate of lime as manure.

By the foregoing appliances and other expedients to be suggested, I doubt not at all but that the number of our birds may be greatly increased. The adoption, by a large number, of the plan of imprisoning and feeding partridges in very hard weather, would greatly protect one of the most valuable species of birds which abide here during winter. By a formation of the thickets and groves recommended, and a judicious adaptation of the growth to the soil, and of its fruits to the wants of the birds, a mighty enlargement might be added to our summer birds.

The awful devastating snows which have swept away our hares and partridges, have only occurred three times in much over half a century. One in January, 1799, which did not all melt away until the last of April. Two others, in 1856 and 1857, are remembered by young people. But the hawks, except the *cute* northern ones which go away when the birds get scarce, are always here. And I wish to say a little more about hawks, as they produce a sad draw-back on the number of our other birds. Allowing one hawk for every square mile, and I am sure that is much below the true mark, it is evident that they must destroy a prodigious number of birds in a year. I will leave the Canada hawks to their rivals—the sportsmen. Each of them should kill his hawk annually, as a tax for the privilege of hunting. They are easily shot from a blind, near which a bird or hare is hung up. Our native hawks may, most of them, be trapped, the blue-winged in steel-traps, baited with a bird, a squirrel, or even a stuffed squirrel-skin. The large red-tailed hawk can be caught in a very strong tobacco-stick trap, baited with the lungs of a pig or lamb.

I once knew an old gentleman, who had a thorough passion both for shooting and trapping all the hawks, owls, foxes, otters, minks, and other destructive vermin, he could find—a perfect Daniel Boone in the

midst of civilization. He had no particular objection to trapping a fox-hound occasionally, as he was convinced that hounds had been the chief instrument in destroying the game of the country. His labours convinced me that his occupation was very useful, for it was manifest that his neighbourhood abounded in birds far beyond any region near. It is true he may have indulged a prejudice somewhat bitter against the objects of his pursuit, especially the hounds, yet some such feeling almost amounting to hatred, is perhaps requisite in destroyers of all kinds. He was a worthy man, and is remembered with esteem by all who knew him. I have known several men of less note who had the same turn of mind. They did a patriotic work; whether they designed it or not, I cannot tell.

Our article is becoming entirely too long. We will deal in short order with the remaining bird-killers. For their own sakes, the unfledged sportsmen should be stopped altogether, unless their parents are able to employ those capable of training them to handle arms safely, and restraining them from murdering harmless birds, through sheer wantonness, as unsportsman like and cruel. The smaller fry, of nest-robbers, should be treated with mild expostulation—which, failing, the rod must be tried.

This effort, hurried, miscellaneous, and unmethodical, is offered as the best testimony I can give of my kind feeling and gratitude towards my agricultural editor, who has afforded me so much pleasant reading so cheaply, and my best wishes for you, sir, personally, and officially, and for the cause in which you labour.

C.

*Cumberland. Feb. 20th, 1860.*

**LIME WATER FOR APPLE TREES.**—A French journal relates of a landed proprietor near Yvetot, that he had in his garden some old apple trees which produced no fruit. Two winters ago he took up some lime, which he steeped in water, and with a brush washed the old trees all over. The result was the destruction of all the insects; the old bark fell off, and was replaced by new, and the trees bore an excellent crop. Most of them have now acquired such renewed vigour, that all appearance of age has disappeared.

Remember the golden rule—do unto others as you would have them do unto you

*For the Southern Planter.*

### Advice to Young Farmers.

Supposing that our young farmer friends have gone along with us in our former articles, and heeded us whilst we discoursed of house-building, the management of self, the management of the tobacco beds, the management of the tobacco plant itself after being matured, &c., &c., we will now speak of other topics connected with the profitable management of the farm.

And here, lest the young Virginia farmer should be discouraged by the wonderful accounts he hears of the great product per hand, made in the cotton and sugar growing portions of our country, over what we are able to do in this State, we deem it pertinent to remind him, that in the improvement of his farm, the enlargement by *natural* increase of his stock in trade, the multiplication of his negroes, his cattle, his horses, &c., &c., he is adding, though slowly, much more certainly to his wealth than those who are engaged exclusively in the planting business.

The superior planting lands of the South, which produce these large yields to the hand, and are not subject to complete exhaustion, are confined to a comparatively small district of country. We would remind him that a very large majority of those cotton hands are deteriorating constantly, and that no successful plan has been resorted to of restoring them, that they are cultivated at a most enormous expense, that the net per cent. upon the capital invested is not so much greater, after all, as the inexperienced are led to think,—that we are led to doubt whether the sum of \$5,000 or \$10,00 invested here, would not show as good a profit at the end of twenty years as the same sum invested there, to say nothing of the superior comfort and satisfaction of living in this climate. To bring about this profitable investment here, however, the young farmer will have to be on the alert. As one step, he must attend to his

### MANURE HEAP,

which is the farmer's bank; not like other banks, though, its contents must be *rotten*. If the President of this bank will see to it, that its resources are always in a good condition, he may rest assured that it will yield to him a far more certain and profitable



per cent. than any other banking institution, from the bank of discount and deposit to the farro bank, inclusive. The manure bank is the farmer's treasury. Thence he draws all his finances. Let all the material, of little or much strength, therefore, out of which nutrition for plant can be extracted be gathered together and converted into manure.

Our experience is, that whether applied to corn, wheat or tobacco, turnips, carrots or potatoes, it makes return exactly in proportion to the quantity and quality of the manure applied. A judicious manager may every year make manure enough to dress thoroughly all the poorer portions of the fields he cultivates. Especially may he do so with the partial aid of the foreign manures so much in use now-a-days. We doubt, however, at the present high price, whether these can be extensively and at the same time profitably used on our Virginia lands, as far as we are from the good markets. Lime and plaster, where they act on our lands, may be used at all times most profitably; nevertheless, these great adjvants to the growth of plants have been found to produce no effect on some of our Eastern Virginia lands, and consequently are to be used with caution. The Piedmont lands of the State may be increased to any amount of fertility by the judicious use of clover and plaster alone—a proper rotation of crops being observed; whilst, according to our experience, the soil between these and tide-water are not effected by the application of either lime or plaster. The lands of our State are so various in their character, that no one of the foreign manures can be recommended as adapted to all. This remark, however, does not hold good in regard to our manures of domestic manufacture.

We will suppose, then, that our young friend has, last fall, after the housing of his crop turned all his industry and attention to the accumulation of manure, that he has not depended on overseer or negroes in this most important operation, but given it his personal attention. The crop having been secured, he can't make it appear to either of these parties, that there is any need of further industry or energy. Therefore we press this point. Let the master be diligent in providing the material. Let him see that the stable yards, cow yards, the receptacles for manure about the dwell-

lings are all, every one of them, provided with plenty of crude matter, such as weeds, leaves, straw, as absorbents of that which may be thrown or dropped on them, during the six months from November till April. Let him see to it, that the contents of both horse and cow stables when cleaned out are thrown into shelters where rains nor weather have access to them. Let him see to it, that they are kept deeply littered with straw or leaves. And when the time comes for turning the stock on the fields, let him see that a pen well covered with crude matter of some kind, is made for them on some poor spot of the succeeding fallow, and removed every ten days or so, and he will find that with the diligence he should have exercised, he will have accomplished so much towards going over all the thinner parts of the fields for cultivation, as to require but little of the more costly manures.

And here, being about to dismiss the subject, we would warn our young friends against the various preparations that are now sold for manure, unless they know the character of those making the preparations.

The season having arrived, viz: April and May, when the crop of corn is to be put into the ground, such manure as can be spared from the tobacco crop—for, from our experience, none of it should have been used as top-dressing to wheat during the winter, inasmuch as it does not benefit to the extent that others suppose—should be spread on the thinner parts of the corn field, and lightly plowed in. Before this process, though, we suppose the corn land all to have been thoroughly plowed and broken with the subsoil plow to the depth of at least twelve or fourteen inches. The corn should then be dropped (I prefer sowing it, a grain in a place three to four inches apart) and covered with one deep stroke of the coulter on each side of the row. As soon as the plant is up, or even before, should begin the

#### CULTIVATION OF THE CORN.

This process is simply the breaking of the middle of the row with five or six strokes of the coulter, so constructed as that it will go into the land and do the work thoroughly. Care should be taken not to break the roots of the young plants. Our plan, then, is, to disturb the land no more

until the corn is large enough to have the dirt thrown to it,—which is done with a common wing plow, one furrow being run on each side of the row covering, if plowed as it should be, every particle of land between the stalks of corn. Having gone over the field with two furrows of this kind to the row, we return and give the row two more furrows, which operation will have left two to three furrows more in the middle of the row yet to be finished, which if the wheat harvest has come on, as it should do, will have to stand until the wheat is saved, with no detriment, however, to the corn, because its young roots will not have progressed one inch beyond the two strokes of the plow on each side of the row that have already been given it.

Immediately on the securing of the wheat harvest—that is, the cutting and putting into nicely capped dozens—the finishing touch should be given to the corn by filling out the remaining furrows; and during this process the wheat, while the dew is on it of a morning, may be put into larger or five bushel shocks, and thus more securely kept in case of long rainy seasons. By this system of cultivation, we avoid disturbing the young roots of the corn plant, and prepare for them always in anticipation a soft, fresh, and well pulverized body of earth, in which they may seek their food.

For this cheap and expeditious mode of the cultivation, we are indebted for our theory to the celebrated agricultural chemist, Liebig, and for the practice to two or three of the most sensible old farmers of our acquaintance, who possibly may never have heard of the great chemist.

We rarely use the hoe at all in the cultivation of our corn, except to uncover such of it as the plow may have accidentally covered, and to chop the bushes which may and do put up in many parts of the field. And just at this season the young farmer will remember that the crop of oats is coming fast to maturity; and he will remember, also, that tobacco, which we told him in a former paper, he ought to have run over hastily—by moonlight if he had no day time for it. If he has followed our advice then, he will have plenty of time now to give the tobacco that thorough working with plow and hoe we there told him about, because it is free from weeds and grass, and the hoes will go over it as fast as the plows. The tobacco will now be as large as a man's

hat, and in some cases in top, and a large, flat hill should be put round it in order to retain as much moisture as possible, but deep and thorough cultivation will insure the retention of this moisture more than anything else. But before we proceed further, we would give our experience in

#### FEEDING WITH CORN AND OTHER GRAINS.

We give it as our decided opinion, from our own as well as the experience of others, that the grinding of all grain fed to stock will save *one-fourth*, in some cases more. All grain fed to horses, cows, beeves, and fattening hogs, should be ground. Though the farmer have to travel ten miles to mill, the thing can be attended to with immense saving. Fattening hogs may be fed on corn cooked in large boilers; but still the process of fattening is hastened by the grinding and cooking. The want of attention to things of this sort, is where the Virginia husbandry fails. We make, but we do not economize. Suppose the farmer require 200 bbls. of corn for his annual support, and our position is true—and we know it is,—in the article of corn alone, he saves 50 bbls., which is worth on an average \$175; a sum sufficient to pay a hand to do nothing else but prepare to feed and distribute to the stock. But the farmer who has stock enough to employ a hand exclusively for the purpose of feeding, would, under the ordinary plan, use 300 or 350 bbls. of corn; this man's saving would be \$304. Doesn't this pay for grinding? Let our young brother attend to these things, and he will at the end of twenty years (industry in other departments having been observed) have no reason to look with a longing eye towards South Alabama or Texas, or any other great cotton region.

#### THE GRASSES,

Such as clover, orchard, timothy, &c., should have been sowed on the oats at the time of seeding them, and all the poorer portions of the field should have been covered with straw, so thinly distributed as that the young plants may be shaded but not overlaid. This covering, together with a bushel of plaster to the acre, will generally insure a good stand, which should then be sacred ground, so far as any quadruped is concerned, until the grass has matured the second year; the fields having been plastered the intervening seasons.



## THE SEASON FOR SOWING WHEAT.

The season for sowing this crop having come, our young friends will, before this, have fallowed all the land intended for wheat, and as soon as the manure receptacles about the dwellings and farm-houses were emptied in the spring, (April and May,) will have seen that they were again filled well, with such matter as could be converted into manure, and will insure a sufficient supply for all the poor places in the fallow-field. This manure, together with the cow-pens that have been distributed over the thinner portions of the land intended for wheat, should all be plowed in, and then the wheat sowed at the earliest possible time after the 25th September. We would advise the use of the drill by all means, wherever the land is tolerably level, more especially on the red lands where the wheat is apt to be thrown out by frost. This operation will require the greatest amount of care, however, as with all the precision that may be used, the drill is liable to get out of order and to skip the land without dropping the seed.

## STOCK OF SHEEP, HOGS, &amp;C.

As it regards sheep, we would advise a good stock. Though they may cost more at first, they are far more prolific and a dozen will soon stock an ordinary farm. They require great care, especially about weaning time. Indeed, until the farm is fenced off and well set in grass, this branch of husbandry should not be attempted. It is absolutely needful that they have green food, to succeed well, and to insure this, at the time they are raising their young, the ram should be kept from them until the latter part of November, so that, going as they do four months with young, they may bring them the last of March or first of April. Frequent change of range is essential to their well-being, consequently their pasture should be changed monthly or oftener. The lambs should be altered as soon as they drop; this being attended to, they are always healthy and strong, and take on fat far more readily. We prefer a cross of the Bakewell and Cotswold, as combining a fineness of wool, a delicateness of flesh, and at the same time a juiciness which neither of those stocks have of themselves, and this, without detracting from the fleece.

As it regards hogs, our experience will

not justify us in recommending particularly any of the various recent importations. So much depends upon the attention that is bestowed on this stock, that we can say, safely, that any of good form, and size, and age may be bred from with propriety, provided that they be not suffered to "breed in and in" for too long a time. We dare say that the Surry, or the Berkshire, or a cross of the two would be our choice. Our experience in this department, as in that of the sheep, and indeed other stock, is, that without the attention of the master—*without the daily attention*—our friends will find that they may make yearly importations of the best breeds, and they will all resolve themselves into "Razor-backs" very speedily. If they want to see their sheep have lambs, their sows have pigs, their cows have calves, their acres produce "two blades of grass where but one grew before;" let them not depend on their "good men Fridays," as an old friend of ours used to call those gentlemen agents or managers.

In these sage advices which we have been so long doling out to our young friends, let them not suppose that we have talked unadvisedly about painting cow stables, and horse stables, and negro quarters, &c., &c. If we were going to start in life again, instead of burdening ourselves with a large debt for land, the payment for which takes all one's surplus capital, we would take half the capital for investment in land, if it didn't buy but one hundred acres, and invest the other half in improvements for that one hundred acres.

The Yankee farmer—but we forget, we must not mention that name to Southern ears polite, "odds pistols and pikes it raises ones passions!" but having named the accursed name, we had as well say what we were going to say—viz: that the Yankee farmer invariably observes this rule in making an investment, and the consequence is, that he rarely, after four or five years, realizes less than from twenty to twenty-five per cent. on each investment.

And now, if our young friends are not glad that we have finished what we had to say, we know that we ourselves are.

L. M.

February 21st, 1860.

Plow your ground deep--pulverize it well.

### Powhatan Hole and Corner Club.

Most cheerfully do we publish the following interesting report, in compliance with the resolution of the above club. We have often invited such communications from the various intelligent associations existing in many of the counties of the State, but we are sorry to add, that our solicitations have been, for the most part, disregarded. The Nottoway club stands out a prominent exception. Their annual contributions have enriched our pages, and made the "Southern Planter" the medium for diffusing the light of their eminently practical and instructive essays throughout the country. The Powhatan club, too, is another exception. Their communication of the invaluable agricultural and geological survey of their county by Professor Gilham, through this paper,—if they had done nothing more,—would entitle them to a full acquittal from the general charge, and to the praise of having set an example worthy of the imitation of every county in the State. The Albemarle clubs, we know, are still active and efficient, but we have somewhat against them; they are appropriating the benefits produced by their association and frequent intercourse too much to themselves. Why put their light under a bushel? Why not let the practical experience of one of the high-farming counties of the State be merged in the common stock? What do any of you know that you did not learn from others? Much, no doubt—but do you not owe it to others from whom you have derived instruction, to impart to them what you have learned from your own experience and observation? No man liveth unto himself—*verbum sat sapienti*. What shall we say of those counties in which there are no farmers' clubs? Brethren! you are verily behind the time. Gird up the loins of your minds and *immediately* set you about to wipe out the reproach. What a powerful auxiliary such associations, in every county, would prove in effectuating the reforms, which it is the purpose of all classes of our citizens to introduce—

That is, to rely upon *themselves* as a community; to encourage our own manufactures by buying nothing from the North which can be made at home; to ship our productions in our own bottoms to foreign markets and import our own supplies; and in short, to leave nothing undone which individual and associated action can accomplish to develop our resources of trade, of wealth and of independence. Think of it. But to the report before us:

*Report to the Hole and Corner Club of Powhatan, on the subject of the Tartar Sheep and Sorghum. By C. C. Lee.*

JULY 1st, 1859.

At a former meeting of the club I presented for the inspection of its members "the American Farmer's New and Universal Hand Book," lately printed in Philadelphia, and edited by J. W. O'Neill. Among the many things of great interest and value in this valuable publication, I called the attention of the club particularly to what was said of the Tartar sheep and Chinese sugar cane. Many of the members of the club were so impressed with what was there said of the Tartar sheep, that they requested me to obtain, if I could, further information concerning them, and where and at what price they could be bought. In answer to my inquiries on this subject, I received a very obliging letter from Mr. O'Neill, editor of the "Hand Book," from which the following is an extract:

"Dr. Emerson has had some six years' experience in raising the Tartar sheep, and not only fully endorses all I have said about them, (in the Hand Book,) but says that they endure the cold equally as well as the common breeds. As an instance of their prolific qualities, he refers to a ewe which brought forth *three* lambs, (two ewes and a buck,) in February of '54, all of which were raised to maturity. About the middle of November, of the same year, she brought two more lambs, and at the same time *her two February lambs each brought a lamb—thus making the progeny in nine months no less than seven*. He says he has frequently seen four lambs at a birth, and never, except in the case of young ewes, as above mentioned, has he known of less than two. He has crossed with other breeds, at different times, but without any satisfactory results, as I judge—for though the fleece was improved, and the meat of equally fine flavour, yet the cross was not equally prolific with the original stock, and he has returned to the breeds of the full bloods.

"The fleece is light and adapted only to the manufacture of blankets, and other coarse woollen fabrics. Dr. E. offers to supply you with a buck and two ewes of sufficient age to breed next spring, delivered in Philadelphia, for the sum of \$50, which is \$16.66 each—a very moderate price for fancy sheep. Some of his bucks have netted him \$50 each. It would probably be as



well for you to communicate with him direct. His address is, 'Dr. Gouverneur Emersén, 926 Walnut street, Philadelphia.'

"As you have planted the sorgho, and may probably wish to experiment on sugar, I will, in a few days, if I can obtain it, send you a printed copy of the details of experiments made by Joseph S. Lovering, of our city, (Philadelphia,) one of the most practical and successful sugar refiners in the Union."

I have since received from Mr. O'Neill the promised little pamphlet, which I will hand to the club with this report, deeming it however proper to copy and read here the result of the experiments in details, which is given (page 21) under the head of

#### "SYNOPSIS."

"1st. That it is obvious that there is a culminating point in the development of the sugar in the cane, which is the best time for sugar-making. This point or season I consider to be, when most, if not all the seeds are ripe, and after several frosts: say when the temperature falls to 25 or 30° Fahrenheit.

"2d. That frost, or even hard freezing, does not injure the juice nor the sugar; but warm Indian-summer weather, after the frost of hard freezing, does injure them very materially, and reduces both quantity and quality.

"3d. That if the cane is cut and housed, or shocked in the field when in its most favourable condition, it will probably keep unchanged for a long time.

"4th. That when the juice is obtained, the process should proceed continuously, and without delay.

"5th. That the clarification should be as perfect as possible by the time the density reaches 15° Baume, the syrup having the appearance of good brandy.

"6th. That, though eggs were used in these small experiments, on account of their convenience, bullock's blood, if to be had, is equally good; and the milk of lime alone will answer the purpose; in the latter case, however, more constant and prolonged skimming will be required to produce a perfect clarification, which is highly important.

"7th. That the concentration or boiling down, after clarification, should be as rapid as possible, without scorching—shallow evaporators being the best.

"With these conditions secured, it is

about as easy to make good sugar from the Chinese cane as to make a pot of good mush, and much easier than to make a kettle of apple-butter."

I will only add to this synopsis the comparison given on the page which begins it, between the yield of the sugar cane of Louisiana and that of the sorgho cultivated in Pennsylvania:

#### COMPARISON.

##### *Louisiana.*

|                                     |             |
|-------------------------------------|-------------|
| Yield of juice per acre.....        | 2,236 gals. |
| Yield of sugar per gallon of juice, | 76 lbs.     |
| Yield of sugar per acre.....        | 1,704 "     |
| Yield of molasses per acre.....     | 102 gals.   |

##### *Pennsylvania.*

|                                     |                     |
|-------------------------------------|---------------------|
| Yield of juice per acre.....        | 1,847 gals.         |
| Yield of sugar per gallon of juice, | 66 lbs.             |
| Yield of sugar per acre, { Actual,  | 1,221 "             |
|                                     | { Probable, 1,612 " |
| Yield of molasses do., { Actual,    | 74 gals.            |
|                                     | { Probable, 84 "    |

As every member of the club is as competent as I am to draw conclusions from experiments, I shall refrain from commenting upon them, and extract another paragraph from the letter of my friend, Mr. O'Neill. Immediately following those already extracted is the following:

"Truly glad am I to learn that Virginia contains such a nucleus of progressive spirits as is comprised within your agricultural club. Association and combination are the great levers which move civilized society, and through them only can great results be obtained. Your efforts may now seem to meet with but little reward, yet, by perseverance year after year, in spite of every discouragement, you *must* and *will* effect a radical change in your own vicinity, and by indirect means in other quarters."

It is, Mr. President, to produce the result predicted, I trust not erroneously, in the last extracted sentence from my friend's letter, that I have made this report in writing, instead of verbally. I have thought that the introduction of the Tartar sheep and the sorgho into our husbandry might be beneficial to our vicinity and Commonwealth, and a large portion of our country, and that the publication of these views, made in our agricultural papers, by the recommendation of this club, may call public attention to a due consideration of them, and that it might lead also to a due appreciation of the Farmer's Hand Book, whose

suggestions and recommendations have led to this report. I have looked carefully through it, and find it to be such a work as every farmer ought to have; and I have called the attention, not only members of this club to it, but other farmers, and all unite in confirming my opinion. In contemplating the vast importance and variety of the subjects treated of in this volume, every one of which should come within the purview, and most of them be embraced in the practice of the accomplished agriculturist, one is most forcibly impressed with the surpassing utility and true dignity of his calling. The effects of climates, the nature of soils, the cultivation which will destroy and that which will improve them—the products of the earth in grasses for his cattle, in herbs for his medicines and indulgencies, in cereals for his necessities, in fruits and vegetables for his luxuries, in flowers for his elegancies, with the knowledge of all of which, and how they should be treated, should he be familiar. Then come the fibrous plants for clothing and cordage, with their seeds for oil, and others with juices to tinge our garments with the colors of beauty—then all the varieties of cattle for food or servitude—then all the feathered tribe, which increase our luxuries, and sustain our health, and adorn and make merry our bowers—then the insects, which help or which harm us—the name of the farmer being the bee and the silk-worm, and that of the latter legion;—then the mechanical knowledge requisite for the buildings and improvements of husbandry, and then the utilitarian discernment, the adorning fancy, the judgment, the humanity and taste; with which, all these means of the farmer's livelihood, sources of his wealth and materials of his happiness, should be maintained and increased and managed in the best manner, require an exercise of intelligence and industry and benevolence and taste demanded by no other profession. It is to impress upon the farmer, by the sight presented in one volume, of the large round of his duties, the importance and elevation of his calling, as well as to give him a complete and lucid manual of instruction in all of them that I hope it will please the club to commend to the public as heartily as I am sure they approve it—the Farmer's Hand Book.

There is no condition so secure, as not to admit of change.

*From the New England Farmer.*

### Coal Ashes as a Fertilizer.

FRIEND BROWN:—Your paper is taken at our office by A. H. Grosvenor, for the general instruction in agriculture gardening, &c., at our section of the Shaker Village at Harvard. Among the farmers' reading matter it contains, I have been pleased to observe, an occasional article upon the general uses of coal ashes as a fertilizer.

In your last issue, the editor of the *Commercial Bulletin* has presented to the public a good article on this subject, but in perusing it, I was led to suppose that many disposed to be skeptical on this subject would argue that the editors' test of anthracite coal was not a clear one, because he incorporated with said ashes equal parts of horse manure and loam in one general heap, as an auxiliary to his pleasant half acre.

Such skeptical friends would be apt to contend that the horse manure did all the work, while the ashes, like the white, soft-handed gentleman farmer that simply rides through his plantation, received the honor, and made all the noise. But as we too think different, please allow us to state our reasons for endorsing his opinion.

We consume at our large dwelling-house a number of tons of coal each winter, and having added portions of it to our composts, with little calculation or observation, we determined to test it singly this past season, and closely observe its effects. On an old mowing field too much run down, we top-dressed a square piece of ground fairly with clear coal ashes early in spring. While the crop was growing, at all stages the difference was perceptible. When ready for the scythe, it was more in quantity; and as to quality, it produced about equal parts of herds grass and red clover. If the clover was not introduced by the agency of the ashes, we know not how it was introduced, for four years none was seen there before, or in any other part of the field, and this was the only clover seen in said field the past season. Both grass and clover were more vigorous, green and lively within the top-dressed square, and just as visible all around was the exhausted crop, which said as audibly as grass could say, in its declining state, that it had received no such assistance from this individual fertilizer.

On a hill-side not at all renowned for its wealthy properties in soil, we planted the



Davis Seedlings and Jenny Lind potatoes in clear coal ashes, half a shovel full in a hill. Below, on equally as good ground, we planted the same kinds of potatoes in compost manure, and the coal ashes single handed, turned out the largest, best, fairest and most numerous quantity of potatoes. In reality, they were the best we raised on the farm. Almost side by side, in compost manure, our potatoes were somewhat infected with rot; in the ashes they were all healthy and sound almost to a potato.

In kindling fires, it is true, we use shavings and a little light wood, but the quantity I consider almost too insignificant to take into the account.

These experiments convince us that as a fertilizer, anthracite coal ashes possess the life and energy to produce the above effects on common crops. Hence, whatever theoretical lecturers or writers may present to undervalue the better qualities of the article, while it continues to improve quantities and qualities of grass, and give us sounder and larger crops of potatoes, we conclude to give it an honorable standing among the general agents which have long held undisputed station in the farmers' compost.

WM. LEONARD.

South Groton, Oct., 1859.

### Chemical Properties of Tobacco.

During the process of curing, tobacco undergoes important chemical changes. Its peculiar properties are owing to the presence of several remarkable compounds, of which one called "nicotine," and another called "nicotianine," are most important.—*Nicotine* is an alkaline substance, and has the form of an oily liquid when separated from other compounds. In its concentrated form, it is a most deadly poison; but when taken in the dilute condition in which it reaches the stomach in chewing, or lungs in smoking "the weed," its effects are greatly modified. The quantity of nicotine varies in the different qualities of tobacco cultivated in the same region, and still more does it vary in that cultivated in different countries. The Havana has about 2 per cent of nicotine—hence its mildness. Virginia (best manufactured) tobacco has 5 or 6 per cent, while the stronger varieties have about 7 per cent. The French tobacco has from 3 to 8 per cent of nicotine, according to the region in which it grows. *Nicotianine* is a more vola-

tile substance than nicotine, and is more odoriferous. The pleasant odor of good tobacco is due to this compound chiefly.

The nicotine and nicotianine do not exist in the green leaf, but are formed during the curing of the tobacco, from substances already in the plant in variable quantities. If the leaves are dried very rapidly, these compounds are not fully formed; and if the heat is raised too high in firing, they may both disappear to some extent, by being either volatilized or decomposed. They both contain nitrogen, and, like all other compounds containing that element, are readily decomposed. Hence the firing should be commenced at a low temperature which should be gradually increased, and may be advantageously suspended at night. The temperature should never rise above 120°.

Tobacco-barns should be closely planked, or in some way made close, having windows for ventilation, which may be opened or closed at pleasure. Smaller, and hence safer fires, will be sufficient in such houses. Curing yellow tobacco with charcoal at a high temperature, kept up day and night, is recommended.

"It is best to fire all grades of *shipping* tobacco, and cure it a dark nutmeg color. \* \* \* From 24 to 36 hours after cutting, if the tobacco is ripe—if not, from 36 to 48 hours, according to the weather—seems to be about the right time to commence firing. Begin with small fires, and bring the tobacco to a proper state, and then increase the fires."

### Rope Making.

The name "rope" is generally applied to the larger descriptions of cordage, such as exceed an inch in circumference, though the principles of formation are much the same for cordage of every size, and the smaller sizes are known by various names. Those large ropes which are said to be cable-laid are formed by the combination of smaller ropes twisted round their common axis, just as the shroud-laid ropes are composed of strands twisted round their common axis. As cable-laid ropes are harder and more compact than others, this mode of formation has been adopted for ropes to be exposed to the action of water, even though their thickness may not be very great. Ropes formed by plaiting instead of twist-

ing are made use of for some purposes in which pliability is especially needed, they being more supple and less liable to entanglement than those of the ordinary make; such ropes are generally preferred where the rope has to pass over pulleys of small diameter. Flat ropes, which are valuable for special purposes, are either formed of two or more small ropes placed side by side, and united by sewing, lapping, or interlacing with thread or smaller ropes, or of a number of strands of shroud-laid rope similarly united. In either case it is necessary that the component ropes or strands be alternately of a right hand and left hand twist that the rope may remain in a quiescent state.

Many experiments have been made to test the loss of strength by the ordinary twist given to ropes. DUMAHEL prepared the following statement to show the comparative strength of ropes formed of the same hemp, and the same weight per fathom, but twisted respectively to two-thirds, three-fourths, and four-fifths of the length of their component yarns. In rope of two-thirds twist, the weight borne in two experiments was 4,098 and 4,250 pounds; three-fourths twist, 4,850 and 6,753 pounds; four-fifths twist 6,205 and 7,397 pounds. The result of these experiments led DUMAHEL to try the practicability of making ropes without any twist, the yarns being wrapped round to keep them together; these had great strength, but very little durability. In shroud or hawser-laid ropes the usual reduction of length by twisting is one-third; but cable-laid ropes further shortened, so that 200 fathoms of yarn are required to make 120 of cable. A hawser-laid rope 6 inches in circumference by 120 fathoms long, weighs about 10 cwt.; a cable-laid rope 12 inches in circumference and 120 fathoms long, weighs 36 cwt.; a hawser-laid rope 6 inches in circumference will bear a weight of 140 cwt. The tarring of ropes somewhat impairs their strength, but renders them more durable.

**SWEET POTATO PIE.**—Boil the potatoes very soft, then peel and mash them. To every quarter of a pound put one quart of milk, three tablespoonsfull of butter, four beaten eggs, together with sugar and nutmeg to the taste. It is improved by a glass of wine.

Good stables save good hay and grain.

### Effects of Heat upon Meat.

Prof. Johnston, in his Chemistry of Common Life, says that a well cooked piece of meat should be full of its own juice, or natural gravy. In roasting, therefore it should be exposed to a quick fire, that the external surface may be made to contract at once and the albumen to coagulate, before the juice has had time to escape from within. The same observations apply to boiling; when a piece of beef or mutton is plunged into boiling water, the outer part contracts, the albumen which is near the surface coagulates, and the internal juice is prevented either from being diluted or weakened by the admission of water among it. When cut up, therefore, the meat yields much gravy, and is rich in flavor. Hence a beef-steak or mutton chop is done quickly, and over a quick fire, that the natural juices may be retained. On the other hand, if the meat be done over a slow fire, its pores remain open, the juice continues to flow from within as it has dried from the surface, and the flesh pines and becomes dry, hard and unsavory. Or if it be put in cold and tepid water, which is afterwards brought to a boil, much of the albumen is extracted before it coagulates, the natural juices, for the most part flow out, and the meat served is nearly tasteless. Hence to prepare good boiled meat it should at once be put into water already brought to boil. But to make beef tea, mutton broth, and other beef soups, the flesh should be put in cold water, and this afterward very slowly warmed, and finally boiled. The advantage derived from simmering—a term not unfrequent in cookery books—depends very much upon the effects of slow boiling, as above explained.

**SELF-GOVERNMENT.**—Parents! to which danger had you rather expose your son—to the danger of an ungoverned horse or his ungoverned self? Depend upon it that "self" needs government, before your son is safe to enter upon the career of life more than his horse needs "breaking" before he can venture to trust him for a safe journey. As you love your boy then, see to it that he is governed and well governed when young; then will he go far and high in the career of usefulness and happiness of life. Teach him to govern himself *first*, and then he will be able to govern every thing that need be brought to his service.



*From the Southern Farmer and Planter.*

## A Practical Paper upon Gardening, Ditching and Improving Land.

*To which was awarded the premium of Twenty Dollars, by the State Agricultural Society of South Carolina, at its Annual Meeting, in November, 1859.*

BY D. WYATT AIKEN.

### INTRODUCTION.

In agriculture, theory and practice are by no means correlative terms. Theory depicts the planter's life one of ease, and portrays his arduous labors a task of leisure, while it flatters the sluggard, equipped with a little scientific knowledge, that planting, of all other pursuits, should be his. In theory "Paul may plant and Apollos may water," and the increase follows *ex necessitate*.

Theoretically, stimulating manures have only to be heaped upon all lands indiscriminately, and fat harvests will be reaped; or gullies are prevented by tapping the sub-soil; or the level has only to be applied, and hill-side ditches are located. Theoretically, grain must be sown in level furrows, or seed must be planted upon horizontal beds, to prevent the escape of the virgin soil. In fact, theory in agriculture attaches plausibility to the most visionary schemes.

How different is the result of actual practice! Practically, agriculture climbs high in the scale of sciences; it develops thought, matures judgment, and requires, for execution, untiring energy, perseverance and industry. The skillful planter stops not to theorize about the result effected by certain means applied; plow in hand, he grapples with the soil, sows his seed, vigilantly watches the progress of his growing crop, and after assiduous cultivation, at harvest time anticipates a yield commensurate with his unabated zeal. It is he who understands best the caption of this essay, and knows that the improvement of land consists in increasing its productive capacity. Nor does any one know better than himself that this end is attained in three ways:

1st, by ditching, *i. e.* hill-side ditching, draining and bottom ditching.

2nd, by cultivation, *i. e.* horizontal and grade culture.

3rd, by rotation of crops and manuring.

The first step, then, towards improving any plot of exhausted undulating land, is

the location of a series of ditches, so arranged as to empty, with least detriment to the land, all the surplus rain-water into the creek or branch bottoms below, or into the adjacent forests, or in some direction out of the field. To do this effectually the land must be studied. Its elevations and depressions must be studied; they must first be seen by the eye, and then made more perceptible by applying the level. The most practised eye should never venture to locate a ditch without the assistance of the level, in hilly lands, and the more moderately undulating the land, the more difficult the task, and the more judgment required to accomplish it successfully. It often happens that the particular inclinations of a large field are westward, while the general declination of the land is eastward, and *vice versa*, so that the level, when giving sufficient fall to the ditch, seems to the eye to be laying off a perfectly level line.

The nature of the land being understood, the next question is, where shall be the mouth or the source of the ditch. If the mouth be determined upon, commence there, and with the level run backwards or up the ditch, always following, and never straining or forcing the level from its indicated direction. If the source can be more easily fixed, apply the level there and run towards the mouth, always observing one absolute requisite in hill-side ditching, viz: never let any part of the ditch near the source have a greater fall than any portion between this point and the mouth; for if such should be the case, the water in this steeper portion, having an accelerated motion, becomes retarded as it reaches the leveler section, deposits its rolling sand, and heaps up upon the water in advance, and most probably causes a break in the ditch-bank just there. Where sudden curves occur in circling abrupt knolls, the ditch should be made wider and not steeper than the succeeding portions.

The general direction of all ditches, if practicable, should be down the branch; for the water must, sooner or later, reach the bottom, and the lower down the bottom it is emptied from the ditches, the less injury sustained by the bottom lands above.

The distances between ditches should be best known by the planters upon their respective farms, depending upon the declivities of the land and the nature of the soil. On steep hill-sides, ditches should be distant from each other from twenty to thirty

yards; upon gently inclined planes, from sixty to two hundred yards; upon stiff clay lands, close together; upon loamy soils or sandy lands, further apart. In a similar way should the fall of each ditch be determined, varying from two to four inches in every twelve feet, always observing to have the first or upper half of the ditch slightly more horizontal than the last or lower end.

Where the land is to be horizontalized, the ditches should have somewhat more fall than where the grade system is adopted, simply because where the horizontalization is complete, not enough water flows in the ditch to wash it into a gully; and when a freshet occurs, any water-furrow filling up and breaking over, produces a "wash" from this point in a straight line to the ditch below, and empties into the ditch at right angles, to its bank, a column of water which will certainly wash away the bank, unless sufficient fall is given to the ditch to change the direction of the water before this result is produced. In the grade system, where the ditch receives constantly the rain-water as soon as it begins to flow in the water-furrow, the injury to the ditch bank is not so great, because the ditch carries off the water gradually from its commencement to flow.

To make a hill-side ditch, run the first furrow with the level; on the upper-side and close to this furrow run three other furrows with a common shovel-plow. Draw the earth from these four furrows, with hoes or scoops, to the lower side of the first furrow. Then require all hands there at work to walk several times the entire length of the ditch upon this earth, thereby compacting it for a bank, while the plowman is running three more furrows just where the last three were run. Treat this earth the same as before, and run two more furrows on the upper side of the ditch, draw out the dirt, walk the bank thoroughly, and the ditch is complete, with an almost level bottom, there being a slight depression on the side next the hill.

If a ditch should withstand the ordinary rains of a season, and break over during an extraordinary freshet, it should not be abandoned, but should be deepened for ten or fifteen feet on either side of the "break," sufficiently to furnish earth for a new bank and to fill up partially the "wash" recently made, as far as the earth can be thrown

with the shovel. These sinks in the ditch act as deposits for the soil otherwise washed away, and can be emptied at leisure by scattering the sand in the wash below, which, when mixed with the clay previously thrown there, produces an improved soil.

#### DITCHING WET LANDS.

Wet lands cannot be drained by hill-side ditches, but must have drains dug for the purpose, either blind or open drains. From the lowest spot of the wet plot (found by the level) run a straight line to the nearest point, where an exit from the field or into the creek can be obtained; along this line dig the ditch circling, if necessary, any intervening or immovable obstruction, and when complete, observe if the water follows the course of the ditch. From the point where this drain began, continue the ditch through the wet spot until its source reaches the opposite side, or perhaps the highest point of the wet land. To be most effectual, the ditch should be left open. If necessary to be closed, lay tiling in the bottom, and throw the dirt back upon this tiling. If tiling is not at hand, many substitutes can be had by the planter. Three pine poles peeled, (the larger the better,) and two of them laid in the bottom of the ditch, and one just over these two, make a capital underground trough. An occasional rock thrown into the ditch covered with slabs, the sawed face downwards, answers a good purpose. The ditch half-filled with small stones, these covered with brush, and the ditch filled with dirt, is the best method of underdraining.

I once owned a sour spot of land contiguous to a road, in which there was always a mud-hole. Along the edge, and through the whole length of this sour spot, parallel to the road, I dug a ditch three feet deep and eighteen inches wide. From the middle of this ditch, and at right angles to it, a similar ditch was dug across the road, opening into the hill-side below. These ditches were filled eighteen inches deep with small stones, and the earth previously taken from these ditches returned upon the stones. To this day the road is dry in moderately wet weather, and that sour spot of land mellow, fertile and productive.

In draining wet spots on bottom lands, the draining ditch should always be run in a straight line to the creek or branch, entering the same at an acute angle, and the dirt



from this ditch invariably thrown on the lower side of the ditch.

#### DITCHING BOTTOM LANDS.

The protection of bottom land, by a successful system of ditching, involves an outlay too heavy to be borne by the majority of planters, particularly in the middle and upper Districts of our State, and hence the unsightly banks of sand, the decayed and dying timber, the crooked streams, and the prevalence of sickness on almost every plantation containing more or less of these valuable bottoms. Many planters, too, are prone to charge their willful neglect in this matter upon their next neighbor below. They say, "he will not ditch below, and hence, ditching mine is only digging a ditch to be filled up with sand." Such a plea is unwarranted, because any bottom worth the labor to be bestowed can be successfully ditched, and protected in cultivation, regardless of the bottoms above or below.

Before the main ditch is dug, drains should be cut on each side of the bottom, through its entire length, and just where the adjoining hill-side and bottom come together. The size of these drains is, of course, dependent upon the quantity of water flowing from the hill-sides after a heavy fall of rain, or upon the uses to which they may be put. If the bottom is to be enclosed with a fence, these drains may be three and a half feet wide at top, one foot at bottom, three feet deep and all the dirt thrown on the lower (or branch) side. Upon this bank an economical fence may be built, while the drain answers the purpose of carrying off the rain-water coming from the hill-sides. If care is taken to give these drains a fall of one inch in twenty feet, and their exits made at the lowest ends of the bottom, the water they contain is kept entirely from the volume, which usually flows in the branch. These drains finished, the main ditch must be dug, which should only follow the channel of the branch when it is in the lowest part of the bottom, (which is not always the case,) or when it is nearly straight. The ditch should always be straight, in the lowest bed of the bottom, and large enough to draw the water of all ordinary rains. Unless, from necessity, it should never run through the middle of the bottom, but have at least two-thirds of the bottom behind the bank, there being but one bank to the ditch; then if the ditch

has to encounter a freshet, only one-third of the bottom crop is liable to be overflowed, as the water in this third must be as deep as the ditch bank before the two-thirds behind the bank can be injured. If the ditch be in the middle of the bottom, only one-half the crop is protected; and if the dirt be thrown on each side of the ditch, making two banks, either or both are liable to be destroyed, and the entire crop lost. These ditch banks should be made solely of earth, unless a foundation cannot be obtained without the use of logs. Logs and brush put into a bank, made to confine running water, are oftener than otherwise an injury to the bank. At such places leakage is almost certain, and where either the logs or the brush project from the face of the bank, the constant laving of the water will, sooner or later, undermine the bank or percolate through behind the logs, and ultimately create a "crevace." If properly ditched, no lands remunerate the planter more handsomely than his bottoms. If improperly ditched, no lands subject him to a greater and more useless expense.

#### SYSTEMS OF CULTURE.

Some agricultural writers are accustomed to speak of the different systems of culture. I incline to the opinion there should be but two systems of culture, viz: The horizontal and the grade systems. To speak of the up and down hill method of destroying land, as a system, is akin to calling ours a system of stock-raising, when our cattle and stock generally are turned out to seek a sustenance upon the unenclosed pasture lands of our neighbors. The one is as systematic as the other, and both equally condemned by charity and science.

Perfect horizontalization is certainly practicable, but that is sure protection to both land and crop against freshets, however great, I hold to be an error. Innumerable causes, which the vigilant eye of the most skillful and energetic planter cannot prevent, will, at one time or another, produce "breaks" upon the hill-side, and often upon a comparatively level plot of land. A tree, a stump, a rock, an unfinished furrow, irregular plowing, and, most of all, shallow plowing, are all obstacles in the way of the horizontalizer. That these should discourage him, is no argument, however, against the horizontal system of cultivating our crops.

The prime necessity in preparing a field for horizontalization is, to protect it perfectly from all water except what falls upon it from the heavens above. The adjoining forests, or roads, should be so ditched as to prevent any water flowing into the enclosure, for it is most often the running water, and not the falling rain, which destroys the labor of the horizontalizer.

This prevention being effected, the planter is ready for his work, and begins horizontalizing by finding with his level, the highest point of the field, and the longest row or bed which passes through this point. The first corn or cotton bed may not be over ten feet long, and must be straight. On each side of this straight bed two or three more must be "laid off," each bending inwards at the ends, until it meets a fellow at the opposite side of the straight row. The plow team must never stop until the ends do meet, for stopping the team before the shovel reaches the end of the bed, leaves a mound in the water-furrow, which diminishes its capacity to hold water, and often causes a "break." This irregular plowing will certainly be done, unless each plowman is instructed as to his certain duty; *i. e.*, never to stop his mule until his shovel reaches the extreme end of the bed.

These few being finished, at a distance from the last bed equal to the space occupied by a couple of beds, apply the level. It will, directly, as you follow it, diverge from the last bed, and assume a direction possibly the reverse of that indicated by the eye. But the horizontalizer should always bear in mind, he is to follow the level, and not the level follow him. This guide-row now laid off by the level, may reach the opposite side of the field six or eight beds distant from the row from which it was but six feet at the commencement. This divergence, which is strictly a spirical angle, must be filled up by short rows, the first being "laid off" parallel to the long guide-row, and the return furrow parallel to the short completed bed, observing as above to make their angle of union complete, and not allow the plow to stop as soon as the team reaches the end of the row.

This much done, the planter begins again with his level three, four, five or six (never more) rows below the lower end of the last guide-row, and follows his level in the opposite direction from the row last run. This row may diverge and its end be five and

twenty beds distant from the beginning of the row above. If so the level is again applied in the angle, and several short rows run, when the divergencies are filled in as directed above. If this method is followed, the lowest point of the field will ultimately be reached, and none of the work of to-day injured by the rains of to-night. The same direction should be followed in the cultivation of the crop—always begin on the highest point. If the planter begins to horizontalize at the foot of the hill, and climbs the hill, all the labors of to day may be destroyed by the rains of to-morrow. If galled places are to be encountered, the horizontalizer should not be deterred, but follow his level across them; it knows how to manage broken as well as smooth surfaces, and will turn the planter up as he approaches, and down as he recedes from these spots, without the assistance of a thought. If gullies are met with, they should be filled up by dams of stone, brush, pine-tops, with the straw pointing up the gully, or by driving stakes, a few inches apart, across the gully, and interlining willow or green limbs. The last span or two of the level being inclined slightly towards the gully, will, after a few heavy rains, furnish earth enough to partially fill an ordinary gully.

A field in small grain stubble, or one previously cultivated in corn or cotton, is more easily horizontalized than one freshly broken up, because the smooth, worn stubble land, or the regular and equal undulations of the cotton or corn beds, do not present so many irregular depressions as the newly plowed field. The surface, moreover, is firmer, and does yield to the weight of the level. As the field is laid off horizontally, it should be bedded "out and out" immediately, or the irregular ridges between the horizontal furrows, not being themselves horizontal, will occupy the space which should be occupied by water after a rain, and a break is often the consequence.

When one bed yields to the water, this running water does not stop until it reaches the hill-side ditch below. Its passage across the beds may be a straight line, or it may be a zig-zag rill, washing through one bed here and another there. To prevent these overflows entirely is practically impossible, for sometimes, falls of three, four or five inches of rain occur in a single afternoon; and this quantity of water will fill



up the water furrows and overflow the beds before the most thoroughly pulverized soil can absorb the half of it. On the 15th, 16th, and 17th of last May, my plantation was flooded by successive unusually heavy rains. My cotton, in stiff clay land, had been planted in a scooter furrow on the bed, covered by a double-footed scooter plow, and harrowed off as it was nearly all coming up. This harrowing had made the land comparatively level, and these heavy rains overflowed the entire crop in a sheet of water, without a perceptible injury to the land. Some of my corn was in sandy, loose land, planted on the top of very high beds, but had not been worked. The high horizontal beds became so saturated with water, and the subsoil failing to absorb it rapidly enough, they actually slipped, in regular land-slide fashion, down against the bed next below, without even diverting the young corn from its erect, growing position. No system of horizontal culture can survive such freshets. But they do not often occur, and their evil effects must be remedied afterwards, which I propose doing thus: Just where the break first occurs across any bed, a rectangular hole is dug, say eighteen inches wide, and three, four, six, or ten feet long, (as the damage done may require, parallel to the bed, and deep enough to furnish earth to replace the broken places in the next few beds below. The distance between this hole and the next hill-side ditch below is divided into so many equal parts, and at each point of division a similar rectangular hole is dug, furnishing earth for the breaks below, and so on to the ditch. Should the ditch break over, the same kind of hole is dug in the ditch to procure earth for a new bank. These holes will, in time, be filled up by the constant plowing beside and near them, and by the rain-water draining into them from the adjacent water-furrows, bringing along with it more or less soil or sand. The hole in the ditch will, after the first rain, be filled with excellent soil, to be scattered upon the washed spots below. If such rectangular holes be dug across gullies at small intervals from each other, and the dirt thrown on the lower side, they will rapidly fill up a gully, as the rain will soon fill the holes to their original level, with sand.

#### GRADE CULTURE.

The Grade culture is best adapted to hill-

sides and wet spots. If the wet places are higher than the branch, they may sometimes be dried sufficiently for cultivation by deep plowing and a gradual fall given to each row towards the branch. Such places are generally dried by blind ditches. But on hill sides this system is more feasible than the horizontal system, because it is impossible for a horizontal corn or cotton bed, on a steep hill-side, to contain all the water that falls into it. In practicing this system of culture, a furrow should be run by the level, with one inch fall to every span of the level, beginning at the highest point of the hill, on the side where the ditches empty, and running in a direction, crossing ditches, and not stopping until the hill is circled or the bottom reached. Fill in the angle as directed for horizontalizing, and, if short rows occur, they must have a slight inclination in the same direction. The reason for beginning these furrows at the mouths, and not at the source of the ditches is obvious. If a row with one inch fall begun at the source of a ditch having three inches fall, they must diverge from each other, and a furrow so run from the source of the second ditch, for instance, upon a hill-side, would very soon strike the first ditch above on the lower side or behind the bank, and having a descending grade, would empty its water against the bank and form a gully.

There are circumstances under which the horizontal is the most destructive system of culture:

In the first place, if the planter is not indefatigable and unceasingly watchful, all the little breaks over his horizontal beds will soon become gullies, never to be obliterated.

Secondly—If the seasons are too wet, his corn fires, and his cotton grows too much to weed. And if too dry, the roots of both corn and cotton are scorched. During the past season horizontalizing has been injurious to my own crop. An excessive drought of eleven weeks and three days baked the land until any little shower would deposit puddles of water in my horizontal water-furrows, which, when heated by the scorching sun, burnt the surface roots of both corn and cotton.

And thirdly—Horizontalizing requires the planter to be content with moderate crops and an improving plantation, in lieu of large crops and speedy emigration.

## THE LEVEL.

The level being among instruments the planters' reliance, a description is probably requisite of the one I use, and so often spoken of in this essay. Several kinds of levels are recommended—some too tedious to handle, and others too complicated for plantation purposes. I use simply a rafter level of twelve feet span, made by my own negro carpenter, and altogether accurate enough for the planter. A plummet is ordinarily attached to this level, but where perfect accuracy is required, a spirit level is *hinged* upon the cross-bar of the level, one end being made stationary by a hinge, and the other free to move up and down.

In using the level, I take with me into the field a small boy, with a hoe. Placing the level where I wish to begin, he is made to dig a hole in front of each foot of the level. Starting in the direction I wish to go, the rear foot of the level is placed where the front foot stood, and as soon as the proper pitch or level is found, "chop," is cried by myself, and the boy digs another hole in front of the foremost foot of the level. This proceeding is continued to the end of the row or ditch. The fresh dirt from these holes can be seen for many yards, and are plowed through by myself, leading my gentle mule, and a trusty plowman holding the handles. I lead, following the course of the holes, and he holds the plow erect; no line is used at all. I greatly prefer this extra labour to the "gee" and "haw" movements of the very best plowman. Some planters use little sticks instead of digging holes with the hoe. The hoe is easier carried than an armful of sticks. If the level is followed, and never driven, it will never lead the planter astray.

The third, and probably most important point, in improving lands, is the rotation of crops, and the accumulation and application of manures. A few words will suffice for my views (which is my practice) on these subjects.

## ROTATION.

Divide the plantation, as far as practicable, into four equal parts—as many fields as you please. Upon one of these fourths plant cotton, upon another corn, upon a third small grain, (wheat, rye, and oats—let the barley and turnip patches be pet

lots near the house,) and allow the last fourth to rest. Prepare this resting fourth properly and thoroughly in the fall, for cotton the next spring. Plant corn next spring where cotton was this year, and sow small grain this fall upon the corn land of this year. The stubble land of this year rests next year.

A similar rotation may be made of the pet patches near the house. Put one in potatoes, one in barley and one in turnips; let the fourth rest. Sow turnips on the rested land; follows turnips with barley, and barley with potatoes. Sow peas on the resting land, and when ripe plow under peas, vines and all.

## MANURING.

To improve land by manuring, every vestige of vegetable matter left on the land after harvesting should be plowed under, and nothing should be burned.

If foreign manures are to be used, as guano or phosphates, they should be rolled in moistened cotton seed. The lint will absorb the manure, and afford the easiest method of scattering it. This compost, when used on small grain, should be sown broadcast in such quantities as the planter thinks he can best afford it. For cotton or corn it should be drilled. I have always found the heavier the manure, *ceteris paribus*, the more abundant the yield.

From thirty to fifty bushels of raw cotton seed per acre, broadcasted, is fine manuring for small grain; and from twenty to thirty in the drill, is equally good for cotton or corn. My experience is, that cotton seed, composted with any kind of manure, is more profitable than the same quantity of either applied alone.

All home-made manures should be applied broadcast. A large bulk in this way covers but a small area of ground, but that area is productive for several years, it matters little what is planted upon it. In the drill or in the hill, such manures benefit the immediate crop, but they must be applied often to produce lasting effects.

A minute description of the *modus operandi* necessary to enlarge the manure heaps, does not properly belong to this essay, but the general methods of making manure may not here be inappropriately related.

In the first place, stated times and regu-



lar hands should be employed to collect trash, leaves, and litter for every spot where every kind of stock is required to stand or rest, night or day. The stables, the cow-house, the hog-pen, the sheep-house, and the lots surrounding these houses should be regularly littered. When this litter was well trampled in the lots, it should be raked up into large heaps *under shelter*, during dry weather; it should never be touched in wet weather. These heaps composted with cotton seed early in the spring, make the best possible manure for cotton. Stable, cow-house, or sheep-house manure, or all manures made under shelter, should be moved but once, directly from the shelter to the stubble land upon which cotton is to grow the following season. This stubble resting the entire year, may be manured or "broken up" whenever time and the season will admit. Manure hauled out in dry weather (for in wet weather neither wagon or hoof should enter a field) during the spring, or summer, or fall, and throw in heaps of ten bushels each, will remain upon this stubble until time can be had to scatter and plow it in without a material loss of any of its virtues. It is, however, easier and more economical to scatter manure from the wagon, and plow in as scattered.

In the second place, no rainy days should be lost on a plantation, unless the rain falls very heavily and constantly. The simplicity of machinery has superseded the cotton-card and spinning-wheel, so that it is cheaper to buy than make thread. The time heretofore devoted to such in-door work should be spent making manures—either turning over that already made, or raking trash for new heaps. To expose negroes in this way, however, is only economy when they are glad for the occasion. An oil suit can be made or purchased cheaply for each hand, which will, in one winter, save time enough to pay for itself, and it will last five or six years.

In the third place, a sink should be dug in some convenient place and sheltered, into which is thrown the chips and trash from the wood-yard, sweepings from the house-yard, slops from the chambers, kitchen and wash tubs, bones, occasionally a little lime, salt and sand, and every dead chicken, pig, turkey, and, in fact, everything useless about the premises that can be made to rot. This sink will furnish the planter annually

with an amount of excellent manure, incredible to those who have never tried it.

In the fourth place, no planter should keep more stock than he can conveniently pen every night in summer, or house every night in winter. Too much stock will irrecoverably impoverish any plantation, and be themselves always poor. Just enough stock will furnish droppings and compost manures worth infinitely more than the gleanings of which they have robbed the plantation. Every horse should be made to pay in manure for the fodder and hay he eats during the year; sheep and cattle for the shucks they eat during the winter, and each hog for one-third the corn he eats, after penned for fattening.

And, in the fifth place, if the planter's object be the reclamation of land, nothing should be lost—neither time nor labour; nor must he lack judgment or energy. Indeed, he must possess all the cardinal virtues. Patience must be added to his perseverance, idleness subtracted from his industry, carefulness multiplied by his vigilance, and his expenditures divided by economy.

Respectfully submitted,

D. WYATT AIKEN.

### The Edible Bird's Nests.

The birds' nests which are esteemed so great a luxury in China have become an article of consumption in Paris. Although by far the greater portion of what is consumed under that name is nothing more than fish-glue, still the genuine nests can be purchased at about \$70 per hundred weight in its crude state. The chemist, M. Paven, received some years ago samples of an East Indian plant, known under the name of China moss. He recognized it as one of the alga of Java, the *gelidium corneum*. On submitting it to chemical analysis, he obtained clear gelatine, far preferable in that obtained from fish. Comparing it with the Chinese birds' nests he found that the swallows which make these nests must make use of the alga, working over its gelatinous matter as our swallows do in plastering up their nests. This solves a problem of long standing among naturalists, whether the edible birds' nests are of animal or vegetable origin; they are both.

*From the British Farmer's Magazine.*

## The Early English Agricultural Authors.

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

In a recent number of this valuable magazine I endeavoured to trace some of the earliest-written laws relating to the agriculture of our country from old British days to the time of Henry VIII. It was in that reign that the first two works on English farming were printed. These were the treatises of Bishop Grotehead (or Greathead) and of Sir Anthony Fitzherbert. To these very curious little works I propose in this paper to direct my readers' attention.

It will be well, however, if we first briefly pause to remember what kind of tenantry—what sized farms were held by the husbandmen to whom those two learned authors addressed themselves. As I have on a previous occasion remarked, when alluding to the early notices of English farming, the native Britons, it is very certain, appropriated but small portions of the land for raising corn, or other cultivated vegetables, and the rest of the country was left entirely open, affording a common pasturage for their cattle, and *pannage* for their swine. Under the Roman government the extent of cultivated ground must have considerably increased; yet the oldest writers agree that by far the greatest proportion of the country was occupied by heaths, woods, and other unreclaimed wastes.

When the Saxons established themselves in the island, an almost total revolution in the proprietorship of the lands must have occurred. The conquest was only accomplished after a bloody struggle; and what was won by the sword was considered to possess an equitable title that the sword alone could disturb. In those days it was supposed that the lands of a country all belonged to the king; and on this principle the Saxon monarchs gave to their followers whatever districts they pleased, as rewards for the assistance afforded in the conquest, reserving to themselves large portions, and imposing certain burdens upon each estate, granted (*Coke's Littleton*, 1, 58, 2; *Blackstone's Comm.*, 45, &c.) This was only a continuance of that feudal system that prevailed upon the continent; and we may take the county of Sussex as an example how the land was carved out among the aristocracy in the days of our Norman kings, reckoning a *hide* at 100 or 150 acres:

*Hides.*

|                                       |      |
|---------------------------------------|------|
| The King had.....                     | 59½  |
| Archbishop of Canterbury.....         | 214  |
| Bishop of Chichester.....             | 184  |
| Abbot of Westminster.....             | 7    |
| Abbot of Fecamp.....                  | 135  |
| Bishop Osborn.....                    | 149  |
| Abbot of St. Peter's, Winchester..... | 33   |
| Church of Baule.....                  | 60½  |
| Comes of Oro.....                     | 196½ |
| Comes Roger.....                      | 818  |
| William of Braiose.....               | 452½ |
| Abbot of St. Edward.....              | 21   |
| Comes Moriton.....                    | 520  |
| William of Warrene.....               | 620½ |
| Odo and Eldred.....                   | 10   |

The great proprietors granted the chief part of their estates to the actual cultivators of the soil, receiving in general from the under-tenants certain proportions of whatever might be the productions of the farms. Thus we find one tenant stating, "I give food to seventy swine in that woody allotment called Wulfedindleh, and five waggons-full of good twigs; and every year an oak for building, and others for necessary fires, and sufficient wood for burning." (*Bede, Hist. Append.*, 970.) The rent of ten hides of land were even regulated by two of the laws of King Ina. They enacted that the tenant of such extent of land should render to the lord ten vessels of honey, three hundred loaves, twelve casks of Welsh ale, thirty of clear ale, two old rams, ten wethers, ten geese, twenty hens, ten cheeses, one cask of butter, five salmon, twenty pounds' weight of fodder, and one hundred eels; or else ten mittas of malt, five of grits, ten of wheat flour, eight gammons, sixteen cheeses, two fat cows, and in Lent eight salmon. (*Wilkins, Leges Saxon*, 25, 3; *Gale's Hist. R.*, 410.) Such grants were usually to the tenant and his heirs forever, so long as they afforded the accustomed rent; and I am not aware of any grant or lease extending for a shorter period than the life of the tenant. An example of these occurs in the year 852, when the abbot and monks of Medehamsted let some land at Sempingham to a tenant named Wulfred, for his life, on condition that he annually paid them sixty fother of wood, twelve fother of *græfsm* (coals,) six fother of turf, two tons of clear ale, two killed oxen, six hundred loaves, ten casks of Welsh ale, one horse, thirty shillings, and a night's lodging. (*Saxon Chronicle*, 75.)

As this feudal system declined, and was finally extinguished in the twelfth year of



Charles II., so proportionally did the landed interest increase in prosperity. Freed from the burden of furnishing a soldier and his armour for every certain number of acres, and all restrictions as to land changing hands being removed, and the numerous impositions being got rid of, with which the lords oppressed their sub-infeudatories, it soon became a marketable species of property; and, as money and merchandise increased, and the proprietor lived less upon his estate, it soon became the most eligible plan for both landlord and tenant, that the whole rent should be paid in money.

Of the size of these early farms we have no precise information; but from the laws of Ina we may perhaps conclude that a hide of land, equal to about 100 or 120 acres, was the customary size; for, in speaking of the produce to be given to the lord for ten hides, the law speaks of the smallest division of each county of which it was particularly cognizant; namely, of ten families, or a tithing, as they were collectively called. Again, Bede expressly calls a hide of land familia, and says it was sufficient to support a family. It was otherwise called mansum, or manerium, and was considered to be so much as one could cultivate in a year. (*Henry of Huntingdon*, vi. 2,066.)

That in the time of Henry VIII. rents were payable in money, we have the evidence amongst others of Bishop Latimer. He flourished in the early part of the sixteenth century, and his father was amongst the most respectable yeomen of his time, yet his farm probably did not much exceed one hundred acres. He observes in one of his sermons, "My father was a yeoman, and had no lands of his own; he had only a farm of £3 or £4 a-year at the utmost, and hereupon he tilled as much as kept half a dozen men. He had a walk for one hundred sheep, and my mother milked thirty kine."—(*Sermons*, p. 30.)

It is evident, from the constant reference to woods in these husbandry notices, how valuable they must have been in those days for fuel, since pit-coal was not then extensively available. Their value of course increased towards the northern portion of our island, so that we find the Scottish Parliament directing the planting of timber trees.

In 1503 (the 6th of James IV. of Scotland) it was ordered "that everith Lord or Laird make them to have Parkes with Deare, Stanks, Cuningares, Doweatties, Orchards,

Hedges, and plant at the least ane Aicker of Wood, quhair there is na greate Wooddes nor Forrestes."

Other acts of a similar kind, for the promotion of the growth of timber, had been previously made; and again in 1535.

The clergy and the rural life of those days seem to have had little reverence for God's house or God's acre; for in the same year it was ordered by the Parliament that "nor Faires be halden upon Halie days, nor zit within Kirkes nor Kirkezairdes upon Halie daies nor uther daies."

Such were the primitive habits and modes of cultivation, down to the time of the two old agricultural authors, whose works I now propose to describe.

Sir Anthony Fitzherbert, as I have in another place remarked, (*Quar. Jour. Ag.*, vol. ii., p. 491,) was the youngest son of Ralph Fitzherbert, of Norbury, in Derbyshire. He was educated at Oxford; and when called to the bar by the Honourable Society of Gray's Inn, "his great parts, penetrating judgment, and incomparable diligence," says his biographer, "soon distinguished him in his profession." He was made a serjeant-at-law in 1511, and was knighted five years afterwards. In 1523 he became one of the Justices of the Court of Common Pleas, in which year he published, it is supposed, his "*Boke of Husbandrie*;" for a copy was possessed by the late Mr. Heber, bearing that date, "imprynted by Rychard Pynson."

Fitzherbert's biographer adds, truly enough, that "he has held the oracle of law in his time." He evidently possessed the most undoubted courage and the most uncompromising integrity. He was one of the very few who dared to oppose Cardinal Wolsey in the height of his power. On his death-bed, at a period when almost all were eagerly scrambling for the spoils of the Church of Rome, he solemnly warned his children on no account to accept of any of the sequestered property of the abbeyes.

To this injunction his descendants inflexibly adhered. They have often been honourably distinguished in the ranks of literature and in the public service of their country. The family was ennobled in 1801, when Alleyne Fitzherbert was created Lord St. Helens.

Sir Anthony Fitzherbert died on the 28th of May, 1838, and lies buried in his own parish church of Norbury, where, on his

gravestone of blue marble, was long to be seen the following short and modest inscription :

"Of your charitic, pray for the Soule of Sir Anthony Fitzherbert, Knyght, one of the King's Justices of his Common Bench, and sometime Lo. and patron of this Towne, and Dorothy his Wife, daughter of Sir Henry Willoughby, Knyght, &c., which Sir Anthony deceased 27 May, 1538."

Of his great law works, by which he is so well and so honourably known to the law-student, this is hardly the place to describe. His "Natura Brevium," and his grand "Abridgment of the Laws," the great Sir Edward Coke has well described, when he is speaking, in his preface to his Eighth Report, of the first-named, and of the last says, "it is an exact work, and exquisitely penned." (Preface to Tenth Report.)

In the Library of the British Museum will be found a small duodecimo volume, entitled "The Boke of Husbandry," by Sir Anthony Fitzherbert, published in 1534; and this is certainly the earliest extant work on husbandry, that professes to be written by an Englishman.

It commences by saying, "Here begyneth the Boke of Husbandry, and fyrste whereby husbandemen do lyve."

An early section is of "dyvers maner of plowes."

It is evident from this that, even in those days, there were different kinds of ploughs used in various parts of England; for, as our author remarks,

"One plowe will not serve in all places; wherefore it is necessary to have dyvers sortes. In Somersetshire, Dorsetshire, and Gloucestershire, the share beam, that in many places is called the plow head, is four or fyve foote longe, made very broad and thinne; and that is because the land is very toughe, and would suck the plowe into the earth, if the share beams were not very longe, broade, and thinne. In Kent they alter muche in fashyon; for there theye goe upon wheeles, as they do in some parts of Hartfordshire, Sussexe, and Cornewalle. But," adds Fitzherbert, very wisely, "neither wyll I stand too stryctly on theyr fashyon, sythe theyr is no countye but custome or experience hath instructed them to make choyce of what is avaylable; and he that wyll lyve in any cuntrye may by free charter learne of hys neighbours, and howsoever any plowe be made or fashyoned, so it

be well tempered, it may the better be suffered."

Sir Anthony, like Bishop Greathead, was a decided advocate for the use on heavy soils of oxen in husbandry. He had evidently thought much on the subject. It is curious to see how closely the arguments on the subject by a farmer 340 years since, resembled those of modern agriculturists. At the conclusion of a section devoted to the subject, he remarked: "If any sorance betyde a horse, as old age, bruysyngs, blyndness or lameness, then is he worth nothyng except for a kennell of noyse-beggetyng hounds, (we might suspect from this remark, that the learned judge was no friend to the delights of the chase.) But if myschief befall an ox, for ten shyllings at any tyme he may be fed, and then he is man's meate, and in that degre better than ever he was. These reasons and circumstances considered, I am of the poet's opynyon, that the plowe of oxen is much more profytable than the plowe of horses, to whych the Holy Scryptures condescend; for wheresoever it speaketh of husbandrye, it only sayth the ox to hys yoke for labour."

After telling the farmers of his time how they should plough different kinds of land "all times of the yeeare," he then proceeds in a natural order of arranging his work, to seed sowing. He commences with a seed, which should be mingled, in fact, with all other kinds, and which he thus describes: "There is a seed called dyscretyn, if a husbandman have of that seed, and myngle it amonge his other corne, they wyll grow doubtless much the better." And he adds: "Thys seede of dyscretyn has a wondrous vrytue, for the more it is eyther taken of or lent, the more it is."

To Sowe Barley is the title of a section at page 10. It seems that in those days there were "thre manner of barleys, that is to say: spot barleye; longe eare; and bere barley, that some menne call bigge."

"To Sowe Otes" is the next title of a section. Our author says of this crop, "It is to be knowen that there be III. manner of oats, that is to saye: redde otes, black otes, and roughe otes. Redde otes are the best otes, and very good to make otemele of." Black otes he deemed inferior to the red, and he adds, "the roughe otes be the worst: they be very lighte, and have long



tayles, whereby they wyll hange eche one to other."

He goes on to say, "all these manner of otes weare the grounde very sore, and maketh it to bear quyche."

He leaves the quantity of seed oats to the farmer; "hys wysedome and discretion muste discerne it."

He proceeds to treat of "how to harowe all manner of corne." The ploughing of those days was evidently ill done, and the harrows heavy and rudely constructed. Fitzherbert remarks, "it is a great labour and payne to the oxen to goo to harowe, for they were better to goo to the plowe two dayes than to harowe onc daye. It is an old sayinge—

The ox is never woo  
Tyll he to the harrowe goo.

It is because it goeth by twytches and not alway after one draughte."

It seems from what he says in his chapter "howe forkes and rakes should be made, (p. 19,) that the husbandmen of that time made their own."

When he speaks of haymaking, p. 20, he truly enough remarks, "good teddyng is the chief poynte to make good hey."

Of artificial manures, they were evidently in those times not altogether unacquainted, for Fitzherbert in his chapter of "how to make barrayne grounde brynge forth good corne," recommends the mingling of saltpetre, dregs of oil, and pigeons' dung with the seed.

Then he has a chapter on "howe to carrie out manure or dunge, and how to spreade the same." He advised his brother-farmers that it should be "layed up in small heaps neere together;" "to spreede it evenlye;" to leave none where "the greate heepe stoode," and not to let the heaps stand too long, lest if they took a shower of rain the goodness of the manure should "runne into the grounde where the heape standes, and the rest when it is spreade wyll lyttle profyt." He also recommends the use of "marle."

Another of the books into which the work was divided, is devoted to the "breedyng, oderyng, and usage of cattell by the whatsoever els appertaynes to theme, and fyrst of sheepe." In this, when speaking of "what thynges rottethe sheepe," he gives a list of things, such as "the grasse called spear-woorte," and another called

"penny-grasse," and also "all manner of grasse that the lande floode runneth over;" all "marrishé grounde and marshe groundes, salt-mashes only excepted." And then he adds, "hunger rotte is the worst rotte that can be."

It is ever noticeable that in all barbarous countries, and even in those approaching towards civilization, to the women is assigned labours for which men are better adapted. It is more especially so in the warmer climates of our globe; but even in northern England, in Fitzherbert's book, we find the following grave assignment of hard duties to a farmer's wife of the time of Henry VIII.—

"It is the wyfe's occupayon to wynnow all manner of corne, to make malt, to wash and wringe, to make haye, to sheere corne, and, in tyme of needs, to help her husbände to fyll the muckwayne or dunge-cart; to dryve the plowe, to loade corne, &c.; to go or ryde to the market, to sell butter, mylk, cheese, pygges, and all manner of corn," &c.

After describing the sundry duties of the wife in attending the market, our author goes on to remark --

"And also to bye all manner of necessary thyngs belongynge to householde, and to make a trewe rekenynge and a compte to her husbände what she hath receyed and what she hath payed; and if the husbände go to the market to bye or sell, as they ofte do, he then to shewe his wyfe in lyke manner. For if one of them shoulde use to deceyve the other he deceyveth hymself, and he is not lyke to thryve, and therefore they must be trewe cyther to other. I could, peradventure, shewe the husbandes dyvers poynts that the wyves deceyve them in, and in lyke manner howe husbandes deceyve their wyves; but if I shulde do so, I shulde shewe more subtyll poyntes of deceyt than either of them newe of before, and therefore me semeth beste to holde my peace."

The "Thyrde Boke" of husbandry is upon planting timber trees, of which he was evidently enlightened enough to perceive the private and national advantages. Then there is added to the work sundry domestic matters, which Fitzherbert most probably never intended to appear in a book of husbandry—such as the sections on the use of the cinnamon, cloves, pepper and

other spices—receipts for “a balme,” and “an approved receypte for the gowte.”

His “Fourthe Booke” is still more of a domestic nature, “contaynyng the orderyng of an householde.” In this he is particular in his directions how the men-servants should be kept in order and honest, for he had evidently a strong suspicion that in those days they were roguishly inclined. Then he proceeds to give directions for breeding all kinds of pcultry—how many eggs should “be sette under your henne,” and says the number should “be odde,” either a “fyfteene or nynettee,” according to the season; and then he has several other little sections on similar subjects, and so rarely makes a mistake in his common-sense observations, that we are the more amused when he tells us very gravely, when speaking of swans, that “when they waxe olde they do declare the tyme of theyr owne death to be neere approachyng by a sweete and lamentable note whych they then syng.”

Towards the close of this book, Fitzherbert has sundry chapters full of quotations from the holy fathers regarding pleasing God, almsgiving, prayer, &c. Living however, as he did, in very ticklish Protestant and Popish days, when heresy was treated in a very summary and fiery manner, he thought it well to add—

“I make protestation before God and man that I intende not to wryte anythinge that is or may be contrary to the fayth of Cryste and of Holy Church; but I am redye to revoke my sayinge if anythinge have passed my moulthe for want of lernynge, and to submytte myself to correction, and my boke to reformatyon.”

“Go lythell quere, and recomende me To all that this treatysc shall se, here or rede; Prayenge them therewith content to be, And to amende it in places where, as in nede, Of eloquence they may perceyve I want the seide.

And rethorike in me doth not abounde, Wherefore I have sowe such seeds as I foud.”

At page 91, Fitzherbert thus concluded his book—

“Thus endeth this rygnt profytable boke of husbundry, compyled sometyme by Maysster Fitzherbarde of charytie and good zeale that he bare to the weale of this mooste noble realme, whyche he dydde not in his youthe, but after he had exercysed husbundry with great experyence xl. years.

“Imprynted at London, in Flete-street, in

the house of Thomas Berthelet, nere to the condite, at the syng of Lucrece. Cunn pri-  
vielgio.”

In the same volume of the British Museum Library is also bound up another work of Fitzherbert's entitled, “Surveyinge, A. D. 1539.”

The work of Bishop Grotchede, or Greathead, disputes with the Boke of Fitzherbert the merit of being the first English treatise on agriculture. The claims of both these interesting works have been, on a recent occasion, too fairly and clearly stated by the editors of the “Cottage Gardener” to need any other description (“Cottage Gardener,” vol. xxxii., p. 52)

After alluding to the edition of Fitzherbert printed in 1523 by Richard Pynson, they add—

There is as early, if not an earlier, work, however, even than that of Fitzherbert's.—It is entitled as follows:—

“Here begynneth a tratyse of Husbandry which Maysster Groshede, sometyme byshop of Lyncoln, made and translated it out of Frenshe into Englyshe, which techeth all manner of men to govern theyr londes, tenements, and demense, ordinaty as in the chapytres evidently is shewed.”

Now, whether or not this “tratyse” was written by “Master Groshede,” it is quite certain that it was printed by Wynkn de Worde, who was Pynson's contemporary, their earliest books being printed in the same year, 1493, and they continued rivals and publishing the same books until the date of Wynkyn de Worde's death in 1534. A few instances may be quoted. De Worde published *Mons. Perfectionis* in 1497, and Pynson did so the same year; Pynson published *Dives and Pauper*, in 1493, and De Worde issued it in 1496; De Worde brought out *The Siege of Troy* in 1503, as did Pynson in 1513. That Wynkyn de Worde did print the “tratyse” is proved by the copy, the only one known to exist, in the University Library at Cambridge. It has his monogram, and is, beyond a doubt, from the same sharp, broad-faced old English type, and of the same black, unbroken ink as gave birth to other acknowledged works from his press. It is without a date; but either it was published as a rival to Fitzherbert's “Boke,” or this “Boke” was published to oppose Grosseteste's “Tratyse.”

It is a small quarto of twelve leaves. On the first page is a woodcut representing a



a steward or other party of authority, who, with hands outstretched in astonishment, is reprehending a woodman, who certainly needed the reproof, for he is cutting off the top of a tree by the blows of an axe, which have made a ruinous gap half-way up the trunk.

As it certain that it was printed by Wynkyn de Worde, so is it equally beyond a doubt that it treats of English husbandry. Groshede may have first "made" it in French, and then "translated it out of Frenshe into Englyshe," but still the truth is apparent that it is written concerning English husbandry, all the measures are English, and so are all the attendant particulars. The best evidences of this that can be placed before our readers are the following extracts:—

The first is what we should now call a "Table of Contents"—

"The i chapytre telleth how ye shall spende your good and extende your londes.

"The ii chapytre telleth how youre londe shall be mesured, and how many perches maketh an acre, and how many acres maketh a yerde of londe, and how many yerdes maketh an hyde of londe, and how many hydes maketh a knyghtes fee.

"The iii chapytre telleth how many acres of londe yt a plough may tele in a yere.

"The iiij chapytre telleth a plough of oxen or a plough of hors may tele more londe in a yere and which is more costly.

"The v chapytre telleth in what season ye shall begynne to falowe all maner of londes.

"The vi chapytre telleth how ye shall lay youre londe at sede tyme.

"The vii chapytre telleth how your londe shall be sowne in all seasons.

"The viii chapytre telleth how ye shall chaunge your sede and nouryshe your stuble.

"The ix chapytre telleth how ye shall nouryshe your dounge and wede your corne, and how it shall be mesured out of the barne, and how moche an acre shall yelde agayn more than your sede yt ye sholde have wynnyng therby.

"The x chapytre telleth how ye shall chaunge all maner of catell in season.

"The xi chapytre telleth how ye shall change youre werke bestes and wene youre calves, and what prouffyte ye shall have of your kyne, and vayll to butter and chese.

"The xii chapytre telleth how ye sholde nouryshe youre swyne and your pygges.

"The xiii chapytre telleth howe ye shall nouryshe your shepe and dyvers medycynes for theym

"The xiiii chapytre telleth what profytes ye shal have of youre gtees and hennes.

"The xv. chapytre telleth how ye shall by and selle and preve youre weyghtes.

"The xvi chapytre telleth how ye shall take a compte of youre balyf ones a yere."

Of these "Chapytres" I will republish four:—

"The ii chapytre.

"It is to wete that thre barly cornes take oute of ye myddes of the eer maketh an ynehe, and xii ynehes maketh a fote. And xvi fote and an halfe maketh a perche, and xi perches in length and iiij in brede maketh an acre of londe; and iiij (acres) maketh a yerde of londe, and v yerds maketh an hyde of londe, and vii hydes maketh a knyghtes fee.

"The iii chapytre.

"Some men say yt a plough may not tele viii score or ix score acres of londe a yere. But I shall prove it by good reason yt a plough may do it. For ye shall understonde than an acre of londe is in mesure xl perches in lengthe and iiij in brede, and the mesure of a perche is xvi fote and an halfe. And so ye brede of an acre of londe is xlvi fote, and so ye go with youre plough xxxiiij tymes up and doune the londe and see the fyrst forowe be a fote and eche of the other be in lyke qantyte and then is an acre ered. And whan the forowe is as straye as it may be than is it xxxvi tymes up and doune the londe though it be a large acre. And the plough be never so feble attemost ye have gone but lxxii tymes up and doune ye londe, which is but v myle way. Now truly the hors or oxe is feble that from the morowe maye not go softly iii myle from home and come agayn by none. And by this other reason ye undstonde that there be lii wekes in the yere, take viii weeks for holy days and other lettynge and there remaneth behynde xliii to werke in the se xliii wekes ben celx days besyde Sondagys. Also a plough shall ere thryes in the yere | yt is to say in the wynter, in lenten, and in leke sede time.— In wynter a plough shall ere iii rodes and a halfe a daye. And on eche other season an acre on the day at the lest. Now knowe ye whether it maye be done or not, but by cause ploughmen carters and other sayne and werke not truly. It is behovefull yt men fynde a

remedy against their servauntes. And therefore it is necessary that the balyf or some of the lordes officers be with them the fyrste daye of doynge folowynge and sowynge to se yf they do theyr werkes truly, & let theym answer you as moche werke as they dyde the fyrste day. Also it is necessarye that youre balyf overse youre werkemen ones in a daye to wete yf they do theyr werke truly as they ought to do, and yf ye fynde theym contrary he shall chastyse theym reasonable therefore, and by dyscreyon, &c.

"The iiii chapytre.

"The plough of oxen is better than the plough of hors, but yf it be upon stony grounde yt whiche greveth sore the oxen in theyr fete. And yt plough of hors is more cosily than ye plough of oxen & yet shal your plough of oxen doo as much werke in a yere as youre plough of horse, though ye dryve your hors faster than ye do your oxen, yet in what gronde so ever it be yuure plough of oxen, yf ye tele your londe wel and evenly, they shal do as moche werke one daye with a nother as your plough of hors, yf the gronde be tough your oxen shall werke where youre hors shall stande styll. And yf ye will knowe how moche the one is costlyer than ye other I shall teche you. It is a custume yt bestes yt go to the plough shall werke from ye feste of Saynt Luke unto the feste of Saynt Elen in Maye, that is to saye xxv weekes, and yf youre hors sholde be kepte in a good plyght to werke he must haue dayly the syst parte of a bushel of otes pryce ob. [*obolus*, a farthing] and in gresse in somer season xii d. And every weke that he standeth at drye mete one with another ob. in strawe for lytter. And in shoye as often as he is shodde on all foure fete iiii d. at the lest. The somme of his expence in the yere is ix s. vi d. ob., besyde hay and chafe and other thynges. And as for the oxe ye may kepe him in good plyght dayly to doo his journey gyuynge hym euery weke thre oten sheves pryce i d. by ause x oten sheves yelde a bushell of otes yf they be made by the extent and in somer season xii d. in gresse. The somme of his expences by the yere is iiii s. i d. be syde strawe and chafe. And yf a hors be overset and brought downe with labour it is adventure & ever he recover it. And yf your ox be oversette and brought doune with labour ye shall for xii d. in somer season have hym so pastured that he shal be strong ynough to do

your werke or elles he shall be so fatte that he may selle him for as moche moneye as he coste you.

"The xiiii chapytre.

"Ghees and hennes shall be at the delyueraunce of youre baylyf or lete so ferme a goos for xii d. in a yere Fyue hennes and a cocke for iiii s. in a yere and there be some baylyfs and deyes that say nay to this prouffytes. But I shall preue it by reason, for in halfe a yere be xxvi wekes, and in these xxvi wekes ix score dayes, and in eche of these dayes ye shall have an egge of eche henne & yt is ix score egges of eche henne in that half yere, it is a feble sale of egges & xxx egges be not worth a peny and yf any of theym syt in that halfe a yere or some daye in defaute of lyenge, ye shall be recompensed there fore, and of vi more to bere out the ferme ye cocke, and wt the sale of the chekens yt youre syttyng hennas brynge forth in that other halfe yere. Nowe shall ye se whether I say sothe or nay the pecocke shall answere as moche the for feders (feathers) as the shepe for his wolle. Every cowe shall answere you a calfe. And every moder shepe shall answere you a lambe. Every female swyne shall answere you xiii pygges at thye farowyges at two tymes at eche tyme iiii and the thyrd tyme fyve the x for tythe. Every henne shall answere you of ix soore egges or of chekens to ye value. Every goos shall answere you of vi ghoslyngs And yf any of this catell be baryene ye baylyf shall answere you of the yssue that is lost through his cuyll kepyng, by cause that he dyde not selle theym and put the sylver to other prouffytes to the value."

The last three or four pages are devoted to Gardening, and this portion has this commencement:—

"Here begyneth the plantynge of trees and of vyues."

It is quite unworthy of the previous part, being a mere collection of the mis-statements of the Greek and Roman writers relative to altering the colour of fruits and similar indulgencies of the imagination.

It has been doubted whether Bishop Grosseteste wrote all the works of which a list is given in his life by Pegge, as well as in Tanner's *Bibliotheca Monastica*. It has been truly said that they are equal in number to those produced by any of the great Arabian Philosophers. Indeed, in one department of



literature—Poetry, he surpassed them, for we have his “Chastel d’Amour” among the Harleian MSS. But, the works enumerated, and mostly remaining in MS., are generally very brief, and do not exceed, even if they equal, in number of pages, the varied works published by Fitzherbert, who, also, found time, notwithstanding his profession, to write his “Boke of Husbandry.”

Let us remark, also, that this is not the only work of Grossesteste that was thought worthy of being printed so many years after his decease, for his *Treatise de Artibus Liberalibus* and his *Commentary on Aristotle* were published at Venice in 1514.

Bishop Robert Greathead, for he was an Englishman, and his real name was only foreigned by such translations as “Grosthead” and “Grosseteste,” was a man of high attainments, and of a mind enlarged far above the generality of his contemporaries. He was a friend of Roger Bacon, and studied as he did the Natural Sciences. He was, says Sharon Turner, “intrepid and patriotic, foremost in every useful pursuit of his day, the friend and cultivator of poetry, scholastic philosophy, Arabian science, natural philosophy, mathematics, divinity, and canon and civil law. He was also the fearless and successful assertor of the liberties of the English Church, and a protector of the English clergy against the taxation and tyranny of the Pope.”—*Turner’s Hist. of Middle Ages*.)

His letter to Pope Innocent in 1253 may be read in the Chronicle of Matthew Paris, and was so displeasing to the Pontiff, that he threatened to hurl upon him confusion and destruction. Greathead went fearlessly on to declare the Pope both a heretic and anti-Christ; and after death the Bishop was believed to have visited the Pope, and to have threatened and terrified him from his purpose of having the Bishop’s bones dug up and thrown out of the church. The diffusion of such an idle tale implies the popularity of Bishop Greathead, and the preceding facts readily explain why the applications to Rome for canonizing him were but coldly received.—(*Wilkins’ Concilia*, ii., 287.)

There is no sound reason, then, for doubting that Bishop Greathead wrote the “Treatise of Husbandry;” and if he did, it is certainly the earliest relation we have of English Agriculture in the 15th century, for he died in 1553, at Buckden, the episcopal residence of his see, and the agriculture he

describes was that of the reigns of Henry II., Richard I., John and Henry III.

It is refreshing to review works like these. They came forth as soon as printing was introduced into our island; plainly written little books for the small farmers of their time. Printing, indeed, when it first showered its blessings over other classes, did not neglect the agriculturists. It has since been the handmaid of all the sciences, all the knowledge which have gradually raised the British farmer to his present proud position.—Printing—and printing only—enabled Fitzherbert and Grotthead to so well address their brother-cultivators of 1532. They were well followed by Tusser in the same century, Old Worlidge and others in the seventeenth; and Jethro Tull (the greatest benefactor to his country of them all) in 1732, exactly two centuries after the publication of the first English “Boke of Husbandrie.”

From the British Farmer’s Magazine.

### On the Production of the Sexes Among Sheep.

[TRANSLATED FROM THE FRENCH OF THE “JOURNAL D’AGRICULTURE PRATIQUE.”]

The interesting researches of Giron de Bazareingues into generation, and particularly on the production of the sexes amongst domestic animals, are now known but by very few persons, having the misfortune to be of too remote a date. On the other hand, meeting with a very varied reception on their appearance, they have had the fate of all contested things—they have left in the mind nothing but ideas undecided as to their value. Zootechny, in fact, was too little advanced at that period, for the art of animal production to think of extracting from such a study facts for its use.

Daily observations, conducted and arranged with the calculation in hand, in a sheepfold of great importance—that of the Dishley-Mauchamp merinos of M. J. M. Viallet, at Blanc, in the commune of Gailhac-Toulza (Haute-Garonne)—have enabled me to comprehend the laws which, according to M. Giron de Bazareingues, preside over the production of the sexes. If I am not deceived, I have gained some new hints; but, however this may be, the reader will see in the following notes only an exposition of facts, designed simply to draw attention once more to this curious question. And,

as the establishment of any natural law whatever has at all times its utility even in practice, it is perhaps desirable still to find it of importance in the economic management of animals in certain positions.

The general law which Giron de Bazareingues has recognized on the subject of the procreation of the sexes is as follows: The sex of the product would depend on the greater or less relative vigour of the individuals coupled. In many experiments purposely made, he has obtained from the ewes more males than females, by coupling very strong rams with ewes either too young or too aged, or badly fed; and more females than males, by an inverse action in the choice of the ewes and rams he put together.

This law has developed itself regularly enough at the sheepfold of Blanc, in all cases in which circumstance of different vigour between the rams and ewes have been observed in coupling them. Witness two striking examples of it:

In 1853, births, the issue of young ewes by a Dishley-Mauchamp merino ram, extremely vigorous and highly fed, produced 25 males, and 9 females only, or 71.73 per cent. of males, and 28.27 per cent. of females.

At a later period, the same ram, still in full vigour, having been put to some ewes that had done nursing their lambs—a period at which the ewe is found very weak—there resulted, in 1853, 8 male births against 4 females; and in 1854, under similar circumstances, 17 male against 9 female births. The two occasions united yielded 65.78 per cent. of males, and 34.22 per cent. of females.

But the following fact has nothing in common with those related by Giron de Bazareingues, and which has been repeated, with small variation, every year, from 1853—the period at which the observations I have noted down began.

This fact consists:

1st. In that, at the commencement of the rutting season, when the ram is in his full vigour, he procreated more males than females.

2nd. When, some days after, the ewes coming in heat and in great numbers at once, the ram was weakened by a more frequent renewal of the exertion, the procreation of females took the lead.

3rd. The period of excessive exertion

having passed, and the number of ewes in heat being diminished, the ram also found less weakened, the procreation of males in majority again commenced.

In order to show that the cause of such a result is isolated from all other influences, of a nature to be confounded with it, I shall take the year 1855-6, in which, by the effect of a degree of equilibrium of age and vigour between the rams and ewes, the male and female births were found, relatively with each other, nearly upon a par in numbers, being 25 males to 23 females.

The following table, drawn up with the dates of birth, exhibits the facts in detail. The letter M. indicates the male, and F. the female births.

It will be seen that, the list of births having been divided into three successive series, and in mean proportions almost equal, we have for the first, of eleven days, from the 27th December to the 8th January, 13 males against 4 females; for the second, of nine days, from the 9th to the 18th January, 3 males only against 15 females; and for the third, of eleven days, from 19th to 29th January inclusive, 9 males against 4 females.

*Table of the Dishley-Mauchamp Merino Lambing, at the Sheepfold of Blanc, in December and January, 1855-56.*

#### FIRST SERIES.

|               |              |              |
|---------------|--------------|--------------|
| Dec. 27 .. M. | Jan. 4 .. M. | Jan. 6 .. M. |
| 30 .. M.      | 4 .. M.      | 7 .. F.      |
| 31 .. M.      | 4 .. M.      | 8 .. M.      |
| Jan. 3 .. M.  | 5 .. M.      | 8 .. M.      |
| 3 .. F.       | 5 .. M.      | 8 .. F.      |
| 3 .. F.       | 6 .. M.      |              |

Males, 76.8 per cent.; females, 23.9 per cent.

#### SECOND SERIES.

|              |               |               |
|--------------|---------------|---------------|
| Jan. 9 .. F. | Jan. 13 .. F. | Jan. 16 .. F. |
| 9 .. F.      | 15 .. F.      | 16 .. F.      |
| 11 .. M.     | 15 .. F.      | 16 .. F.      |
| 12 .. F.     | 15 .. M.      | 17 .. F.      |
| 12 .. F.     | 16 .. F.      | 18 .. M.      |
| 13 .. F.     | 16 .. F.      | 18 .. F.      |

Males, 16.66 per cent.; females, 83.34 per cent.

#### THIRD SERIES.

|               |               |               |
|---------------|---------------|---------------|
| Jan. 19 .. M. | Jan. 20 .. M. | Jan. 24 .. M. |
| 19 .. M.      | 20 .. F.      | 24 .. M.      |
| 19 .. F.      | 22 .. F.      | 29 .. M.      |
| 19 .. F.      | 22 .. M.      |               |
| 20 .. M.      | 23 .. M.      |               |

Males, 69.23 per cent.; females, 30.77 per cent.

At the end of each month, all the animals of the Blanc sheepfold are weighed separately; and, thanks to these monthly weighings, we have drawn up several tables, from which are seen the diminution or in-



crease in weight of the different animals, classed in various points of view, whether according to age, sex, or the object for which they were intended.

Two of these tables have been appropriated to bearing ewes—one to those which have borne and nursed males, and the other to those that have borne and brought up females. The abstract results of these two tables have furnished two remarkable facts.

1st. The ewes that have produced the female lambs are, on an average, of a weight superior to those that produce the males; and they evidently lose more in weight than these last, during the suckling period.

2nd. The ewes that produce males weigh less, and do not lose, in nursing, so much as the others.

If the indications given by these facts come to be confirmed by experiments sufficiently repeated, two new laws will be placed by the side of that which Girou de Bazaingues has determined by his observations and experiments.

On the one hand, as, at liberty or in the savage state, it is a general rule that the predominance in acts of generation belongs to the strongest males, to the exclusion of the weak, and as such a predominance is favourable to the procreation of the male sex, it would follow that the number of males would tend to surpass incessantly that of the females, amongst whom no want of energy or power would turn aside from generation; and the species would find in it a fatal obstacle to its reproduction. But, on the other hand, if it was true that the strongest females, and the best nurses amongst them, produce females rather than males, Nature would thus oppose a contrary law, which would establish the equilibrium, and, by an admirable harmony, would secure the perfection and preservation of the species, by confiding the reproduction of either sex to the most perfect type of each respectively.

MARTEGOUTE,

*Former Professor of Rural Economy.*

**TO DYE AN ORANGE COLOR.**—Boil the skins of ripe onions half an hour; take out the skins, and add one ounce of alum to one quart of dye; put in the silks, stir often for half an hour; dry, wash and iron quite damp.

The most delicate, the most sensible of all pleasures, consist in promoting the pleasures of all others.

## Tobacco.

There are two plants, the produce chiefly of the Southern States, the value of which, as commodities of export, equal all the other exports of the country put together,—viz., cotton and tobacco.

Tobacco is indigenous to the soil of America, and has always shown a preference for the States of Virginia and Maryland. The tobacco plant is one of those sources of national wealth which Nature has assured to us by a peculiar adaptation of soil and climate for its production, and which no other country, excepting perhaps the Island of Cuba, possesses in an equal degree. The tobacco plantations may be certainly calculated upon as yielding from thirty-five to forty millions of dollars annually. For the last forty years, the crop has shown a steady increase:—it is, however, chiefly during late years that the production has most largely extended. In 1821, the value of tobacco exported was \$5,648,962, and for fifteen years the amount taken for foreign consumption continued to average about that value. In 1836, the export reached \$10,058,640, and in 1841, \$12,576,703, from which point it fluctuated down to about four and a half millions of dollars, until in 1846 the shipments amounted to \$8,478,270.

The following table will show the annual export from that period up to the present date.:

Annual Exports of Tobacco from the United States, from the year 1847 to 1859.

| Year—     | Value.      |
|-----------|-------------|
| 1847..... | \$7,242,086 |
| 1848..... | 7,551,122   |
| 1849..... | 5,804,207   |
| 1850..... | 9,951,023   |
| 1851..... | 9,219,251   |
| 1852..... | 10,031,283  |
| 1853..... | 11,319,319  |
| 1854..... | 10,016,046  |
| 1855..... | 14,712,468  |
| 1856..... | 12,921,843  |
| 1857..... | 20,662,772  |
| 1858..... | 17,009,767  |
| 1859..... | 21,074,038  |

The exports for the year 1859 were the largest of any period in the history of the trade. The amount shipped in 1857 was nearly equal, being less by only \$412,266; but from reference to the table it will be seen that that was quite an extraordinary year. The average export for the twelve

years ending with 1858 is about eleven and a quarter millions of dollars, which it will be observed is nearly doubled by the amount of last year. Nearly three-fourths of last year's export was taken by England, France, Bremen, and Holland.

The amounts taken respectively by those countries is as follows:

|                           |             |
|---------------------------|-------------|
| Exported to England ..... | \$5,202,810 |
| “ France .....            | 4,302,170   |
| “ Bremen .....            | 3,985,178   |
| “ Holland .....           | 1,942,527   |

The remaining one-fourth has been exported to the several ports of the world in amounts varying from \$30 to the Central Republic, to \$940,448 to Belgium.

It is remarkable how universal is the demand for this product. The official returns show a list of one hundred and twenty-five different articles of export; and out of that number, with the exception of grain, there is not one that is shipped to so many different countries as tobacco. The Government report enumerates seventy-one different foreign markets to which our products are exported; and out of that number there are only six that do not buy our tobacco, viz: Madeira, the air of which is possibly too pure to be polluted by the fumes of the weed, Egypt, San Domingo, Greece, Bolivia and Equador;—most of which places produce their own.

The value of the tobacco exported from the United States last year was nearly five times that of our sea products, fifty per cent. more than the products of the forest, not quite three millions of dollars less than the whole export of vegetable food, and rather over an eighth of the value of the cotton crop.

It is clear that the general taste for tobacco smoking is steadily increasing, whether to the public injury or otherwise we leave for those better skilled in the doctrines of narcotics than ourselves to decide. The fact is, that despite of King James' counterblast, and Urban's excommunication, and the ever-issuing anti-narcotic fulminations of our modern physicians,—the people are most resolutely intent upon having the weed; and this being the case, our tobacco planters will continue to grow it and prosper.—*U. S. Economist.*

Affluence might give us respect in the eyes of the vulgar, but will not recommend us to the wise and good.

### Dark Stables.

It cannot be doubted that *light* exercises a very important influence upon animal as well as upon vegetable economy. Every one's feelings bear witness to the stimulus afforded by its agency; a dark day or a dark room induces lassitude and repose, which is quickly dissipated by the bright sunshine. Many diseases are much more virulent in shaded situations; and the eye especially cannot long retain its full power if deprived of light. From mistaken notions on this subject, or from false economy, it is a general practice to exclude light from the stables of horses and other animals. It is supposed by many that they thrive best in the dark. Where the animal is stabled for a brief period of rest, darkness will undoubtedly favor his repose. In the season when flies are troublesome it also may be well to darken the stable to exclude them, but when animals are stabled permanently in darkness, they cannot but suffer in various ways. The horse, especially, is very much subject to diseases of the eye, and there can be but little doubt that this tendency is increased by confining him permanently where the eye, in waking hours, is strained to an unnatural position to perceive objects around him. Horse *jockeys* find an advantage in the use of such stables. The animal being brought into the glare of day is confused and startled, and by his high stepping and half uncertain manner, impresses a novice with an idea of his spirit and action. Even if the quiet induced by darkness may favor increase of fat, it is not conducive to muscular strength. Muscles deprived of the stimulus of light become flaccid, and the apparently high condition induced by this means is soon lost by active exertion. Men, whose employments confine them to poorly lighted apartments soon lose the color and the energy of full health, and the same results follow similar treatment of animals.

Besides this, a dark stable will seldom be kept in that cleanly condition which favors full health. The “corners” will be neglected, especially if the care of animals be entrusted to the “help” who are usually content if the stable looks nice. When building stables, ample provision for light will cost but little more than imperfect fixtures, and in the end will be found more profitable.

*Maine Far.*



## Breadstuffs.

The table following shows the quantity of breadstuffs exported from the various ports

of the United States, to Great Britain and the continent, from Sept. 1st up to the present date for the year 1859-60, and three preceding years:

Exports of Breadstuffs from the United States to Great Britain, Ireland, and the Continent, from Sept. 1 to date, for the years following:

| Year—        | Flour,<br>bbls. | Meal,<br>bbls. | Wheat,<br>bush. | Corn,<br>bush. | Rye.<br>bush. |
|--------------|-----------------|----------------|-----------------|----------------|---------------|
| 1856-7.....  | 963,460         | 184            | 9,164,663       | 3,243,738      | 157,254       |
| 1857-8.....  | 846,951         | 123            | 3,505,328       | 1,344,867      | ..            |
| 1858-9.....  | 124,074         | 20             | 498,498         | 331,039        | ..            |
| 1859-60..... | 236,228         | ..             | 517,360         | 29,546         | ..            |

From this statement, it is apparent that the aggregate export of breadstuffs for the current year is somewhat below that of last. Under the head of flour, there is an increase of 111,254 barrels, and the export of wheat shows an excess of 18,862 bushels; but the decrease on corn is 301,493 bushels. As compared with the years 1856-7, and 1857-8, the falling off is immense. In 1856-7, the quantity of flour shipped was more than that of the present year by 727,232 barrels; of wheat 8,647,303 bushels; and of corn, 3,214,192 bushels. The decrease of this year, as compared with 1857-8, is on flour, 610,723 barrels; on wheat, 2,988,968 bushels; and on corn, 1,315,321 bushels.

The cause for this remarkable decline in grain and flour exports is attributable to the absence of an active demand from abroad. The British market has been supplied with a fair home crop, and its deficiencies have been made up to a large extent by imports from European countries, thus leaving our own produce to the chances of speculative shipment, which, depressed as our great grain-growing section has been, have not been sufficient to induce any extensive consignments. The yield of the last crop was but little under an average, and there must, therefore, be a considerable proportion of the season's produce still in the hands of the farmers and the grain merchants, waiting for more favourable chances of export have been disappointed, and those who based thereon an expectation of a revival of the Western trade this Spring have found their calculations mistaken. Whilst the action of the grain-holders in keeping their produce out of the market has tended to check the immediate recovery of the West, it yet shows favourably, that they should be able to hold

their stock, instead of forcing it upon the market at depreciating prices. It is to be remembered, however, in comparing the movements of the present year with those of 1856-7 and 1857-8, that those years were quite exceptional in the history of the trade, the exports being for the former \$55,624,832, and for the latter \$33,698,490. The lower aggregate value of 1857-8 was caused not so much by the export of a less quantity of produce, as by the lower prices ruling during that period; the average price of wheat flour during 1856-7 was \$6 23, whilst during 1857-8 it was only \$4 73—a decrease on the former year of about 33 per cent. Making, however, all allowance for this circumstance, there is every prospect that the export of breadstuffs for the current year will fall below an average, and that at the close of the grain year there will be a large amount of produce in the hands of Western dealers.

*U. S. Economist.*

### Iron Manufacture of the United States.

From a statistical summary given by Mr. J. P. Lesley, in his "Iron Manufacturer's Guide to the Furnace, Forges and Rolling-Mills of the United States," we derive the following information respecting the iron manufacture in the United States:

"The entire production of raw material in the United States in 1856, was a little over eight hundred thousand tons (812,917,) being an increase of twelve per cent. from 1854. For the year 1856 the whole iron production advanced only six per cent. over the previous year, but the anthracite branch of the manufacture reached the aggregate of 394,509 tons, being very nearly

one-half the whole iron product of the country, and showing an increase of thirteen per cent. over the previous year, a fact to be explained by the conversion of charcoal furnaces into anthracite furnaces. The industry naturally tends to concentrate itself about the geological centre of fuel in Pennsylvania, a fact shown by the decline of this branch of the iron industry outside of Pennsylvania by an annual rate of over six per cent., which raises the Pennsylvania anthracite increase to over twenty-two per cent.

"The grand total of iron of all kinds, domestic and foreign, used in the United States in 1856, is set down at 1,330,548 tons, which is distributed thus:

|                      | Domestic. | Foreign. | Total.    |
|----------------------|-----------|----------|-----------|
| Rolled and hammered, | 519,081   | 298,275  | 817,356   |
| Pig Iron,            | 337,154   | 55,403   | 392,557   |
|                      | 856,235   | 353,678  | 1,209,913 |

"Which results give seventy per cent. domestic to 30 per cent. foreign iron. The great facts demonstrated by the statistics collected by the American Iron Association are, that we have nearly 1200 efficient iron works in the United States, producing annually about 850,000 tons of iron, the value of which, in an ordinary year is fifty millions of dollars, of which the large sum of \$35,000,000 is expended for labour alone.

"Mr. Whiting, in his *Metalic Wealth of the United States*, estimates the iron product of the world at 5,817,000 tons, of which 1,000,000 are set down for the United States, Great Britain producing that year 3,000,000. When we remember that, so late as 1845, the total product of the United States in iron had not reached half a million tons (486,000,) and that in 1850 it was only 600,000 tons, it will be seen that the progress in this important industry, in the first six years of this decade, has been at the rate of over twenty per centum per annum. The operation of this law of increase will soon, it would seem, put an end to all importation of iron, and points even to an export of this great staple at no distant day. The stock and varieties of iron-ores and coal in the United States is such as seems adequate to meet the demands of the world, as fast as the laws of commerce will permit their development.

*Year Book of Science and Art for 1860.*

*From the American Stock Journal.*

### Why it is Important to Feed Fattening Animals Regularly.

In all cases of fattening animals it should be the aim of the feeder to have his animals kept, and fed, in such a manner as is most conducive to the object to be obtained; and it would be most desirable to know what kind of food, and feeding, will promote the formation of fat and muscle. M. Florins has given more light than any other man on the subject of the physiological construction of the several animals; and has, by his many experiments, shown the chemical changes which the food undergoes after it is deposited in the stomach. Among the many experiments tried, he has given the result of his researches. He says "stall-fed animals must be *regularly fed* in order that they may eat and repose for digestion. If you feed irregular, it has a great effect upon the *increase* of the animal. If we disturb fattening animals, it creates a waste which has to be made up by the food."

We all know that if we go without our regular meals, there is an exhaustion of the vital powers. All food, after being taken into the stomach, is assimilated by the animal frame, and it is necessary to repose in order that a *chemical action* may be set up in the stomach. If an animal is fed regularly, the digestion will be regular, and the animal frame will soon form habits that will require food at the stated times; the cravings of an empty stomach will require it; a great uneasiness is felt until the food is provided, and, during this irregularity there is *constant waste* of what has accumulated, after supplying the natural waste of the body, as all excess of blood produced is converted into cellular and muscular tissues, which causes the animal to lay on fat and flesh. All the food we feed our stock with, contains a greater or less proportion of chemical substances, and the *oil* is the predominating one that forms the *fat* of all animals. Graziers well know the great waste in getting their fat animals to market, with all the care used, and that the loss is from 15 to 20 per cent. This is ascertained by weighing at home, and after they arrive at market.

Why this great loss? It is the want of the *regular feed*, and the *constantly disturbing of the animal, which causes a waste of the fat and muscle*. I will here state what Prof. Yoemans says: "Every animal is busy



in drawing in and throwing out air—an unceasing tidal ebb and flow. The oxygen of the air passes through the membrane of the lungs, is taken up by the blood, and is carried to all parts of the body. It does here what it does everywhere—it burns. Slow combustion goes on in the body, and carbonic acid and water are produced. This combustion is necessary to keep up heat, and the oxygen of the air must have carbon and hydrogen in the form of *food and drink* to feed upon. Cut off the animal from all food and drink, and the oxygen at every breath will cut away a portion of his frame. The most combustible parts are first consumed; he grows more emaciated every hour. First, the fat disappears, then the muscles are assailed; and lastly the devouring giant, *oxygen*, attacks the brain and nerves, and death closes the scene. Men say he has starved to death, but the scientific truth is, he has been *burnt to cinders*."

O.

#### Efficacy of Salt applied to the Tobacco Crop.

As many inquiries have been made respecting the efficacy of salt as a preventive of the formidable disease, called "Black Fire or Rot in Tobacco," and as we have been particularly requested to do so, we reproduce the following article, which appeared in the May number, for 1858, of the Southern Planter, on that interesting subject. The article was communicated by Dr. Spraggins, of Charlotte—though bearing the modest signature, "A."—and, as will be seen, contained reference to the experience of several of his neighbours, confirmatory of the truth of his theory. Besides these it has been further corroborated by the successful use of the remedy by Wm. M. Watkins, Esq., of Charlotte, (from whom we hope to hear further on the subject in reply to inquiries addressed to him through this paper,) by Dr. R. H. Nelson, of Hanover, and others, among whom we may mention R. W. N. Noland, Esq., of Albemarle, who has been reported to us as having attained most satisfactory results from his experiments in the use of salt on his Tobacco crop. We hope he will favour us with a communication detailing his practice and experience, and the result of his experiments.—[EDITOR.

#### SALT AS A PREVENTIVE OF BLACK FIRE, OR ROT, IN TOBACCO.

*Mr. Editor*—Doubtless most, if not all, who have cultivated tobacco, have observed, formed on the stems of the leaf, a salt, closely resembling saltpetre, and generally so called. From frequent observation the writer came to the conclusion that the ripest and richest leaves were most disposed to throw out this salt—conceiving this idea, he sought to ascertain its truth as far as practicable, by inquiring of experienced planters. The result has been a full conviction of its truth. This, again, suggested the idea that the elimination of the salt might be immediately connected with the maturation of the plant, and that, as a consequence, whatever would furnish material for the formation of this salt, would encourage the ripening and enrich the plant. Farther investigation led to the conception, that the black fire, or rot, the disease so often disappointing the sanguine expectations of the planter, was the result of the condition of the plant directly antagonistic to maturation, and if so, that whatever would encourage and hasten the process of ripening, would prevent the disease. Inquiries as to the truth of this supposition have confirmed the hypothesis and fixed the conclusion, that a want of the material to form this salt constitutes the cause of the disease, and that furnishing the material or elements, would be a safeguard against its ravages. Since arriving at this conclusion, and before he had made experiments to test the truth of the theory, by the suggestion of a friend, he was induced to use ground alum salt, with Peruvian guano, as a preparation for tobacco, merely to cheapen the manure, two parts of the guano with one of the salt being regarded as equal to all guano as a fertilizer, which he has found to be true. Since using this mixture he has found that he has had no black fire. The last season, which was very favourable to produce this disease, he saw but one or two plants fired in his whole crop. This led to inquiries of his neighboring planters, which resulted as follows:

Mr. M., crop 150,000—land peculiarly liable to fire—whole crop salted except about 30,000 new land—no fire on the old land to attract notice—part of the new fired badly. Mr. C., crop about 250,000—land much less liable to fire than Mr. M.'s—used

no salt—fired very badly, and forced to cut prematurely to save from fire. Col. G., about 200,000—no salt—fired badly. Capt. B., about 200,000—no salt—last cutting began to fire rapidly. Mr. H., about 250,000—200,000 salted—no fire—45,000—guano without salt—fired considerably—5,000 new land—no manure—fired very badly. Mr. B., the friend at whose suggestion the writer was first induced to use salt, says he had not thought of its being a preventive of the fire, but upon reflection recollects that whereas he occasionally had the fire before using the salt, he has had none since. In view of these facts, the writer regards the conclusion legitimate, that ground alum salt is a preventive against the black fire, or rot.

Perhaps the maximum to the acre should not exceed a bushel. This seems to be the opinion of most who have used it, fearing that a more liberal dose may render it more difficult to secure a good stand. Without question it may be advantageously applied during the cultivation, alone or mixed with guano or the phosphates, and possibly with even better effect. A.

*Cub Creek, Charlotte.*

*For the Southern Planter.*

### Ashes and Wood's Mould.

KING WILLIAM, Feb. 22nd, 1860.

Last April, 1859, I commenced cutting up and piling all the old trees in my woods, and during wet seasons, burning them into ashes for agricultural purposes. Timber getters from Maine had been at work on my land, leaving large quantities of white and red oak to rot, (mostly in ravines and gullies, inaccessible to hauling with ordinary team,) all this was piled up long enough to dry, then burnt, and the ashes raked up with the wood's mould convenient. Hundreds of loads of rich compost has thus been made, with but little expense, and ashes so much needed by our lands and so hard to get, freely supplied. I think there is wood enough rotting in our forests to furnish ashes for agricultural purposes generally, and I hope many may be induced to search out and use it.

Ashes from brush burnt in "new ground," may be hauled to the compost heap with profit, and when mixed with wood's mould and plaster, and sifted, are

worth more than guano to *drill* in with wheat.

MATTAPONI.

P. S.—Some of this compost was carted out last fall, and spread on wheat land after seeding; and to-day, February 21st, I am carting and spreading on wheat; some was used on clover intended for next fall's fallow, and a large quantity mixed with all the available manure on the premises, will be used on the present year's corn crop. I am now making a compost of saw-dust and this ash compost, for Irish potatoes—(a root by the way far preferable to turnips as a feed for hogs and cattle.)

### Manure—An Agricultural Problem.

I have met several trains of wagons every morning, on my way to my office, filled with fresh stable manure. This morning I stopped an intelligent negro driver, and made some inquiries as to where he intended carrying his load, and the use he intended to put it to. His answer was, that it was intended as manure for a garden, and for corn—it was intended to enrich poor soil upon which to produce a crop the coming season.

Just at the point where I happened to stop, the street was remarkably muddy, with a black stiff loam produced by decomposition of vegetable matter and offal from factories, kitchens, etc.

"Why don't you haul this mud out of the street, and mix with your stable manure?"

"I don't know, sir."

"Don't your master know that this very mud is much better for his purpose than what you are hauling?" The negro's reply was pertinent:

"I don't see he does!"

And so I believe: very few indeed do know the fact that our common street mud, such as you find in front of your office, is better manure for immediate use than any now used. It contains more of fixed alkali, nitrogen and ammonia, than the best stable litter, the latter containing a large quantity of free ammonia, which dissipates upon exposure to the air, while in the former it is fixed in the form of salts, and enters at once into the general composition of the soil with which it is mixed.

I give this suggestion in hope it may elicit further inquiry and free discussion.

P. B. E.



### The Contented Farmer.

Once upon a time, Frederick, King of Prussia, surnamed "Old Fritz," took a ride, and espied an old farmer plowing his acre by the way side, cheerily singing his melody.

"You must be well off, old man," said the king. "Does this acre belong to you, on which you so industriously labor?"

"No, sir," replied the farmer, who knew not that it was the king.

"I am not so rich as that, I plow for wages."

"How much do you get a day?" asked the king farther.

"Eight groschen," (about twenty cents) said the farmer.

"That is not much," replied the king; can you get along with this?"

"Get along and have something left."

"How is that?"

The farmer smiled and said----"Well, if I must tell you; two groschen for myself and wife; and with two I pay my old debts; two I lend away, and two I give away for the Lord's sake."

"This is a mystery which I cannot solve," replied the king.

"Then I will solve it for you," said the farmer.

"I have two old parents at home, who kept me when I was weak and needed help, and now that they are weak and need help I keep them. This is my debt, towards which I pay two groschen a day. The third pair of groschen, which I lend away, I spend for my children, that they may learn something good and receive a Christian instruction. This will come handy to me and my wife when we get old. With the last two groschen I maintain two sick sisters, whom I would not be compelled to keep---this I give for the Lord's sake."

The king, well pleased with his answer, said--

"Bravely spoken, old man. Now I will also give you something to guess. Have you ever seen me before?"

"Never," said the farmer.

"In less than five minutes you shall see me fifty times, and carry in your pocket fifty of my likenesses."

"This is a riddle which I cannot unravel," said the farmer.

"Then I will do it for you," replied the king.

Thrusting his hand into his pocket, and counting him fifty brand new gold pieces into his hand, stamped with his royal likeness, he said to the astonished farmer, who knew not what was coming---

"The coin is genuine, for it also comes from our Lord God, and I am his paymaster. I bid you adieu."---[*German Reformed Messenger.*]

*From the Southern Homestead.*

### The Use of Muck.

*Messrs. Editors:*---In this day of fertilizing humbugs, I fear that many farmers are disposed to overlook the mines of valuable manure they possess in the shape of muck. I believe that there is not one farmer in twenty fully appreciates it. Perhaps this is because it is too cheap and too easily procured.

Muck is simply decomposed matter that has accumulated in low spots by drainage, &c. That we may more clearly examine its true character, let us briefly review its various actions with reference to growing crops.

1. It furnishes by its decomposition fertilizing gases and minerals which are immediately available as food for plants.

2. It acts as an absorbent and retainer *in transitu*, of plant feeding materials which may come within its reach---readily yielding its accumulated stores to the roots of plants, but not readily to other influences.

3. It increases the power of the soil to absorb moisture.

4. It adds to its heat.

5. It improves its mechanical condition, rendering it more easy to cultivate and less liable to become crusted on the surface.

Thus we can easily sum up a few of the benefits arising from its use, but there are many more that might be brought forward.

If the farmers of Tennessee will pay more attention to this cheap article, they will certainly find their reward in the increase of their crops.

F. G. L.

January, 1860.

The tongue of the wise useth knowledge aright; but the mouth of fools poureth out foolishness.

A soft answer turneth away wrath: but grievous words stir up anger.

*For the Southern Planter.*

### "Vegetable Physiology."

Mr. Editor—Some months ago, you paid my work on "Scientific and Practical Agriculture," the compliment of copying into your valued paper, the chapters on Vegetable Physiology. In one of those chapters the following passage occurs:

"The food taken up by the roots and carried by the sap to the leaves, there meets with the gaseous food from the air, all together forming by their solution 'crude sap.' This is greatly modified during its circulation through the leaf, if an abundant supply of air be present. The change which the plant-food thus undergoes, we call 'digestion,' because of its resemblance to the changes produced on animal food by animal digestion. When the sap has thus been prepared for nourishing the plant, it is called 'latex,' or 'true sap.' It is then conveyed by the circulating organs to the various portions of the plant, and in some mysterious way, under the guiding finger of Omnipotence, assumes various forms of organic structure, producing stems and leaves, flowers and fruits. Here we have a beautiful analogy between the circulation of sap in plants, and the circulation of blood in animals."

The March number of the *Southern Planter*, which has just come to hand, has a criticism on certain points set forth in the foregoing paragraph. It is from the pen of Mr. Yardley Taylor. He objects—1. To the "theory of the downward circulation of the sap in plants." 2. He criticises the use of the word "dissolved," as expressing the condition of the gaseous food, (viz: carbonic acid) absorbed from the air by the sap. 3. He would substitute electricity for heat, as the chief agency "in the decomposition of carbonic acid gas in the sap of plants, and thus, (as he says,) making matters ready for assimilation through an upward circulation alone, we have a theory for growth that accords well with the simplicity of Nature's laws, and will account for all we see without bringing in mysteries to our aid." 4. In the mean time he takes occasion to throw out, for my benefit, the very sage and important suggestion, that "it would be well for those who are preparing elementary works, to examine into all recent discoveries in science, and profit thereby."

I am much obliged to Mr. Taylor for his

very suggestive article; and shall always be obliged to him, or any one else, who may correct my scientific errors, or add to the little stock of information which I have been able to treasure up. For I am yet a learner,—a mere gleaner in the great field of scientific research—a field too broad to be passed over in one short life-time, and too full of unsolved *mysteries*, for the present generation, or even the next, to clear its way at every point.

Willingly, therefore, would I sit at the feet of Mr. Taylor, or any one prepared to give me instruction—especially one who can so readily solve the mysteries of vegetable growth. Will he be so kind, then, as to multiply his solutions? But, if he should find his pupil a little slow of apprehension, not always ready to adopt his "theories," and sometimes disposed to set up facts and authorities to be demolished, he must "take it all in good part," and only ply his arguments with greater vigor.

First, with reference to the circulation of sap, he seems to admit with me, that "the sap ascends from the root to the leaf, and carries with it in solution a portion of the material necessary for the nourishment of the growing plant;" and that "plants derive a large portion of their nourishment from the air, through their leaves, in the form of carbonic acid gas." So far we agree. Having, now, "a portion of the material necessary for the nourishment of the growing plant," brought up from the roots to the leaves; and another portion collected by the leaves from the air, we are left to infer, (so far as Mr. Taylor tells us anything to the contrary,) that it all remains in the leaves, except the water evaporated through their pores. On this point, some very reliable authorities differ from Mr. Taylor; and some still more reliable "known facts" are very much in the way of this new and very debatable theory—a theory advanced some time since, but not generally adopted. Who are our authorities?

The "New American Cyclopædia," on which Mr. T. rests his faith, says that "the ingenious Dr. Draper, of New York, has made some important observations" on the nourishment of plants, &c.,—and this ingenious Dr. Draper says: "by their action, (referring to the spongioles,) the fluid is forced up through the sap-wood into the leaves, and there exposed to the conjoint agency of sun and air. A change is thus,



accomplished, and, from being crude, it turns into elaborated sap, and now *descends* through the bark, to be distributed to every part of the plant.”—[*Physiology*, p. 87.]

The same *Cyclopædia*, under the article “Bark,” has this language: “It [bark] is also the channel through which the sap *descends from the leaves*. The true bark, which separates from the wood, is only found in the exogenous and gymnospermous classes of plants. Its construction is of cellular tissue, traversed longitudinally by woody tissue, which is composed of woody tubes, through which the sap elaborated in the leaves *descends*.”

But, under the head of “Agricultural Chemistry,” this *New American Cyclopædia* had already said: “The vague ideas of the older vegetable Physiologists, according to which there is a constant circulation of sap in plants, an upward and a downward flow—the sap ascending in the outer wood to the leaves, there being elaborated, and returning through the inner bark to the roots, depositing new matter on its way, must be noticed here as an *exploded* but still oft-repeated error. There is no evidence that there exists any but an *upward* and outward current.” Now, will Mr. Taylor take *American Cyclopædia*, vol. I., or *American Cyclopædia*, vol. II., as reliable authority? The two volumes certainly take opposite sides of the question.

Prof. Asa Gray, of Harvard, in his “Structural and Systematic Botany,” p. 128, (Ed. 1858, a year after vol. I. of the *New American Cyclopædia* was published,) gives utterance to his views thus: “These last, [the proper cells of the liber or inner bark,] as they are peculiar to this part of the bark, are seldom if ever absent; they contain an abundance of mucilage and proteine, and in all probability they take the principal part in the *descending circulation* of the plant, if it may be so called, *i. e.*, in conveying *downwards*, and distributing the rich sap which has been elaborated in the foliage.” On the next page he says: “While the new layers of wood abound in crude sap, which they convey to the leaves, those of the inner bark abound in elaborated sap, which they receive from the leaves and convey to the cambium layer or zone of growth. The proper juices and peculiar products of plants are accordingly found in the foliage and the bark, especially in the *latter*.” Prof. Gray is certainly one of the leading

botanists of this country; and one who would not be apt to advance theories which had been entirely “exploded.” We might multiply recent authorities, but these may suffice for the present.

Let us now look at some of the “known facts.” The *New American Cyclopædia*, vol. I., agrees with vol. II., and with most other books in the opinion, that carbonic acid, as an element of plant food, “is *rapidly absorbed* by the leaves of growing plants under the influence of sun-light, and undergoes decomposition in the vegetable cells, carbon being retained and assimilated, while the oxygen is set free, wholly or in part, and exhales from the leaves.”—[*Art. Agrl. Chemistry*.] Admitting this as a “known fact”—and it has been repeatedly proved by experiment—pray tell us where this carbon is “retained and assimilated.” Is it in the cells of the leaves alone? If this were so, we should find the leaves to be the largest and firmest part of the plant; but the “known fact” is just the reverse. Mr. Taylor thinks that, if the sap were to pass down from the leaves into the branches and trunk, “it is more reasonable to infer that the matters would be more deposited near the leaves than they are, thus making the top grow faster than the body.” I suppose he will admit that the mineral matter formed in the plant comes from the soil through the roots. Then would it not be reasonable to suppose that these mineral “matters would be more deposited” near the root, than in the branches and leaves? Such, however, is not the case. The parts of nearly all plants most remote from the roots—the twigs and leaves—abound most in mineral substances, which have traversed both root and trunk. Might we not then reasonably suppose, that the carbon from the air could be carried down by descending sap, without being necessarily deposited more freely during the first, than during the last part of its descent?

Again he says: “It would be a mysterious way, indeed, to suppose a downward as well as an upward movement of the sap; the downward being much thickened by the evaporation of the superabundant water at first contained in it. This difficulty is not overcome by supposing the descent, beneath the bark, where most of the growth is made, for it must pass through the stem of the leaf where there is no known evidence of their passing each other. Accord-

ing to this theory it must pass through the pores of the sap-wood too, for it is well known that these pores gradually become more and more filled up by matter, until the texture of the heart-wood is assumed. How does this matter get there?" Here our author finds himself in two points of difficulty, on the supposition that the elaborated sap has to return from the leaf into the stalk. *First*, it must pass the ascending sap into the stem of the leaf. *Secondly*, it must find its way back to the cells of the sap-wood, in order to furnish the matter necessary to give this the "texture of the heartwood."

The microscope has done more than all other instruments and means combined to solve the problems of vegetable and animal physiology; and, among other things, it has solved the two difficulties here presented. It has shown us, in the first place, that the leaf consists of two somewhat distinct classes of cells. The first class, consisting of the woody tissue, is so arranged as to form the main body of the stem, with its almost innumerable divisions and sub-divisions, making up the whole frame-work of the leaf. The second, consisting of *cellular* tissue, is more soft and pulpy in its structure, and is called "parenchyma." The cells of the parenchyma contain the green substance of the leaf, and are found in the *stem* and its divisions, as well as in the blade of the leaf. The woody tissue of the stem is found to be connected with the sap-wood, and from it receives the sap and conveys it to the cells of the parenchyma in every part of the leaf, but chiefly to the lower surface of ordinary leaves, where it is condensed by evaporation and charged with carbonic acid from the air. It then passes from cell to cell of the parenchyma, undergoing that process of elaboration which fits it for nourishing the various parts of the growing plant, and passing through the lines of these cells to the inner bark, with which they are connected, it is attracted by "endosmosis" to all parts of the plant demanding nourishment. It finds its way to the sap-wood, and even to the heart-wood to some extent, through those lines of cells that connect the inner bark with all the layers of wood, forming what are called "medullary rays." Here, then, we have Mr. Taylor's second point of difficulty sat aside.

I will add one or two facts, which any one may readily verify, and which tend to

confirm the theory of a descending circulation of the elaborated sap. 1. Let a strong cord be tied tightly around the body of a young and rapidly growing tree. As the tree increases in size, the tightening of the cord will check the downward flow of sap in the bark, and the part above the cord will grow more rapidly than the part below, the difference becoming very perceptible in two or three years. A similar result will follow, if instead of using the cord, a ring of bark a quarter of an inch, or less, in width be cut out carefully all around the trunk, in such a way as not to injure the soft outer-layer of the sap-wood. While the part above the ring grows larger than the part below, the ring will be gradually closed over from the *upper side*—showing an accumulation of matter from above.

"Analogy" does not necessarily imply very close resemblance, but only "likeness between things in some circumstances or effects, when the things are otherwise *entirely* different." When I speak of the "*analogy* between the circulation of sap in plants, and the circulation of blood in animals," I do not mean, that they bear any very close resemblance, for then I should not have used the word "analogy." Things may bear an analogy to each other which is very remote; but the degree of remoteness must be determined by what the mind already knows of the things brought under comparison. If Mr. Taylor, or any one else, wishes to know how nearly I regard the circulation of sap, as analogous to the circulation of blood, let him read the XXVI. chapter of my work on Agriculture, which gives a concise outline of Animal Physiology.

*Secondly.* As to the second point of Mr. T.'s criticism—the use of the word "dissolved"—I have only a few words to say in reply. The terms, "dissolve," "solution," "soluble," &c., are to be found in every respectable work on chemistry, and are used to express the relation of certain gases to water and other fluids, when these two forms of matter manifest a greater or less degree of affinity for each other. For example, "chlorine is *soluble* to a considerable extent in water," [Fownes]. "One measure of water will *dissolve* one\* measure of carbonic

\* Mr. Taylor says, "it is well known that water has a great affinity for that gas, and will imbibe several times its bulk of it without pressure." Is this one of his "recent discoveries in science"? My own experiments have fully con-



acid," [Stockhardt]. "At ordinary temperature and pressure, water *dissolves* the third of its weight of ammonia," (a gas) [*New Am. Cyclopædia*! These forms of expression have become incorporated into the language of science, and cannot now be easily eradicated.

*Thirdly.* His objection to giving *light* the credit of doing the *chief* part of the work in decomposing carbonic acid, will hardly bear the test of either authority or experiment. Recent writers speak thus: "The process of decomposition of carbonic acid takes place *only* during the day, as *light* is absolutely necessary for this process." [*Am. Journal of Science and Art*—Nov. 1858.] Again: "To undergo this important change (assimilation), the crude sap is attracted into the leaves, or other green parts of the plant, which constitute the apparatus of assimilation, where it is exposed to the *light* of the sun, under which influence *alone* can this change be effected." [Gray, 1858.]

Let my friend now try the following, or some similar experiment. Take a dozen (less or more) of open boxes or barrels, and having planted an equal number of hills of potatoes, turn a box or barrel bottom upward over every hill. Then bore several small holes in each bottom, and insert straight pieces of wire, so that they shall be in contact with the potato plants and the ground at one end, and shall rise as high as may be convenient into the open air. These wires will convey more electricity from the air to the plants, than they would collect in the ordinary way. Let them be kept thus covered, and well supplied with water and everything else they may demand except light, and if a half crop, or a tenth of a crop is produced, I shall yield the point at once.

No one has ever denied that electricity exerts an influence in the vegetable, as well as the animal kingdom. But when Mr. Taylor, or any one else, brings in the operations of electricity to solve the mysteries of natural phenomena, let him not forget that he is dealing with the most hidden and inexplicable of all mysteries. An agency, of which Prof. Faraday, the Prince of electricians, says: "There was a time when I thought I knew something about the matter; but the longer I live, and the more carefully

vinced me, that water must be made very cold, before it will absorb near its own volume of carbonic acid under ordinary atmospheric pressure

I study the subject, the more convinced I am of my total ignorance of the nature of electricity."

If we would avoid the folly of attempting, at this stage of scientific development, to solve, and especially of saying we have solved, all mystery in the growth of either plant or animal, we must call in the help of some better known agent than electricity. We had better attribute much to "the guiding finger of Omnipotence," than to say, "we know all about it—Electricity has solved the whole mystery."

*Fourthly.* The very gentle hint in regard to "examining into all the recent discoveries in science," I shall thankfully accept, and endeavor to "profit thereby." Meantime I shall be glad to hear from my good friend again, although I have not the pleasure of a personal acquaintance with him. If either he, or "the philosophic editor of the *Flore des Ceres*," can bring forward *facts* well authenticated, and, by a legitimate process of reasoning based upon these facts, can show me that I am entertaining erroneous views, or advocating unsound theories in any department of science, instead of quarrelling with him, I shall tender him my most sincere thanks, and class him amongst my real benefactors.

J. L. CAMPBELL.

Washington College, Lexington, Va.,  
March, 1860. }

For the Southern Planter.

### Culture of Broom Corn.

MR. EDITOR:

Having seen a notice in the March number of the Planter, that there is to be a broom manufactory in Richmond, and wishing to aid in encouraging Southern manufactures, I send you the following article on the

#### CULTURE OF BROOM CORN,

as my experience in raising the crop for the manufactory:

Plough and prepare the ground as usual for other corn. Lay it off in rows, three feet apart. If the land is strong and rich, put it in drills—if not, put it in hills two feet apart. One peck of seed to the acre is a plenty. Work it as you do other corn precisely.

In the Southern climate the brush is ready for harvesting about the middle of July, for the manufacture of brooms, as it should be cut when green, while the seed is

in milk. If the seed is required by the farmer, it can remain until fully ripe, but the brush will not command so good a price.

In harvesting, it should be cut off from the stalk from six to eight inches. The seed is usually whipped off by holding the brush on the cylinder of a threshing machine. In a small way, it can be cleaned off with a hackle.

In preparing it for market, dry it well in the sun, and tie it up in bundles of about ten pounds each.

The crop will yield from six to eight hundred pounds per acre, according to the quality of the soil.

The usual price paid is about \$100 per ton.

In order to compete successfully with the Northern manufactories, it is desirable to obtain penitentiary labor in making up the brooms.

Respectfully,

J. C. MARSH.

Baltimore, March 17, 1860.

#### More about Salt as a Preventive of Black Fire or Rot in Tobacco.

Since our call on Mr. Noland, page 238 of this number of our journal, the following letter has been received from him by our friend, Mr. Ruffin, and kindly placed at our disposal. It fully and satisfactorily answers to the object we had in view, when calling on Mr. N. for a detailed statement of his practice and experience in reference to the remedial or rather preventive effect of salt, used with reference to the formidable disease—"fire-rot"—to which there is such a prevailing tendency in our growing crops of tobacco.—EDITOR.

ROX, March 21st, 1860.

F. G. Ruffin, Esq.,

DEAR SIR:—You ask my experience in the use of salt as a preventive of fire in tobacco. I have used it for two years, at the rate of from one and a half to two bushels per acre—applied broadcast at the time of hilling. The first year I applied it only to a portion of my crop, and was so well satisfied of its value that I intended using it upon the whole crop last year. My supply, however, did not hold out, and I left a few thousand hills unsalted. This, as was the case with all the crops in my neighborhood, suffered much from firing, while the salted portion of my crop escaped almost unharmed. My protracted absence from home prevented my observing the effects of this application

as closely as I otherwise would have done, but my overseer and neighbors testify to the efficacy of salt as a preventive of fire; and the condition of my crop now coming into market is stronger evidence still in its favor.

Yours truly,

R. W. N. NOWLAND.

*For the Southern Planter.*

#### Seed Corn.

MR. EDITOR:

The many questions asked me concerning the improved seed-corn advertised for sale by me in your last number of the Planter, have induced me to communicate the mode by which I have effected the improvement. Twenty years ago I selected my seed-corn from several places, of different kinds; some soft and some hard and flinty. I took the nubs off from both ends of the ears; shelled the corn and mixed it before planting, always carefully avoiding in my selection the blue, yellow or red grains, and the red husk. Since then I have carefully selected each year, at shucking time, such ears as I liked best—always keeping in view a deep grain and a white husk. At planting time, if I thought my corn was too hard, I selected more soft, to mix in with the seed. By doing this I found that I could make my crop harder or softer, to my liking.

Yours, respectfully,

GARLAND HANES.

I will give you my method of planting and working the corn in time for your next number.

G. H.

#### On Science, as a Branch of Education.

The following is an abstract of a lecture on the above subject, recently delivered before the Royal Institution, London, by Professor Faraday. The high position of this gentleman always secures attention for his opinions; but, upon this topic especially, his views will be examined with great interest.

The development of the applications of physical science in modern times has become so large, and so essential to the well-being of man, that it may justly be used as illustrating the true character of pure science, as a department of knowledge, and the claims it may have for consideration by governments, universities, and all bodies to whom is confided the fostering care and direction of learning. As a branch of learning, men



are beginning to recognize the claim of science to its own particular place; for, though flowing in channels utterly different in their course and end to those of literature, it conduces not less, as a means of instruction, to the discipline of the mind; whilst it ministers, more or less, to the wants, comforts, and proper pleasure, both mental and bodily, of every individual of every class in life. Until of late years, the education for, and recognition of it, by the bodies which may be considered as giving the general course of all education, have been chiefly directed to it only as it could serve professional services,—namely, those which are remunerated by society; but, now the fitness of University degrees in science is under consideration, and many are taking a high view of it, as distinguished from literature, and think that it may well be studied for its own sake,—*i. e.*, as a proper exercise of the human intelligence, able to bring into action and development all the powers of the mind. As a branch of learning, it has, without reference to its applications, become as extensive and varied as literature; and it has this privilege, that it must ever go on increasing. Thus it becomes a duty to foster, direct, and honor it, as literature is so guided and recognized; and the duty is the more imperative, as we find by the unguided progress of science and the experience it supplies, that of those men who devote themselves to studious education, there are as many whose minds are constitutionally disposed to the studies supplied by it, as there are of others more fitted by inclination and power to pursue literature. The value of the public recognition of science as a leading branch of education may be estimated in a very considerable degree by observation of the results of the education which it has obtained incidentally from those who, pursuing it, have educated themselves. Though men may be specially fitted by the nature of their minds for the attainment and advance of literature, science, or the fine arts, all these men, and all others, require first to be educated in that which is to be known in these respective mental paths; and when they go beyond this preliminary teaching, they require a self-education directed (at least in science) to the highest reasoning power of the mind. Any part of pure science may be selected to show how much this private self-teaching has done, and by that to aid the present movement in favor of the recognition generally of scientific education in an equal degree with that which is literary; but perhaps, electricity, as being the portion which has been left most to its own development, and has produced as its results the most enduring marks on the face of the globe, may be referred to. In 1800 Volta discovered the Voltaic pile—giving a source and form of electricity before unknown. It was not an accident, but resulted from his own mental self-education. It was, at first, a feeble instrument, giving feeble results; but, by the united mental exertions of other men, who educated themselves through the force of thought and experiment, it has been raised up to such a degree of power as to give us light, and heat, and magnetic and chemical action, in states more exalted than those supplied by any other means. In 1819 Oersted discovered the magnetism of the electric current, and its relation to the magnetic needle; and as an immediate consequence, other men, as Arago and Davy, instructing themselves by the partial laws and action of the bodies concerned, magnetized iron from the current. The results were so feeble at first as to be scarcely visible; but, by the exertion of self-taught men since then, they have been exalted so highly, as to give us magnets of a force unimaginable in former times. In 1831 the induction of electrical currents, one by another, and the evolution of electricity by magnets, was observed,—at first in results so small and feeble that it required one much instructed in the pursuit to perceive and lay hold of them; but these feeble results, taken into the minds of men already partially educated and ever proceeding onwards in their self-education, have been so developed as to supply sources of electricity independent of the Voltaic battery on the electric machine, yet having the power of both combined in a manner and degree which they, neither separate nor together, could ever have given it, and applicable to all the practical electrical purposes of life. To consider all the departments of electricity fully, would be to lose the argument for its fitness in subserving education in the vastness of its extent; and it will be better to confine the attention to one application, as the electric telegraph, and even to one small part of that application, in the present case. Thoughts of an electric telegraph came over the minds of those who had been instructed in the nature of elec-

tricity as soon as the conduction of that power with extreme swiftness through metals was known, and grew as the knowledge of that branch of science increased. The thought, as realized at the present day, includes a wonderful amount of study and development. As the end in view presented itself more and more distinctly, points, at first, apparently of no consequence to the knowledge of the science, generally rose into an importance which obtained for them the most careful culture and examination, and the almost exclusive exercise of minds, whose powers of judgment and reasoning had been raised first by general education, and who, in addition, had acquired the special kind of education which the science in its previous state could give. Numerous and important as the points are, which have been already recognized, others are continually coming into sight as the great development proceeds, and with a rapidity such as to make us believe that, much as there is known to us, the unknown far exceeds it; and that, extensive as is the teaching of method, facts and law, which can be established at present, an education looking for far greater results should be favored and preserved. The results already obtained are so large as even in money value to be of very great importance;—as regards their influence upon the human mind, especially when that is considered in respect of cultivation, I trust they are, and we will be, far greater.

No intention exists here of comparing one telegraph with another, or of assigning their respective dates, merits or special uses. Those of Mr. Wheatstone are selected for the visible illustration of a brief argument in favor of a large public recognition of scientific education, because he is a man both of science and practice, and was one of the very earliest in the field, and because certain large steps in the course of his telegraphic life will tell upon the general argument. Without referring to what he had done previously, it may be observed that, in 1840, he took out patents for electric telegraphs, which included, amongst other things, the use of electricity from magnets at the communicator,—the dial face,—the step-by-step motion,—and the electro-magnet at the indicator. At the present time, 1858, he has taken out patents for instruments containing all these points; but these instruments are so altered and varied in character, above the former, that an un-

tought person could not recognize them. The changes may be considered as the result of education upon the one mind which has been concerned with them, and are to me strong illustrations of the effects, which general scientific education may be expected to produce. In the first instruments powerful magnets were used, and keepers, with heavy coils associated with them. When magnetic electricity was first discovered, the signs were feeble, and the mind of the student was led to increase the results by increasing the force and size of the instruments. When the object was to obtain a current sufficient to give signals through long circuits, large apparatus were employed, but these involved the inconveniences of inertia and momentum; the keeper was not set in motion at once, nor instantly stopped; and, if connected directly with the reading indexes, these circumstances caused an occasional uncertainty of action. Prepared by its previous education the mind could perceive the disadvantages of these influences, and could proceed to their removal; and now a small magnet is used to send sufficient currents through 12, 20, 50, 100, or several hundred miles; a keeper and helix is associated with it, which the hand can easily put in motion; and the currents are not sent out of the indicating instrument to tell their story, until a key is depressed, and thus irregularity contingent upon first action is removed. A small magnet, ever ready for action and never wasting, can replace the Voltaic battery; if powerful agencies be required, the electro-magnet can be employed without any change in principle or telegraphic practice; and as magneto-electric currents have special advantages over Voltaic currents, these are in every case retained. These advantages I consider as the result of scientific education, much of it not tutorial but of self: but there is a special privilege about the science branch of education, namely, that what is personal in the first instance immediately becomes an addition to the stock of scientific learning, and passes into the hands of the tutor, to be used by him in the education of others, and enable him in turn, to educate himself. How, well may the young man, entering upon his duties in electricity, be taught, by what is past, to watch for the smallest signs of action, new or old; to nurse them up by any means until they have gained strength; then to study their laws, to eliminate the



essential conditions from the non-essential, and, at least, to refine again, until the incumbering matter is as much as possible dismissed, and the power left in its highly developed and most exalted state. The alterations and successions of currents, produced by the movement of the keeper at the communicator, pass along the wire to the indicator at a distance; there each one for itself confers a magnetic condition on a piece of soft iron, and renders it attractive or repulsive of small, permanent magnets; and these acting in turn on a propellent, cause the index to pass at will from one letter to another on the dial-face. The first electro-magnets, *i. e.*, those made by the circulation of an electric current round a piece of soft iron were weak; they were quickly strengthened, and it was only when they were strong that their laws and actions could be successively investigated. But now they are required small, yet potential. Then came the teaching of Ohm's law; and it was only by patient study, under such teaching that Wheatstone was able so to refine the little electro-magnets at the indicator as that they should be small enough to consist with the fine work there employed, able to do their appointed work when excited in contrary directions, by the brief currents flowing from the original common magnet, and unobjectionable in respect of any resistance they might offer in the transit of these tell-tale currents. These small transitory electro-magnets attract and repel certain permanent magnetic needles, and the to-and-fro motion of the latter is communicated by a propellent to the index, being there converted into a step-by-step motion. Here every thing is of the finest workmanship; the propellent itself requires to be watched by a lens, if its action is to be observed; the parts never leave hold of each other; the vibratory and rotatory ratchet-wheel and the fixed pallets are always touching, and thus allow of no detachment, or loose shake; the holes of the axes are jewelled; the moving parts are most carefully balanced,—a consequence of which is, that agitation of the whole does not disturb the parts, and the telegraph works just as well when it is twisted about in the hands or placed on board a ship, or on a railway carriage, as when fixed immovably.

Now, there was no accident in the course of these developments;—if there were experiments, they were directed by the pre-

viously acquired knowledge;—every part of the investigations was made and guided by the instructed mind. The results being such (and like illustrations might be drawn from other men's telegraphs, or from other departments of electrical science,) then, if the term education may be understood in so large a sense as to include all that belongs to the improvement of the mind, either by the acquisition of the knowledge of others, or by increase of it through its own exertions, we learn by them what is the kind of education science offers to man. It teaches us to be neglectful of nothing;—not to despise the small beginnings, for they precede, of necessity, all great things in the knowledge of science, either pure or applied. It teaches a continued comparison of the small and great, and that under differences almost approaching the infinite: for the small as often contains the great in principle as the great does the small; and thus the mind becomes comprehensive. It teaches to deduce principles carefully, to hold them firmly, or to suspend the judgment—to discover and obey *law*, and by it to be bold in applying to the greatest what we know of the smallest. It teaches us first by tutors and books to learn what is known to others, and then, by the lights and methods which belong to science, to learn for ourselves and for others;—so making a fruitful return to man in the future for that which we have obtained from the men of the past. Bacon, in his instruction, tells us that the scientific student ought not to be as the ant, who gathers, merely; nor as the spider, who spins from her own bowels; but rather as the bee, who both gathers and produces. All this is true of the teaching afforded by any part of the physical science. Electricity is often called wonderful—beautiful;—but it is so only in common with the other forces of nature. The beauty of electricity, or of any other force, is not that the power is mysterious and unexpected, touching every sense at unawares in turn, but that it is under *law*, and that the taught intellect can even now govern it largely. The human mind is placed above, not beneath it; and it is in such a point of view that the mental education afforded by science is rendered supereminent in dignity, in practical application and utility: for, by ennobling the mind to apply the natural power through *law*, it conveys the gifts of God to man.—(*Annual of Scientific discovery*, 1859.)



## The Southern Planter.

RICHMOND, VIRGINIA.

### Virginian Independence.\*

In the speech referred to in the note below, the object of the speaker in addressing the members of the State Legislature and others on the independence of Virginia in her commercial, agricultural and educational relations, seems to have been to show, by an imposing array of facts and figures industriously collected and judiciously collocated, that the course of former legislation, and of the practice of our citizens, has been such as to operate disastrously to the several State interests referred to, and in effect to discriminate against Virginia, and in favor of her Northern rivals, and most persistent, implacable and malignant traducers. He also shows that whilst Virginia, as the legitimate fruit of her impolitic legislation, and suicidal policy, has been shorn of her power and just influence, the North has fattened upon the spoils wrested from her in the struggle for supremacy—a struggle rendered unequal only by self-imposed disabilities on her part; and that whilst Virginia has been “degraded” by misgovernment, the North who has been “benefited” at her expense—has tauntingly exulted in what has been Virginia’s slow progress and development, in comparison of what they would have been under a wise and patronizing system of legislation, and of self-reliant adherence to, and liberal support of home industry and her home institutions, and also a more exclusive devotion of her resources to the up-building of her own educational institutions, and the fostering and encouraging of a literature peculiarly her own, or,

\* Speech of Daniel H. London, Esq., on the Commercial, Agricultural and Intellectual Independence of Virginia and the South—delivered in the Hall of the House of Delegates, on the 5th of January, 1860. A Pamphlet of 52 pages, to be procured at Randolph’s, 121 Main Street, Richmond.

at least, a literature of a strictly Southern character

The growing decadence of the power and influence of Virginia, and the growth and progress of New York in these elements, are shown in the following table, exhibiting the representation of these two States in the Congress of the United States for each decade, from 1790 to 1850 inclusive:

|                   | Prior to 1790. | In 1790. | In 1800. | In 1810. | In 1820. | In 1830. | In 1840. | In 1850. |
|-------------------|----------------|----------|----------|----------|----------|----------|----------|----------|
| Virginia had..... | 10             | 19       | 22       | 23       | 22       | 21       | 15       | 13       |
| New York had..... | 6              | 10       | 17       | 27       | 34       | 49       | 34       | 33       |

“But the *commerce* of these two States,” says Mr. London, “presents a picture worthy of the profoundest attention.”

Passing by the commercial statistics (which he adduces) of Virginia and Maryland combined, as compared with New York, for the period extending from 1750 to 1770 inclusive, we cite the comparison of “Virginia alone,” with New York,” as found in the following tables showing the imports and exports of these two States in 1791, and onwards to the close of the fiscal year in 1850.

|                             |             |
|-----------------------------|-------------|
| “1791—Virginia imports..... | \$2,486,000 |
| Virginia exports.....       | 3,131,000   |
| New York imports.....       | 3,022,000   |
| New York exports.....       | 2,505,000   |

“At this period (1791), these two States were nearly equal.

“Let us now see the appalling picture of the exports and imports of these two States in the years following:

|                           | Virginia.   | New York.    |
|---------------------------|-------------|--------------|
| Imports in the year 1821, | \$1,078,490 | \$23,629,246 |
| Exports “ “ 1821,         | 3,079,099   | 13,162,917   |
| Imports “ “ 1830,         | 405,739     | 35,624,070   |
| Exports “ “ 1830,         | 4,791,644   | 19,697,983   |
| Imports “ “ 1840,         | 545,085     | 60,440,750   |
| Exports “ “ 1840,         | 4,778,220   | 34,264,080   |
| Imports “ “ 1850,         | 426,599     | 111,123,524  |
| Exports “ “ 1850,         | 3,415,646   | 52,712,789   |

“By whose action,” asks the speaker, “has this condition of affairs been produced? Who has deprived Virginia of her once flourishing foreign commerce? Who has neglected her interests? Who has plundered her husbandmen of their labor? Who has turned her sea-ports into neglected villages? Whose blighting hand has dwarfed her representation in the national legislature, till she is too feeble even to be respected where she was once powerful? In vain is it answered, that the institution of slavery has produced this result. Slavery existed in Virginia in the days of her prosperity as well as it



does now. It cannot be answered that it is due to a want of intelligence and adaptation for commercial or agricultural pursuits in our people. Such an affirmation is a libel on the most virtuous and intelligent people in the United States.

\* \* \* \* \* "To these questions," and others here omitted, "there is but one, and only one answer, and that is this:—It is THE PERNICIOUS HAND OF GOVERNMENT which has degraded us and benefited others."

The speaker then introduces "*A Table, showing the number of Vessels, Tonnage, Men employed, and the Bounties in the Whale, Mackerel, and Cod Fisheries,*" which, for the sake of brevity, we omit, extending over a period of sixty-seven years. Deducting "the years of war," in which no bounties were paid, it appears that in sixty-three years, the aggregate of bounties paid was \$12,120,532, averaging, annually, \$192,389 40.

The effect of this legislation of the Federal Government, during all this protracted period, has been "to transfer the results of the toil of the people of Virginia, and of the Southern States, to the benefit of others; and at this very time, about three hundred thousand dollars are paid, annually, out of the Federal Treasury to the citizens of Massachusetts, New Hampshire, and Maine, for catching cod fish; and the statistics disclose the fact, that more than \$12,000,000 of public money have been, by the act of a common government, extracted from the people of this State, in part, to be lavished upon a vocation in which the people of Virginia have no interest; for, if there is any one article of food, in all the world, *not used* by our people, it is cod fish."

"*The navigation laws,*" continues the speaker, "by which foreign vessels are forced out of the coasting trade, and their exclusion from our ports, except under regulations designed to benefit the ship owners of the Northern States, where it was and is known that this interest chiefly exists, are detrimental to our interests."

"The reciprocity treaty, by which Canadian wheat and breadstuffs are admitted free, brought into Northern markets, in 1857, ten millions one hundred and ninety-one thousand five hundred and thirty-two dollars worth of grain and flour, to exclude the grain and breadstuffs of Virginia and other Southern States. (See Commercial Relations in 1858, page 60.)

"These items are not all to which allusion might be made, but they suffice to justify the statement, that Virginia and her sister Southern States can look to the action of the Federal Government with no prospect of justice and consideration.

"But the worse than indifferent, yea, the baneful legislation which has been pursued by Virginia herself, affecting her own commerce

and her own agriculture, must now be examined. Surely, it is not necessary to say [The Italics ours] *that the legislation of any free people is defective, when the laws that should protect the laborer and secure to him the fruit of his own toil, are so framed as to wrench from his hand the just equivalent for his labor, and place it in the possession of another, especially when that other is not a friend.*

"The laws respecting merchants' licenses are so framed as that the grossest inequality prevails throughout the whole State, and the operations of the tax for merchants' licenses is a direct bonus to every retail merchant in the State, to go beyond the limits of Virginia to procure his supplies."

These positions are sustained by facts and arguments, which it would lead us too much into detail to present here, but we cannot overlook the remarks of the speaker regarding the unjust, unequal, and, in some cases, the oppressive operation of one of these laws. We mean the license law:—

"This section, it will be thus seen," referring to the 12 classes unto which the tax bill decided the merchants "is a positive and malignant injustice to the small and feeble merchants, and bears heavily on them; whilst the princely and powerful are burdened so lightly as to make the conclusion inevitable that if the legislature had any object in view, it was to oppress the small retailer, of whom the poor are *obliged* to buy in many instances, and to protect the large and opulent merchant from bearing the same proportionate burden as the poor man engaged in the same vocation bears. for the privilege of selling goods, wares and merchandise upon the soil of Virginia. If sales are to be taken as an index to the property or capital of the merchant, then apply the same rule to all. \* \* \*

If the object has been to derive the largest revenue from the amount of goods sold in the State, then the means adopted have been the least sagacious, for the largest operator pays the very *smallest pro rata tax*; but if the object has been to induce the interior merchant to seek the markets of other States to procure his supplies, the wisdom of this clause in our tax bill may be commended, as it in fact operates as a bonus of from one to two state taxes—in many instances a discrimination against our own citizens, from whom the State has demanded and received a license tax to carry on a lawful business, on the soil of Virginia. Was this the object of the law? If so, *continue* it; but if any other purpose can be divined for the measure, then show the end and object of its existence."

In vindication of the assertion that the license law operates "to induce the interior merchant to seek the markets of other States to procure his supplies," the speaker shows, that "\$100 worth of goods brought into the State of Virginia from any other State by a merchant selling," the mean average of "\$40,000" worth of goods per annum sold to a jobber" "and then sold to a retail-

er"—the effect will be a discrimination against Virginia, and an inducement to the retailer to purchase goods elsewhere of 1 16-000ths per cent. on the value of his purchasers, which is demonstrated as follows:

|  |        |
|--|--------|
| "The wholesale dealer would pay.....           | \$0 52 |
| 2d. The jobber of class No. 9. would pay.....  | 64     |
| 3d. The retailer would pay in class No. 7..... | 1 01   |

|  |        |
|--|--------|
| Whole amount of taxes collected by the State.....  | \$2 17 |
| But if the retailer, No. 7, will go out of the State and buy his stock, and sell them in Virginia, he will pay only..... | 1 01   |

|   |        |
|---|--------|
| Balance in favor of buying out of Virginia by the laws of this State..... | \$1 16 |
|---|--------|

The inequality and injustice of this is plainly seen in the light of our State Constitution, which "indicates equal justice to all vocations, the poor and the rich alike."

But a still greater inequality and more obvious injustice is perpetrated by this license law, first in the discrimination it makes in favor of the beginner upon a large scale, and against the merchant of like extent of business on the second year of his mercantile operations—a discrimination so great as to operate as a temptation and an inducement to the merchant to change his business and begin anew every year! and secondly, in its reverse operation it burdens and oppresses the poor trader, who, "unless he can swear that his capital is less than \$500. must pay the same sum. [sixty dollars,] without regard to his sales or his capital." May not a change be effected in this law, which, while the same amount of revenue shall be derived from it, will operate more justly and equally, and of consequence more advantageously "upon the commercial, agricultural, and manufacturing interests of Virginia." The remedy proposed by the speaker is the adoption by the State of the following "principles, namely, that no article of merchandize ought to pay more than one State tax on its sale in Virginia, and that no merchant, no matter how wealthy, or how large his business, ought to be allowed to prosecute it, without contributing the same *pro rata* upon his sales, that the poorest man is made to pay for a like privilege." \* \* \* \* \*

He continues: "The principles suggested above, can be safely and judiciously embodied in the provisions of any act which may be passed upon the subject of merchants' licenses. From time immemorial, Virginia has discriminated in favor of the agricultural products of her own

people, and of all the other States," and for many years: "*she did not tax any goods sold on her soil, except those from foreign countries.*" She may now properly apply principles which she has exercised to her own detriment for so long a time, and make them of great advantage to every interest. The following are worthy of consideration, in the number of articles to be sold, without any discrimination against them, viz: Raw cotton, rice, brown sugar, molasses, wheat, flour, and all other breadstuffs, tobacco, all products of the forests of the southern slave States; hemp, flax, wool, indigo, madder, logwood, and all other dye stuffs; gypsum, guano, horses, mules, asses, meat, cattle, hogs, sheep, and other live stock; beef, pork, lard, meats, oil of all kinds, fishes, minerals of every kind obtained in any slave State; and any goods, wares, or merchandise, the product of any slave State."

"It is due to our pecuniary interests as a people, that all direct importations from abroad should be exempt from every burden, when we are advised of the fact that one single vessel of 800 tons coming to James river from Liverpool with salt even, discharging and taking in a cargo of flour and tobacco for Europe, will distribute as much money as almost every vessel now engaged in the coasting trade distributes in a whole year. This fact can be shown by competent testimony; but beyond this, another fact that our products find a market in foreign countries chiefly, and not in the northern States, renders it too clear that our true interests must indicate the most direct and untrammelled intercourse with those who consume our products. But the fact that we have been deprived of our foreign commerce by the laws of the federal government and our own State government combined, must suggest the duty of using the reserved powers of the State for regaining that trade which has been driven away from our own seaport towns. But, as the acts of our own State are now before us, the *pilot laws* of Virginia must constitute a subject of remark; and that the folly of these measures may be brought to view, it is only necessary to state that it is made obligatory on every vessel, unless loaded with coal, engaged in the foreign trade, to employ a pilot, whether he be needed or not, when she approaches our waters; whereas no coasting vessel is required to employ a pilot unless she chooses.

The charge on plaster for pilotage to Richmond, when brought directly from the places where it is produced, is as much as twice its cost frequently, and upon other articles, in the same ratio by the foot, according to the draft of the vessel, upon no other pretext, as appears by the law in the Code, than that she is engaged in the foreign trade, whether owned or not in this State. Surely all reasoning is at an end with the law-making power of the State, when it shall be necessary to argue that an agricultural



people ought not to burden the vessels of their own citizens and others which are engaged in bringing them articles of prime necessity and of general use, whilst the vessels of those *who have sometimes been purloining their property* in open violation of the laws of the State, are allowed to enter our waters, participate in our commerce, and come and go with cargoes of any size, with not a single farthing exacted of them without the positive contract of the captain of their vessels; and this, too, whether the vessel is owned or not by a Virginian. This unwise discrimination against our foreign commerce is, as a measure of State policy, in no way defensible."

\* \* \* \* \* "If the pilots of Virginia cannot subsist without this measure, in the shape in which it now stands; then it will be better to make a *direct appropriation* from the treasury of the State for their benefit, and let the voluntary principle be applied to them and their interests. When a captain wishes to employ a pilot, let him do it at such charges as may be thought reasonable, or make all vessels, whether coastwise or foreign, pay the same and be compelled to take the first pilot that offers his services, when the vessel approaches the waters of Virginia." The charges for pilotage will be seen to be most oppressive, when we are told that there are imposed by the existing laws "charges of from one dollar and fifty cents to two dollars and twenty-five cents from sea to Hampton Roads, and a further charge of four dollars and thirteen cents to Richmond, per foot, making the average of more than *six dollars the foot up to our chief town and nearly as much going out*—together about twelve dollars." No wonder then is it that "but few, if any of our citizens" engage "in direct foreign trade," when by employing any coasting vessel "to transport the cargo to New York or elsewhere out of the State, we may escape these charges in Virginia altogether." \* \* \* \* \* A correspondent of Mr. London's states the following significant fact: "A vessel drawing 15 feet of water, coming to Richmond with plaster from Nova Scotia *direct*, has to pay \$1 00 to \$1 50 for a pilot, equivalent to \$1 per ton tax on plaster, while a vessel from Massachusetts or Maine, with a coasting license, takes no pilot, brings plaster subject to no tax, and pays the northern man his profit." Now who is it that pays this tax of one dollar per ton on an article of prime necessity and therefore entitled, if any thing is so entitled, to immunity from taxation? We ask again upon whom does this tax fall of two hundred and fifty per cent. upon its cost (40 cents per ton) in Nova Scotia? Upon the farmers and

planters of Virginia, of course. And to whom goes this extra dollar of the cost of this fertilizer, but into the pockets of their Yankee enemies?

Similar losses are entailed upon Virginia by the operation of those laws as regards our West India trade where we find a ready market for "flour, corn, meal, staves, hoop-poles, and provisions," and from whence we receive in return "sugar and coffee," articles of general use and prime necessity. "Surely," says Mr. London, "the legislative body will bear no longer the humiliating attitude that they present to the world, of using the powers of the State to impoverish our own people so as to benefit those who have already received so much from the labour of the people of Virginia and the South." He then introduces the following table, attributed to M. R. H. Garnett, Esq., showing "that each man in the South pays the following unequal sums as compared with the North in the years named, to wit:

|                            | South per head. | North per head. |
|----------------------------|-----------------|-----------------|
| Years from 1791 to 1800, - | \$21 60         | \$11 25         |
| " 1801 to 1810, -          | 31 27           | 13 56           |
| " 1811 to 1820, -          | 32 37           | 10 37           |
| " 1821 to 1830, -          | 34 71           | 7 12            |
| " 1831 to 1840, -          | 27 42           | 4 29            |
| " 1841 to 1845, -          | 10 46           | 1 99            |

And that the South lost in the foreign trade the use of \$133,472,827 of her capital in the year 1848, and the North gained it—besides paying to the federal government as taxes the sum of \$26,000,000, twenty-three millions of which was spent beyond our borders. For the year 1858, upon the same principles, the South lost the use of about \$225,000,000 of her capital, taking our exports and imports as the basis of the calculation. These figures are frightful when the fact is disclosed that the citizens of Massachusetts absolutely receive two dollars in pensions and bounties whilst they pay only \$1 99 in taxes. The amount yearly taken from the labour of the South to benefit the Northern people by the laws of Congress is too huge for any freeman to contemplate with patience, and for the Legislature of Virginia to be intercepting a trade which might go directly from her

producers to those who need their products, and to divert these articles of trade into the hands of those who are not our friends, and that, too, at so frightful a cost, is too absurd to be anticipated."

Mr. London then adverts to the transactions of the Virginia Banks, and points out what he conceives to be the hurtful tendencies of their operation in regard to the interests of Virginia, &c., but space fails us for pursuing the subject further. We must conclude by referring the reader to the speech itself, exhorting the farmers and planters of Virginia to stand up to the defence of their own best interests, by abstaining from the use of everything of Northern origin which they can produce at home, and to patronize their own institutions of learning, their own literature, their own mechanics and artisans, produce their own hay, manufacture their own brooms, and, in fine, to establish to the extent that may be found practicable, a home market for their productions through the exchanges of commodities that must naturally occur between the farmer and mechanic to their reciprocal advantage.

W.

### Richmond Enterprise.

We have here several *new* factories of different kinds; among them the Mills of Messrs. S. McGruder's Sons and S. Hartman for grinding bones, and Manipulating Guanos. Mr. F. G. Ruffin, and Messrs. Edmond Davenport & Co., have had mills in operation for some months for the same purpose; so that our Virginia farmers can buy at home, manipulated guano, ground bones, super-phosphate of lime, &c., &c. Nay, more, if they do not want to buy, but merely to satisfy any curiosity they may have as to the manner of preparing these fertilizers, they can at all hours of the day find the Mill doors open, and are free to give everything in them a careful inspection, while their gentlemanly owners will take pleasure in showing them every part of their process, and in answering any questions they may feel disposed to ask.

They have no secrets as to the articles out of which their fertilizers are compounded, but everybody is invited to come and examine for themselves.

### Improved Stock and Farming Implements.

We extract from the *Enquirer* of the 21st of March, the article below, (to which our attention has been called by a friend to merit and a patron of public improvement,) respecting the claims of our esteemed friend, Dr. John R. Woods, of Albemarle, to "the gratitude and respect" of the agricultural public for his "contributions . . . in the cause of improvement in stock-raising, farming implements, and general husbandry." We have frequently adverted to Dr. Woods' public spirit and enterprise in introducing high types of improved breeds of stock, and have often heard his farm management much extolled, but we have not yet fulfilled a, too long deferred, purpose of visiting his hospitable mansion, whereby we may, like "Agricola," be enabled as an eye-witness to testify of the things whereof we have seen. We readily adopt as our own his article subjoined with but this exception, that until "*Ram*" shall, by universal suffrage, be voted out of the circle of the Zodiac, and be replaced by the more euphonious and delicate (?) but hirsute cognomen of "*Buck*"—a name patent only so far as sheep are concerned to Major Jack Downing's "*Old Bill*," the interchangeable synonym of *Buck*—we shall insist, with all the vehemence of Uncle Toby, upon calling a *Ram*—*RAM*!

#### "IMPROVED STOCK AND FARMING IMPLEMENTS."

"The merits of politicians and their public services, rarely fail to be sufficiently noticed through the press; public admiration and respect are freely invoked in their behalf; but it sometimes happens that efforts made by gentlemen to promote the good of the community, in the more humble but not less important department of agriculture, do not receive the acknowledgement that their liberal public spirit deserves. I am led to make these reflections by the contributions made by Dr. John R. Woods, of Albemarle, in the cause of improvement in stock-raising, farming implements and general husbandry.

"Dr. Woods has been very attentive to the different fertilizers in use for some years past, and has been active in recommending, by his example, their introduction into general use, and thus, perhaps, is entitled to much of the credit of the great improvement of lands in Albemarle. To his example and efforts, in a good degree, is to be attributed the now general popularity of the wheat drill, the most valuable accessory to the success of wheat culture.

"In the improvement of the breed of horses, he has made some sacrifices. Two years ago he undertook to import two stallions from Eng-



land, 'Havelock' and 'Napier.' The first a Cleveland bay, arrived safely, but did not meet his expectations; and Napier, of a more high bred stock, and said to be one of the finest horses ever raised in England, died on the passage to America. He did not succumb under these disappointments, but ordered another Cleveland bay, and in this last instance has been eminently successful in procuring a splendid specimen of a horse for general utility.

"His horse 'Symmetry' is a dark, dapple bay, sixteen and a half hands high, of commanding presence, full muscle, and powerful bone. Owing to the perfect proportions of all his parts, you do not realize that he is a very large animal until you stand close to him.

"Dr. Woods has laboured a good deal in the improvement of hogs and sheep. He has just imported a most magnificent buck, of the Cotswold stock, to cross on his present flock, that will compare with any, I presume, in Virginia.

"The sight of these two imports will repay a visit of one hundred miles to his hospitable mansion; which, in examining the results of his good farming, can scarcely fail to be a source of profit as well as pleasure to any one, as it certainly was to

"AGRICOLA."

For the Southern Planter.

### Experiments with American and other Guanos.

MR. EDITOR:—In the March number of the Southern Planter you ask for experiments with the American Guano. Having, last year, made some experiments with it and with other guanos, in order to test their respective merits, applied to both corn and tobacco, in which I was very particular, and, I believe, accurate, I now submit the results of the experiment on corn, and will, if you desire it, communicate hereafter the particulars of the one on Tobacco.

I selected a very poor piece of land for the experiment on corn, such as would not have produced more than five bushels per acre, if as much,—the selection being made of land thus poor, the better to test the strength and productiveness of the different guanos used. I marked off three acres, all as nearly equal as could be determined by the eye, and after thoroughly ploughing and preparing the land, I applied on the 30th of April to one acre 200 lbs. of American Guano, costing \$40 per ton of 2000 lbs., which was an outlay of \$4 per acre; on another acre I applied 200 lbs. of Kettlewell's Manipulated Guano, costing \$52 per ton of 2000 lbs.—an outlay of \$5.20 per acre; and on the third acre 200 lbs. of Peruvian Guano, costing \$59 per ton of 2000 lbs.—or \$5.90 per acre. These several applications were made broadcast, and the guanos thoroughly incorporated with the soil. The corn was all planted on the same day, and the after cultivation was neat and thorough, but in the month of August it all suffered intensely with drought, for about three weeks, which I think curtailed the crop very

much. It is proper that I should state that the same number of stalks grew upon each acre—there being not a missing hill in either. In the month of November, the product of each acre was carefully gathered and stored away by itself; and in January, after having become thoroughly dry, each parcel was shucked, shelled, measured and weighed separately, and the result is as follows:

The American Guano made 784 lbs. per acre, which was 196 lbs. of corn for each dollar expended, and it weighed 55 lbs. per bushel.

The Kettlewell's Manipulated made 1176 lbs. per acre, which was 226 lbs. for each dollar expended, and the corn weighed 56½ lbs. per bushel.

The Peruvian Guano made 1224 lbs. per acre, which was 207 lbs. of corn for each dollar expended, and the corn weighed 54 lbs. per bushel.

These experiments were fairly made, are correctly stated, and prove conclusively that the manipulated guano is the best and cheapest application for corn. But every gentleman can test the calculations, judge for himself respecting the peculiarity of the season, and deduce from the premises his own conclusions.

All which is respectfully submitted,

R. H. ALLEN,  
Oral Oaks, Va.

MARCH 23d, 1860.

We are very much indebted to Mr. Allen for the above communication, and will be still further obliged to him for the results of his experiments on Tobacco, which he so kindly offers to furnish.

### Maryland State Agricultural Chemist.

We are under obligation to Philip T. Tysom, Esq., "State Agricultural Chemist," for a copy of his report to the Legislature of Maryland. We shall fully avail ourselves, in a future number, of some of the many facts and valuable suggestions with which the report abounds, by laying them before our readers. We regret having to delay their publication on account of the pre-occupation of our columns at this time.

### Broom Corn.

Mr. P. Horton Keach tells us that the average price of Broom Corn, per ton of 2,000 lbs., will be about one hundred dollars. A first rate sample will bring rather more than the price named.

Lieut. Maury's Speech before the Agricultural and Manufacturing Association of North Alabama, has been received. We will pay our respects to it in our next issue.



### Hampshire Boar.

Above our readers have an engraving of Mr. Peyton Johnson's "Frank," copied from a photograph taken after he was fatted for the butcher.

by crossing with them. Two of our neighbors have owned "half Khaisi cows," which were very valuable—one of them giving five gallons of milk a day; and the other rather more than four.

The thorough-breds are rather *too* active and frisky, as they cannot be restrained by any ordinary fence; but cattle with one-fourth Khaisi blood would make first rate oxen, as they would possess more activity and spirit than our native stock.

We advise our country friends, who are fond of seeing fine cattle, to go and take a look at "Mazeppa," when they visit this city. They can obtain directions for finding him by calling at the office of the Virginia State Agricultural Society, or at this office.

We hope Messrs. Kuhn & Martin will exhibit "Mazeppa," in company with a lot of his calves, at the shows of our Agricultural Societies next fall.

### Orchards and Orchard Houses.

We return thanks to C. M. Saxton Barker & Co. of New York, for a copy of a most excellent work on the best modes of constructing *Orchard Houses, Dwarfing Fruits, &c., &c.*

This book is admirably adapted to the wants of all those who are engaged in cultivating fruits for market, where it is an important item of profit to have them early.





*For the Southern Planter.*

### Lines for a Lady's Album.

BY JAMES A. AUGUST.

You ask me to indite a rhyme.  
 Fit offering for this volume fair,  
 Whose leaves should glow with thoughts sublime.  
 And words like jewels rich and rare;  
 I promis'd in a luckless hour  
 Tribute worthy of its pages,—  
 Oh! that man had always power  
 To fulfill what he engages.  
 'Twas on a soft poetic night,  
 Pen in hand—trimm'd fair and taper—  
 I boldly sat me down to write  
 Upon finest gilded paper,  
 Invoking first the muse's aid  
*After old establish'd fashion.*  
 To my dismay, the gentle maid,  
 Answer'd in a downright passion!  
 The sheet lay spread in all its grace,  
 Fair as that lily hand of thine—  
 The pen deserves in verse a place,  
 The ink was good, the light divine;  
 But vain was all this tempting show,  
 Vain these pretty preparations,  
 Poetic thoughts refused to flow,  
 Fervent though my invocations.  
 I trimm'd my light and trimm'd again,  
 Until it beamed a lustrous blaze,  
 But all my trimming was in vain  
 To brighten fancy's dying rays.  
 Then finding all bright visions fade  
 Like moonbeams on a misty night,  
 I call'd the muse a fickle maid—  
 I own, 'twas very impolite.  
 My very inkstand seem'd to leer,  
 Mocking at my vain endeavor;  
 I rose in anger from the chair,  
 Turning ink and table over!  
 Then overcome with dark despair,  
 I threw myself, with all my woes,  
 Into a friendly rocking-chair,  
 And soon began to dream and doze:  
 Then sweet sleep stole gently o'er me,  
 All dark mem'rys fled like bubbles,

And such visions rose before me,  
 As supplanted all my troubles.  
 I saw a fair and joyous throng  
 Of maidens on a flow'ry lawn,  
 And as they gently tripp'd along,  
 Each looked as lovely as the dawn,  
 But one there was whom well I knew,  
 And Lady! all but you might tell,  
 On whom, each nymph a garland threw—  
 On whom, each rosy chaplet fell.  
 Many a lovely child of air  
 Was floating in that smiling train;  
 The graces, hand in hand, were there,  
 And beauty with her magic chain.  
 There music, too, trill'd softest tune,  
 How could the gentle sylph refuse;  
 And Lady—doubt it not—there shone,  
 In all her wonted charms—the muse!  
 "Poor simple youth!" began the maid;  
 "Think you that I could tamely bear  
 That one should call on me for aid,  
 In offering at a shrine so fair,—  
 Drink inspiration from yon eyes,  
 When fancy's flame is burning low,  
 And beaming from their kindred skies,  
 A far diviner ray will glow!"

THE  
**SOUTHERN PLANTER,**  
ADVERTISING SHEET.

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No. 4.

RICHMOND, VA.

APRIL, 1860.

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April 60.



The former Firm of

## GEO. WATT & CO.,

having been this, 22d day of December, 1858, dissolved, we have associated ourselves in business, under the firm of GEO. WATT & CO., for the purpose of making and selling the WATT

## CUFF-BRACE PLOW,

With the

## BREAST IMPROVEMENT

thereon, and the

## HANOVER PLOW,

And shall keep constantly on hand a large assortment of these Plows, and Castings of these and other popular kinds, with Cultivators, Harrows, Corn or Tobacco Weeders, Hillside and Subsoil Plows, new ground Coalers, &c

All of which are made in our own Factory.

Also, Straw Cutters, Grain Cradles, Corn Shellers, Corn Planters, (Caldwell's make,) and a variety of other useful implements in our line, which we warrant to give satisfaction, or be returned. We solicit a call from the Agricultural Community, assuring them that our best efforts shall be used to give them superior articles.

GEO. WATT,  
HUGH A. WATT.

Richmond, December 23, 1858.

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

GEO. WATT, PATENTEE.

Richmond, January 1859.

## City Savings Bank of Richmond CHARTERED IN 1839.

Continues to receive deposits, on which interest is paid at the rate of 6 per cent. per annum, if remaining on deposit six months, and 5 per cent. for shorter periods.

HORACE L. KENT, Pres't.

ALEX. DUVAL, Sec'y.

N. AUGUST, Cashier.

### DIRECTORS:

John N. Gordon, Samuel Peirney, H. Baldwin, J. Davenport, Jr., Charles T. Wortham, Hugh W. Fry and Wellington Goddin.

Jan 1859.—1y

## R. O. HASKINS,

Ship Chandler, Grocer and Commission Merchant,

In his large new building, in front of the Steamboat Wharf, ROCKETS, RICHMOND, VA.

Sept 1859.—1y

## MITCHELL & TYLER,

DEALERS IN

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

RICHMOND, VA.

## SOUTH DOWN LAMBS FOR SALE.

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

FRANK. G. RUFFIN.

April 60.—if

## THOROUGH-BRED NORTH DEVONS AT PUBLIC AUCTION.

The subscriber intends holding his Second Public Sale of Devon Cattle, on *Wednesday, the 6th of June next*—when he will offer between 20 and 30 head, males and females, all of his own breeding, Herd-book animals, and of superior excellence. As at his previous sale, each lot will be started at a very low upset price, and sold without reserve to the highest bidder over that amount.

Catalogues containing pedigrees of the animals to be sold, and full particulars as to terms, &c., will be ready by the 15th of April, and will be sent to all desiring it.

C. S. WAINWRIGHT,

Ap 60—3if

The Meadows, Klinebeck, N. Y.

## PIGS OF IMPROVED BREED FOR SALE.

I have for sale, to be delivered at weaning time, a good many pigs of improved breed. I have produced it myself from crosses of the *Surry* (or *Suffolk*) genuine *Berkshire*, (Dr. John R. Woods' stock) *Irish Grazer*, *Clester County*, *no Bone* and *Duchess*. I think them superior hogs of medium size, and for fourteen years they have not had a bad cross among them. I prefer that purchasers should view my brood sows and my boar on my farm, three miles below Richmond. I will not sell them in pairs, because the in-and-in-breeding would depreciate the stock at once and cause dissatisfaction. But I will sell in one lot several of the same sex.

Price \$10 per head for one, and an agreed price for a larger number. They will be delivered on the Basin or any of the Railroad Depots free of charge.

FRANK. G. RUFFIN.

Summer Hill, Chesterfield. March. 30. 1858.

## 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 59—1y 101 Broad St., Richmond, Va.

To Farmers and Planters.

**DR. JAMES HIGGINS,**

(For the past ten years State Agricultural Chemist of Maryland.)

Agent for the Sale of Real Estate, Dealer in Manures,

and every thing connected with the Farming and Planting interests, offers his services.

A long experience as a practical planter and farmer, with the constant analytical examination for more than ten years, of every kind of Manure sold in our market, (advantages possessed by none others in the trade,) will enable me always to furnish those, who may favor me with their orders, with the *best, purest, and therefore the cheapest* Manures.

Farmers, Planters and others will be furnished with the following natural Manures:

PERUVIAN GUANO.

MEXICAN GUANO.

SOMBRERA GUANO.

NEVASSA GUANO.

COLUMBIAN GUANO.

BONE DUST.

and all others in our market worthy of purchase. Also with PLASTER OF PARIS, and PURE or MAGNESIAN LIME, according to the wants of the soil, and too much care cannot be taken in adapting the proper lime to soils; for the want of this kind thousands of dollars have been annually lost to our State. Also the following artificial Manures:

HIGGINS' SUPER PHOSPHATE OF LIME—prepared under his own direction; and

HIGGINS' PHOSPHATED PERUVIAN OR MANIPULATED GUANO, prepared with the greatest care and precision.

This mixture of Peruvian and the Phosphatic Guanos was first recommended by me, and successfully used by many planters and farmers of this State years before it was ever made or sold in the city of Baltimore, by those who have pretended to be its originators. (If this be denied, I can furnish abundant proof of the accuracy of my statement.) Also

HIGGINS' NITRATED SALINE FERTILIZER, an admirable Top-Dressing for Wheat, Oats or Grass, which has been successfully used for many years, and prevents, to a great extent, the wheat from being straw-fallen; where the wheat is pale, sickly or yellow, it at once changes it to a bright, healthy green, and rapidly increases its growth, and greatly promotes the yield.

All Manures sold in our markets are liable to differ naturally, though coming from the same place, and bearing the same mark. Still more are they liable to adulterations, &c., and for these things our Inspection System has never afforded an adequate protection.

All Manures sold by me will have my name stamped on each bag or barrel, be carefully analyzed, and for their purity the buyer is pledged a LEGAL GUARANTEE and my PERSONAL HONOR.

The Manures sold by me will be at the same rate as those sold by others in the trade.

Persons wishing to obtain any of the Manures manufactured by me, or any others of my selection, should so specify in their orders to their agents in town.

TERMS Cash, or accepted city paper.

Office and Laboratory, Second Street, 3d door from South Street, in Gitting's New Building.

May 59—11

BALTIMORE, MD.

## STRAW CUTTERS.

My patent Straw Cutter is admitted to be the most valuable in use. I guarantee satisfaction.

H. M. SMITH, Agricultural Warehouse,

oc 58—12

4 Main Street.

## NEW MACHINE SHOP.

Having completed my new Factory on Franklin Street and Walnut Alley, the whole being in connection with my

**IMPLEMENT AND SEED STORE,**

on Main Street. I now invite particular attention to the facilities I have for manufacturing any kind of Machinery, and for supplying Seeds and Implements of every description.

As heretofore I shall pay particular attention to my

## PORTABLE THRESHERS,

with Horse-Power, so arranged as to require no digging or delay in starting; and shall keep Machines of the best plan and workmanship, such as Straw Cutters, Corn Shellers, for hand and horse-power, Wheel Fans, Cradles, Reapers, Hay Presses, Cider Mills, Seed Drills, Plows, Harrows, Hay-rakes, Gleaners, Cultivators, &c.

I invite special attention to my

## PATENT STRAW-CUTTER,

which is warranted to be the best Cutter made, and is sold at the low price of \$10; also to the

## VIRGINIA CORN-SHELLER.

as made by me from the original patterns, capacity 600 bushels a day.

Repairs of Threshers and Reapers attended to promptly. Agent for

BICKFORD & HUFFMAN'S WHEAT AND GUANO DRILLS, and C. H. McCORMICK'S REAPERS.

H. M. SMITH.

Mar 60—6m

14 Main St.

## NEW FLOWER SEEDS,

FOR 1860.

BARNES & WASHBURN'S PRICED CATALOGUE OF FLOWER SEEDS,

Containing all the novelties of the season, is now ready, being the most complete and comprehensive of any ever sent out in this country. Being aware of the embarrassment experienced by amateurs in making their selections from the Catalogues heretofore sent out by seedsmen, we have in addition to our General Descriptive List of about Six Hundred varieties in tabular form, prepared a Special List of upwards of Two Hundred of the newest and most popular sorts, giving a detailed description of each, and explicit directions for their cultivation. Also those about to purchase Flower Seeds, will find it to their interest to first consult this Catalogue.

Flower Seeds forwarded by mail to any part of the United States of America, post paid.

Catalogues forwarded, post paid, on the receipt of a three cent postage stamp to all applicants.

Address, BARNES & WASHBURN,

Seedsmen and Florists.

Harrison Square, (near Boston,) Mass.

Mar 60—3t



**RUFFIN'S**  
**PHOSPHOR-PERUVIAN GUANO,**  
**TOBACCO MANURE,**  
**AGRICULTURAL SALT AND GROUND BONE ASH.**  
**F. G. RUFFIN,**

CORNER ELEVENTH AND CARY STREETS, ON THE BASIN,  
 RICHMOND, VA.,

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

**RUFFIN'S PHOSPHOR-PERUVIAN GUANO,**

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

**RUFFIN'S BONE ASH GUANO,**

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

**RUFFIN'S TOBACCO MANURE.**

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

**RUFFIN'S GROUND BONE ASH,**

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

**AGRICULTURAL SALT,**

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

**AGRICULTURAL SALT,**

In bags, per ton of 2,000 pounds, \$13.

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

April 60—4

## Virginia Land Registry and Agency Office, LYNCHBURG, VA.

The undersigned, by request of land sellers, has established in the city of Lynchburg, an Agency for the sale of Land, the object of which is to afford facilities both to the seller and purchaser of the land. He will keep in his office a LAND REGISTER, containing correct and thorough descriptions of Farms for sale, including quantity, quality, location, price, terms, and all other information essential to be known by one desirous of purchasing.

In this way, persons unacquainted with the country, or wishing to purchase, can, without delay, have such a plantation pointed out to them, as would suit their wishes, and the purchaser and seller at once be able to meet each other. And, on the other hand, sellers can bring their land to the notice of those directly concerned, without that notoriety which is often unpleasant within itself.

Persons who wish the aid of this office in selling, must give a full and accurate description of their land, in order that a fair and candid representation may be made to the purchaser.

This Agency will be advertised in the most prominent agricultural papers.

All communications must be post-paid, and if an answer is required, must be accompanied with a postage stamp, and they will be promptly attended to.

Registering Fee, \$10.

Office at Wm. T. Anderson's, Bridge Street, next door to Messrs. Irby & Saunders.

May '59—tf

LEYBURN WILKES.

## WM. P. LADD.

No. 310, head Broad Street, Snockoe Hill,

RICHMOND, VA.

Wholesale and Retail Detail Dealer in English, French and American

## DRUGS, MEDICINES, CHEMICALS,

Paints, Oils, Varnishes and Dye-Stuffs; Window Glass,

Putty, Glue and Sand Paper; Paint, Camel's

Hair and Whitewash Brushes; Cloth

Hair, Flesh, Nail and Tooth Brushes.

Fine and Choice Perfumery, Fancy Goods,

PURE LIQUORS AND WINES,

For Medicinal and Sacramental Purposes.

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

## Landreth's Celebrated Garden Seeds,

In great variety. Also,

DRS. JAYNES AND ROSE'S

## FAMILY MEDICINES,

## MEXICAN MUSTANG LINIMENT.

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

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

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

## Corn Shellers of Various Kinds.

The Cylinder for hand will shell 400 bushels per day, the same for horse power and hand will shell the same by hand and 600 by horse power. The Reading Sheller will shell from 1,000 to 1,500 bushels.

WHEAT FANS, and the usual variety of machinery on hand.

oe 53—tf

H. M. SMITH,  
14 Main Street.

## EDNEY'S AMERICAN PUMP.

Without Packing—Without Suction.



This Pump, patented 1859, is a double acting force pump, without chains, guide rods or pulleys, is the simplest, strongest, cheapest Pump yet invented; can be put in by any one, and without going into the well, and raises from 6 to 60 gallons per minute, according to size; works by hand, water, wind or steam, and is warranted to give satisfaction in all depths, and to raise water by a ten year old boy 60 feet. All depths under 20 feet complete, \$18. Drawings and full particulars sent free.

Address,

JAMES M. EDNEY.

147 Chambers St., New York.

Mar 59—tf

## IMPORTED "SYMMETRY."

THE PROPERTY OF JOHN R. WOODS,

Near Ivy Depot, Albemarle County, Va.

SYMMETRY is five years old this spring, is a rich bay, with black legs, 16½ hands high, and combines great substance and fine form, with excellent temper and superior action.

The best judges who have seen the Clevelands in England and on the continent, say they have never seen his superior.

He was got by Perfect, (which name indicates his character,) dam by Skyrocket, g. dam by Winterfield, g. g. dam a superior Cleveland mare by Rectifier.

Perfect was by Rubens, dam by Luck's All, g. dam by Volunteer.

Skyrocket by Master George, dam by Cleveland, Cleveland by Champion.

Master George by King George, dam by old Barnaby.

SYMMETRY'S dam, a superior coaching mare, obtained the FIRST PRIZE at the Newton-on-Ouse Agricultural show in 1855; beating a large class; and the SECOND PRIZE at the Wetherby Agricultural Show the same year. The whole of her stock have received FIRST PRIZES at the different Agricultural Shows.

SYMMETRY will serve mares at \$35 the season, which can be discharged by the payment of \$30 before the 1st of July, and 50 to insure, with fifty cents to the groom. Pasturage, &c., at the usual rates. Mares from a distance will have every care taken of them, but no responsibility incurred for accidents.

Near Ivy Depot P. O., Albemarle Co., Va.

April 60—1t

## Essex Pigs for Sale.

The subscriber has a few pure bred Essex PIGS. Price \$10 each. Also some half Essex, out of Sows of "Berkshire and Grazier" stock. Price of the latter, \$15 for two.

The best only of the litter will be sent to persons ordering them.

May '59.

JAMES E. WILLIAMS.

## Rich's Iron Beam Plows.

A full supply on hand, and for sale by

H. M. SMITH,

14 Main Street

oe 58—tf.



# PHOSPHATIC GUANO,

## FROM THE ISLAND OF SOMBRERO, West Indies,

### THE RICHEST DEPOSITE OF PHOSPHATE OF LIME KNOWN TO THE WORLD.

By a careful analysis of an average sample of different cargoes, the annexed eminent Chemists have found this remarkable deposite to contain of Phosphate of Lime, as follows:

|                     |   |                                     |   |                |        |           |
|---------------------|---|-------------------------------------|---|----------------|--------|-----------|
| By PROFESSOR HAYES, | - | Boston,                             | - | of 1st Sample, | \$9.60 | per cent. |
| "                   | " | "                                   | " | 2d             | "      | \$9.20    |
| " REESE,            | - | Baltimore,                          | - | 1st            | "      | \$5.14    |
| "                   | " | "                                   | " | 2d             | "      | \$6.60    |
| "                   | " | "                                   | " | 3d             | "      | \$2.04    |
| "                   | " | "                                   | " | 4th            | "      | \$2.04    |
| " CHILTON,          | - | New York,                           | - | 1st            | "      | \$6.34    |
| "                   | " | "                                   | " | 2d             | "      | \$1.92    |
| " PIGGOT,           | - | Baltimore,                          | - | 1st            | "      | \$6.85    |
| " HUSON,            | - | Liverpool, England,                 | - |                | "      | \$0.20    |
| " DECK,             | - | New York,                           | - | 1st.           | "      | \$8.00    |
| "                   | " | of a selected specimen,             |   | "              | "      | \$8.25    |
| " MAUPIN & TUTTLE,  | - | University of Virginia,             |   |                | "      | \$5.16    |
| " WILLIAM GILHAM,   | - | Military Institute, Lexington, Va., |   |                | "      | \$3.40    |

Thus proving it to average the richest deposite of Phosphate of Lime known to the world.

Pure Bone Dust contains but 55 or 56 per cent. of this important Phosphate; hence a comparison of the relative value of the two, will at once show which is the most desirable for Agricultural purposes.

Guanos are of two distinct species—those in which the Phosphates of Lime predominate in Sombbrero, and others; and those in which Ammonia predominates, as in the Peruvian. Each experience and theory establish the fact, that Ammonia and Phosphate of Lime are essential ingredients for a general fertilizer, and, consequently, for general purposes, a proper mixture of the two is recommended: whilst the Peruvian and other Ammoniated Guanos, are mere *stimulants* or *quickeners* of the soil, the Sombbrero and other Phosphatic Guanos, are permanent fertilizers, but of slower action and less perceptible effect the first year, unless aided by some stimulants. Hence the great importance of combining the two in proper proportions, which, if done, makes the *best most convenient, and economical fertilizer known*. Assuming the cost of Peruvian Guano at \$62, and Sombbrero at \$34 per ton—and with one-quarter of the former, mix three-quarters of the latter, (*these proportions are recommended by experienced Farmers*.) it gives, at a cost of about \$41 per ton, a fertilizer far more valuable and permanent than the Peruvian *alone*. The agriculturist need only be reminded of the nature of the two predominating ingredients, in the different species of Guano, to enable him to understand the proper mode of its application. Whilst Ammonia (in the Peruvian) is liable to evaporate or rise, Phosphate of Lime (in the Sombbrero) is heavy, and liable to sink below the reach of the roots of plants. Therefore it should be either deposited in the hill, or drill with the crop, or used as a top dressing, in the proportion of from 200 to 400 lbs. to the acre, according to the wants of the soil. If used as a top dressing, the Spring is the best time, when the crop is assuming its strength and sustenance, as, at that time, the benefit of the Ammonia is less likely to be lost than if used in the Fall or early Winter.

### EDMOND DAVENPORT & CO., Agents.

#### RICHMOND, Virginia.

It can also be obtained of A. GARRETT, E. WORTHAM & CO., DUKE & HUTCHINSON, and E. H. SKINKER, Richmond.

Feb. 1, 1858.

### CO-PARTNERSHIP NOTICE.



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

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

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

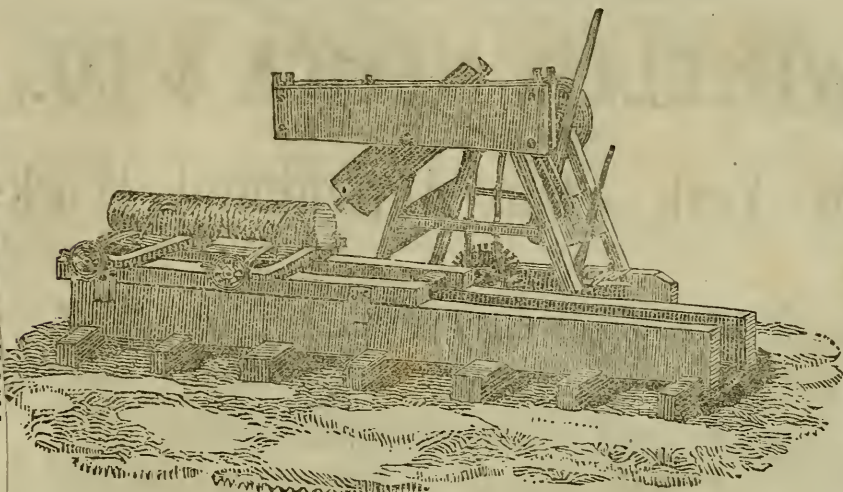
Feb 1859—1y

SAMUEL S. COTTRELL.



HAW'S IMPROVED

PECKER SAW MILL.



The above cut is a representation of J. HAW'S Pecker Saw Mill.

It is simple in its construction, very durable; and is well adapted for plantation sawing. It will saw with from 4 to 6 horse-power from 1,000 to 1,500 feet per day, if properly managed. The carriage is 24 feet long and will cut logs that will square to 21 inches, and cuts all kinds of timber. The timber is inserted in the oblong plate, and can be renewed when worn out.

I have given the Mill a fair trial, and warrant the performance as above stated. The price of the Mill is \$26 with extra pinions, screw-wrench, cant-hooks, set-punch, and one extra set of teeth. Any good thrasher horse-power will answer to drive it. I also make Threshing Machines from 4 to 12 horse power, and Threshers to thresh and clean Wheat at the same operation, for which I can give satisfactory references to the largest farmers on the Pamunkey River. Those wishing further information, will address

October 1858—tf

JOHN HAW, Old Church, Hanover Co., Va.

## NAVASSA GUANO

THE RICHEST PHOSPHATIC GUANO IMPORTED.

Our attention is respectfully invited to the annexed Analysis and Reports on the Guano offered by me, and especially to the fact therein shown, that it contains in a given bulk a greater amount of Phosphates than is found in any other manure, natural or artificial, yet offered to the public. Phosphoric acid is now admitted by the best agricultural authorities to be the one thing above all others necessary to be returned to the soil, to enable it to produce an unfailingly good crop without permanently impairing its general fertility; in this guano we have it presented in the form best adapted for such a purpose. I am anxious to have, some of you tried in every district, and also that such as try it, may favor me through my Agents, with the earliest information, as to how far it has practically borne out the anticipations of those who have scientifically examined its constituents, with a view to enable me, and district Agents to make early arrangements for an adequate supply for the following year. Owing to the rapidly diminishing supply of Guano from the Chincha Islands, its yearly advancing price, and the exhaustive effects produced by its too free application to the land, from its possessing too much ammonia, in proportion to its Phosphates, Navassa Guano excels it in practical use and especially to the farmer as permanently improving to the land, which might yearly receive from the application of NAVASSA GUANO, more Phosphates than the crop would deprive it of.

All local Merchants and Dealers are required to give a guarantee on purchasing that they will sell it to consumers genuine, as received.

Very respectfully,

WM. F. MURDOCK,

No. 29 Exchange Building, Baltimore, April 4, 1858.

Report of Analysis of "Navassa Guano"—Made for E. K. COOPER.

The sample was found upon Analysis to be composed as follows—

|   |   |   |       |
|---|---|---|-------|
| Bone Phosphate of Lime, . . . . .             | - | - | 84.73 |
| Containing of Phosphoric Acid, . . . . .      | - | - | 38.82 |
| Fluoride of Calcium, . . . . .                | - | - | 2.54  |
| Carbonate of Lime, . . . . .                  | - | - | 5.35  |
| Per Oxide of Iron and Some Alumina, . . . . . | - | - | 3.00  |
| Water, &c. . . . .                            | - | - | 4.38  |

100.

The extraordinarily high per centage of Phosphate of Lime above stated, recommends this article at once as a superior Phosphatic manure, especially at the present time when the want of the better qualities of Phosphatic Guanos is most seriously felt. The presence of Fluoride of Calcium is of no slight importance. This substance serves as a direct nutriment to plants and, subsequently, enters the composition of the Bones and Teeth of Animals.

Bone Phosphate of Lime.

Bone Phosphate of Lime.

Jas. R. Chilton, M.D., New York, 83.75

R. H. Stabler, M.D., Alexandria, 85.92

For sale by S. McGRUDER'S SONS, E. H. SKINKER & CO., Richmond; JOHN ROWLETT & CO., H. C. HARDY & CO., Petersburg; SCOTT, FRENCH & CO., Fredericksburg; GARRISON & MAIGNE, Norfolk; J. C. NEVETT, Alexandria; VALENTINE S. BRÜNNER, Frederick, Md.; BENJ'N DARBY, Georgetown, D. C.

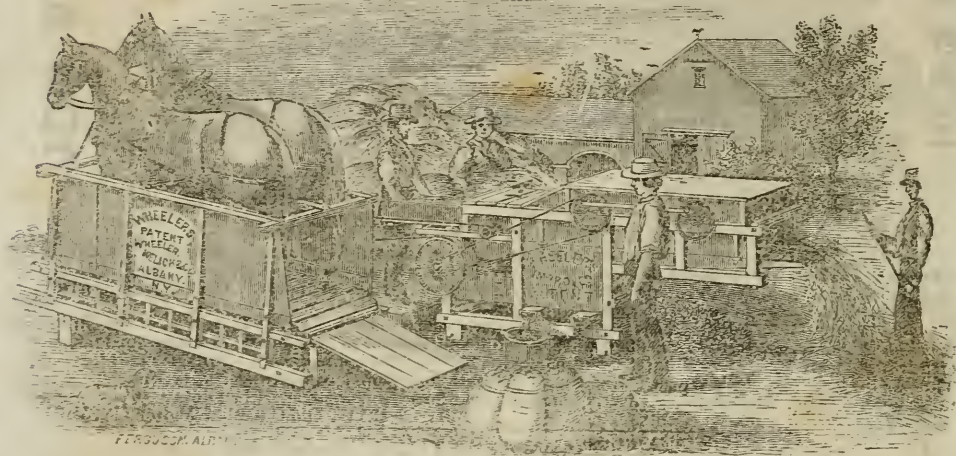
May 1859—tf



# WHEELER, MELICK & CO.,

## PROPRIETORS

### New York State Agricultural Works.



[DOUBLE POWER AND COMBINED THRESHER AND WINNOWER, AT WORK.]

Manufacturers of Endless Chain Railway Horse Powers, and Farmers' and Planters' Machinery for Horse Power use, and owners of the Patents on, and principal makers of the following valuable Machines:

#### WHEELER'S PATENT DOUBLE HORSE POWER, AND IMPROVED COMBINED THRESHER AND WINNOWER, [SHOWN IN THE CUT.]

##### WHEELER'S IMPROVED PATENT COMBINED THRESHER AND WINNOWER

Is a model of simplicity and compactness, and is made in the most substantial manner, so that its durability equals its efficiency and perfection of work. Its capacity, under ordinary circumstances, has been from 125 to 175 bushels of Wheat, and from 200 to 300 bushels of Oats per day. It works all other kinds of Grain equally well, and also threshes and cleans Rice, Clover and Timothy Seed.

Price, \$245.

#### WHEELER'S PATENT SINGLE HORSE POWER, AND OVERSHOT THRESHER WITH VIBRATING SEPARATOR.

Threshes from 75 to 100 bushels of Wheat, or twice as many Oats per day without changing horses—by a change nearly double the quantity may be threshed.

Price, \$125.

#### WHEELER'S PATENT DOUBLE HORSE POWER, AND OVERSHOT THRESHER WITH VIBRATING SEPARATOR,

Does double the work of the Single Machine, and is adapted to the wants of large and medium grain growers, and persons who make a business of threshing.

Price, \$160.

## WHEELER'S NEW FOUR HORSE, OR SIX MULE HORSE POWER,

Is a recent invention, designed to meet the wants of Southern and Western customers. We believe it the simplest and most perfect Lever Power made. Price, \$100.

Also, Circular and Cross-Cut Sawing Machines, Clover Hullers, Feed Cutters, Horse-Rakes, and other Farming Machines.

To persons wishing more information and applying by mail, we will forward a Circular containing such details as purchasers mostly want—and can refer to gentlemen having our Machines in every State and Territory.

Our firm have been engaged in manufacturing this class of Agricultural Machinery 25 years, and have had longer, larger and more extended and successful experience than any other house.

All our Machines are warranted to give entire satisfaction, or may be returned at the expiration of a reasonable time for trial.

Orders accompanied with satisfactory references, will be filled with promptness and fidelity; and Machines, securely packed, will be forwarded according to instructions, or by cheapest and best routes.

**WHEELER, MELICK & CO.,**  
ALBANY, N. Y.

April 60--2t

## GROVER & BAKER'S CELEBRATED FAMILY SEWING MACHINES.

NEW STYLES---Prices from \$50 to \$125. Extra charge of \$5 for Hemmers.

This Machine sews from two spools, as purchased from the store, requiring no re-winding on thread. It hems, fells, gathers and stitches in a superior style, finishing each seam by its own operation, without recourse to the hand needle, as is required by other machines. It will do better and cheaper sewing than a seamstress can, even if she works for one cent an hour.



Sales Room, under Mechanics' Institute, Richmond, Va., 9th Street.

To the Grover & Baker's Sewing Machine Co.—Gents: Perhaps you may like to know how the Grover & Baker machines are doing in Cuba. We have twenty-five of your machines in use, making government clothing for the army, and plantation sewing, which we have had in use now about eighteen months, and their performance has far exceeded our most sanguine expectations. We run the machines constantly by steam, at a high rate of speed, and we find them to require but little repair—indeed, they seem not to be worn at all. We have tried both the Singer and Wheeler & Wilson machines, but they have been long since laid aside in the race. One thing we are sure of—that the Grover & Baker machine is the only machine for our work.

JOHN J. SLOCUM,

Sup't of the Industria, Cabana, Havana.

Some years since I purchased a Shuttle Machine, and found so much trouble in working it, that I gave it away, and after closely examining the mechanism and working of every machine within my reach, I purchased a Grover & Baker, as best suited to do the sewing of my family. I have found it simple, easily kept in order, and in evidence of its simplicity, will state that my daughter, when about ten years old, without any particular instruction, had no difficulty in working it, and finds it very fascinating employment.

ROBERT CHILSDEN, Beaufort, S. C.

Jan 1860—6t.

## COUNTY AGENTS WANTED.

**\$50 A MONTH**, and all expenses paid, to introduce our **NEW NATIONAL DOUBLE THREAD \$20 SEWING MACHINE**. The cheapest and best. For complete instructions and a permanent business, address, with stamp,

J. W. HARRIS & CO.,

Shoe and Leather Exchange, Boston; Mass.

April—2t

## FOR SALE.

A **SPLENDID YOUNG STALLION**, Sired by "KOSSUTH," and out of a thorough bred mare. He is sixteen hands high, four years old—is thoroughly broken to harness, and has received *five first premiums*.

Color a rich bay.

Enquire at SOUTHERN PLANTER Office for full particulars.

Mar 60.



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# VIRGINIA FERTILIZER,

OR,

## S. McGRUDER'S SONS'

### PHOSPHO-PERUVIAN

# GUANO!

---

We offer for sale PHOSPHO-PERUVIAN GUANO, Manufactured by ourselves, and warranted to contain EIGHT PER CENT OF AMMONIA, and FORTY-FIVE to FIFTY PER CENT OF PHOSPHATE OF LIME.

PRICE, \$50 CASH, PER TON, OF 2000 POUNDS.


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Having been for many years largely engaged in the Guano trade, and carefully observed and had reported to us, by reliable practical farmers, the result of experiments with nearly every variety of Guano, enables us to furnish a Fertilizer which we with great confidence recommend and believe to be much cheaper than the Peruvian, when used alone.

The ingredients in this preparation are the very best Peruvian and Phosphatic Guanos, selected with great care and by rigid analyses—ground to a very fine powder, and thoroughly and intimately mixed. There is no secret as to the ingredients used, or process of manufacturing, and our Mill will, at all times, be open to Farmers who desire to see for themselves.

## FOR TOBACCO, OATS, AND CORN,

We do not think this Fertilizer can be excelled; and its beneficial effects, in the improvement of the land, is unquestionable.

We shall also keep constantly on hand a supply of FINE GROUND BONE DUST and BONE ASH.  PRICE \$35 per Ton.

**S. McGRUDER'S SONS, Richmond.**

# RHODES' SUPER-PHOSPHATE.

Every lot offered for sale regularly Analyzed and fully Warranted.

MANUFACTURED BY

**B. M. RHODES & CO.,**

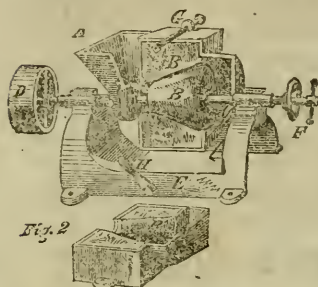
Office 82 South Street, Bowly's Wharf, Baltimore, Md.

Packed in Barrels and Bags. Price \$45 per ton, cash, in Baltimore.

## AGENTS IN VIRGINIA.

Richmond—SCHAER, KOHLER & CO,  
 Petersburg—VENABLE & MORTON.  
 Lynchburg—M. HOLLINS & CO.  
 Norfolk—B. J. ROCKOVER.  
 May 1859—1y

Alexandria—WATERS, ZIMMERMAN & CO.  
 Fredericksburg—SCOTT, FRENCH & CO.  
 Farmville—H. E. WARREN.  
 Blacks & Whites—JEFFERSON & WILLIAMSON.



## EXCELSIOR CORN MILL For Planters, AGENCY NO. 45 GOLD STREET, NEW YORK.

THIS is a CONICAL FRENCH BURR STONE MILL, of greatly Improved Construction, combining advantages over all others of same material, in compactness, simplicity, the small amount of power required to operate it, in not heating the meal, and in being adapted to grind on the same Mill, the coarsest feed and finest flour. Negroes of sufficient intelligence to run and keep it in perfect grinding order, are found on every plantation. The Gin power used by Planters is admirably adapted to drive the EXCELSIOR MILL.

Two good horses working on any good power, will grind five bushels flour, or fine meal the hour. It is only 36 inches long, 18 wide, and 18 high—weighs 300 pounds. The best Mill ever invented for plantation use—will last a life time, and therefore must not be confounded with the numberless Iron Mills with which planters have been humbugged for years past. It is a perfect gem, of inestimable value on any plantation.

PRICE—\$100

Descriptive Circulars sent by

Nov. 1859—6m

**J. A. BENNET, Sole Agent.**

## MANIPULATED GUANO! MANIPULATED GUANO!

We offer to the Planters of Virginia a Guano prepared by us as follows:

1000 lbs. of the best Peruvian Guano that can be procured;

800 lbs. of the best Sombrero Guano, containing full 80 per cent of the Phosphate of Lime.

200 lbs. of the best Ground Plaster, for which we pay \$2 per ton extra.

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

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

For sale by

**EDMOND DAVENPORT & CO.**

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

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

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

"I am now able to give you the results of analysis. They show the Mixture to be what you stated in a former letter, and I judge that you are very fortunate in the selection of materials, especially of Peruvian Guano. The per centage of Ammonia shows the pure Peruvian to contain 12.4 per cent., which is more than the average. The Analysis is as follows:

|   |   |   |   |        |
|---|---|---|---|--------|
| Moisture (given off at boiling point of water,) | - | - | - | 10.05  |
| Phosphate of Lime,                              | - | - | - | 48.26  |
| Sulphuric Acid, 5.45 }                          | - | - | - | 9.09   |
| Lime, 3.64, }                                   | - | - | - | 6.20   |
| Ammonia,  | - | - | - | 1.55   |
| Insoluble Matter,                               | - | - | - | 21.85  |
| A small quantity of Alkali—undetermined. }      | - | - | - |        |
| Water in combination and Organic Matter, }      | - | - | - |        |
|   |   |   |   | 100.00 |

Hoping that your Fertilizer may meet with the success which it deserves.

I remain, very respectfully yours,

Jan—11 **D. K. TUTTLE."**



# A FEW THOUGHTS ON CONCENTRATED FERTILIZERS.

The subject of *Concentrated Fertilizers* is one of great importance to agriculture. Their use involves the outlay of vast sums of money, hence we submit a few thoughts, looking to economy, which may not be without interest to consumers of fertilizers.

All fertilizers may be divided into two classes—namely: first, *concentrated*, or those which require an application of from 100 to 300 lbs. per acre only; and, secondly, *bulky*, or those which require an application of 600 to 1000 or more lbs. per acre, to produce a desired result.

Of the former of these, *Phosphate of Lime* and *Ammonia* constitute the only elements of value. This is an established fact, hence the precise money value of any *concentrated fertilizer* may be easily determined when it is known what quantity of these two elements it contains. The latter class, or *bulky fertilizers*, such as *Plaster, Salt*, (or chloride of sodium,) *Ashes, &c.*, are valuable, but they cannot be considered valuable at the price of guano: say 45 to 50 dollars per ton, because they have to be applied in very large quantities per acre, to produce any effect, while a very small application of a *concentrated fertilizer*, containing a large per centum of *Ammonia* and *Phosphate of Lime*, suffices to produce the desired result. If it were not so the cost of these articles would preclude their use.

Hence we say, the value of all *concentrated fertilizers* depends entirely upon the quantity of these two substances they contain, because if they contain small quantities they are less *concentrated*, and require larger applications per acre, at greater cost; hence it becomes the interest of farmers to look to this fact in purchasing supplies.

There is a very natural disposition, on the part of all, to buy at the lowest price, and there is a corresponding disposition, on the part of "fertilizer venders," to furnish low priced articles, in order to make sales, but in the purchase of *concentrated fertilizers*, it is almost certain that the cheaper are the most costly.

For example, a fertilizer at \$45 per ton, requiring 400 to 600 lbs. per acre, is actually costing \$90 per ton when compared with an article which can be bought at \$50 per ton, requiring

only 200 to 300 lbs. per acre, besides the freight, &c., are just double in the former case.

The point to be looked at, is the *amount of money* spent upon each acre to produce given results. Thus, 600 lbs. per acre of a fertilizer, costing \$45 per ton, is an outlay of exactly \$13 50 per acre, while an application of 300 lbs. per acre, of a fertilizer costing \$50 per ton, is exactly an out of \$7 50 per acre.

From these considerations it is obvious that the *less costly fertilizers* are by far the most expensive, unless, indeed, they require no larger applications to produce similar results, or rather, contain an equal amount of *Ammonia* and *Phosphate of Lime*, which is never the case.

## REESE'S GUANO. WHAT IT CONTAINS.

*Reese's Phospho-Peruvian (or Manipulated) Guano*, contains 8 to 8½ lbs. *Ammonia*, and 50 to 55 lbs. *Phosphate of Lime* in every 100 lbs. of the Guano, and requires no larger application, per acre, than *Peruvian Guano*, to produce equal or better results.

*Reese's Guano* is composed *exclusively* of *Peruvian* and finely ground "Sombbrero" Guano, in proportions of one half each.

The Guanos are *uniformly* and *intimately* combined by machinery, perfected by four years experience.

*Sombbrero Guano* is the richest and most uniform source of *Phosphate of Lime* known to the country. It contains an average of 75 to 80 per cent., and is uniform in quality.

We have used *Sombbrero Guano*, since the Spring of 1857, in the preparation of our article, hence we know it to be reliable.

*Reese's Guano*, composed as above, has been used in *Virginia, Maryland*, and the South, for *Tobacco, Wheat, Corn, and Cotton*, during the years 1856, '57, '58, '59 and '60. It is known, established, and approved, having passed through a period of four years probation, with largely increased and largely increasing demand. Its success has demonstrated the fact, that a *truthful* combination of a rich *Phosphatic* Guano, with an equal weight of *Peruvian Guano*, is a

better, more convenient, and economical fertilizer than Peruvian Guano alone.

## WHAT IT DOES NOT CONTAIN.

Reese's Guano does not contain either *Plaster Salt*, (or Chloride of Sodium.) *Ashes*, or any other substance than the two *Guanos*. Hence it is strictly a concentrated fertilizer, rich in *Ammonia* and *Phosphate of Lime*.

The addition of *Salt, Plaster, &c., &c.*, to combinations of Guano, reduces their value and increases their bulk. *Phosphate of Lime* and *Ammonia*, are two valuable in concentrated fertilizers to give place to *Plaster*, which is worth only \$7 per ton, or *Salt*, worth 20 to 25 cents per bushel.

*Plaster, Salt*, and other bulky fertilizers should be applied separately, in such quantities per acre as experience teaches. They should be bought at their market value, and not in combination with Guano.

Combinations of Guano, containing *Plaster, Salt, &c.*, can readily be sold at a lower price than a Guano containing none of these cheap and bulky articles; but it must be observed, much larger applications, per acre, are required, and hence, as shown above, they are, in fact, nearly double the cost. The object to be attained by the farmer, is the greatest value in the least bulk.

We prepare but one article as above, being satisfied, after four years experience, it cannot be improved upon. And we assert, that the same quantity of *Phosphate of Lime* and *Ammonia*, cannot be had in any fertilizer, in the same condition, at the same or less than the price of our article.

Our machinery and facilities for preparation, delivery and shipment, are unequalled by any establishment of recent construction, and we invite farmers, visiting the city, to examine our works and witness the preparation of the Guano.

See advertisement on another page.

**JOHN S. REESE & CO.,**

April, 1860.

**BALTIMORE.**

## FOR SALE.

### A BEAUTIFUL AND VALUABLE FARM.

Within an hour and a half's ride by Rail Road of this City. Contains 600 acres, (more or less): *Neighborhood* is excellent. *Improvements* ample and neat, and the situation of the houses beautiful. THIS IS A GOOD STAND FOR A PHYSICIAN OR LAWYER, OR A FIRST CLASS SCHOOL. A smaller farm, or City property, will be taken in part pay of the purchase money. For further particulars apply to

**AUGUST & WILLIAMS,**

Mar 60.

Office of Southern Planter.

## VALUABLE LOUISA LAND FOR SALE.

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

### SUNNING HILL.

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

This Farm contains 1,010 acres, of which 200 are wood land, more than three-fourths of which are heavily timbered with oak, pine and hickory of original growth. The arable land is fertile and in a high state of improvement—well adapted to the growth of wheat, corn and tobacco. There is a comfortable DWELLING, with eight rooms, a good barn, tobacco houses, and all necessary out buildings. The locality is healthy and the neighborhood pleasant. Presuming that any one wishing to purchase will visit the Farm and see for themselves, I deem it unnecessary to speak further. The Farm is capable of being divided into three tracts, if desired. Being very desirous of selling, terms will be made to accommodate purchasers.

My manager, Mr. Groom, will take pleasure in showing the premises to any one who wishes to purchase.

JULIA A. HOLLADAY.

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

Feb 10—1f

## SULTAN.

THIS BEAUTIFUL THOROUGH-BRED YOUNG STALLION AND SURE FOAL GETTER, Now six years old, will stand this, his second season, at Mulberry Hill, Hanover County, the residence of the subscriber, and will be let to mares at \$20 the season, discharged by the payment of \$18 before the first day of July; \$10 cash the single leap, and \$30 insurance, and \$1.00 to the groom; parting with the mare forfeits the insurance. Season commencing the 1st day of March, and ending 30th June.

### DESCRIPTION.

SULTAN is a dark brown, having no white about him, he is a horse of fine size, fully 5 feet 3 inches high, with great power and substance; his shoulder, the most material part of the horse, is strikingly distinguished, being very deep, fairly mounting to the top of the withers, and obliquely inclined to the hips, his girth is full and deep, back short and strong, thighs and arms long and muscular, his bone good, his head and neck well formed, the latter rising well out of his withers. Take him as a whole, he is a horse of more power and substance than is usually found in a thorough-bred. He was trained when two years old, and was thought to be very fast, but received an injury a few days before he was to have run.

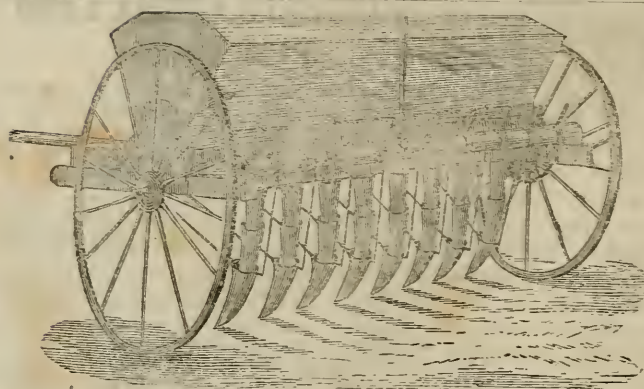
### PEDIGREE.

SULTAN was bred by James Lyons, Esq., of Richmond, and was gotten by the celebrated Race Horse and Stallion Revenue; his dam by imported Trustee; his grand dam by Timoleon; his great grand by Tom Tough, and was the full sister to the dam of Tally Ho.

BILLEY W. TALLEY,

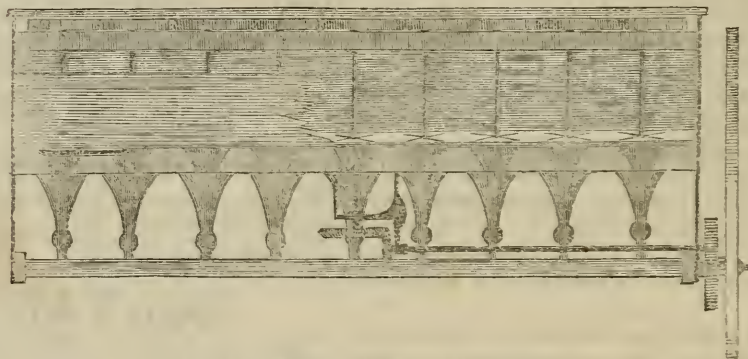
Mar 60—2t





HEAD-QUARTERS  
FOR THE  
CELEBRATED PREMIUM  
IRON CYLINDER  
Grain Drill,

With the Improved Guano Attachment and Grass Seed Sower.



PATENTED IN 1856 AND 1858.



MANUFACTURED BY

**BICKFORD & HUFFMAN,**  
BALTIMORE, MARYLAND.

Those wishing this article, and one that is universally acknowledged by the Farmers of the South, North and West, and by all that have examined it, to be the best ever offered to the public, will bear in mind that unless they order early, may be disappointed, as hundreds were last season, by delay.

PRICES,

|               |   |   |   |         |                   |   |   |         |
|---------------|---|---|---|---------|-------------------|---|---|---------|
| 9 TUBE DRILL, | - | - | - | \$40 00 | Guano Attachment, | - | - | \$25 00 |
| 8 " "         | - | - | - | \$5 00  | Grass Seed Sower, | - | - | 10 00   |
| 7 " "         | - | - | - | 50 00   |                   |   |   |         |

All Orders promptly filled and information given, by application to

**C. F. CORSER,**  
General Agent for the Southern States.

Office, No. 90 S. Charles Street, between Pratt and Camden, Baltimore, Md.

For sale by **CHURCH & FLEMING,** Agents, Richmond, Va.

**CAUTION.**

Notice is hereby given to all whom it may concern: That this is to forbid all persons making, vending using or infringing upon our Guano or Compost Attachment, patented April 22d, 1856, re-issued May 18th, 1858. Any person violating our rights, will be held accountable. None genuine except manufactured by us, where they can be had on application to C. F. CORSER, our General Agent, at No. 90 S. Charles Street, Baltimore, Md., or to agents appointed to sell the same by said Corser.

September 1858.—yly

**BICKFORD & HUFFMAN.**

# AMERICAN GUANO,

**From Jarvis' and Baker's Islands,  
IN THE PACIFIC OCEAN,**

**Under Protection of the U. S. Government.**

The attention of the Planters and Dealers in Guano is called to this valuable fertilizer, which has been used during the last spring and fall with the most satisfactory results—not surpassed by any fertilizer.

Annexed are Certificates from farmers well known in Virginia, many others can be seen by application to me.

## Certificates:

LOCUST GROVE, Fluvanna Co., Va., }  
October 26, 1859. }

FELIX H. CAVE, Esq.,

*Agent of the Amer. Guano Co., Richmond.*

Dear Sir—By request, I furnish you with a statement of the result of my experience with the American Guano I purchased of you last spring.

I used three kinds of Guano for tobacco—Peruvian, Elide, and American. After laying off the rows, 3 feet 2 inches apart, with a two horse plough, I applied about 350 pounds, broadcast, to the acre, then listed or bedded with the same plough, and planted without hilling.

The part in which I used the American was decidedly the best, though planted two days later than that in which I used the Peruvian.

I also used it on corn, applying about 125 pounds, broadcast, to the acre, at the time of the last plowing, with good success.

The land on which I used it was a very poor broom sedge, old field, that had not been cultivated for many years.

I am so well pleased with my experiment with the American Guano for tobacco, that I am using it altogether this fall for my wheat.

Yours, respectfully,

GEORGE T. THOMAS.

Hrco, Halifax Co., Va., }  
October 17, 1859. }

FELIX H. CAVE, Esq.,

*Agent of the Amer. Guano Co., Richmond.*

Sir—Yours came to hand a few days since, requesting me to inform you of the action of the American Guano bought of you.

I used it last spring on my tobacco. On the same piece of land I applied the American Guano separately, and also an equal quantity of American and Peruvian mixed.

I could not discover there was any difference in the single application and the mixture of American and Peruvian.

I also used it in the same manner on my corn, and can say to you that it acted finely.

Very respectfully,

WILLIAM C. TUCKER.

ORANGE COUNTY, Va., Oct. 10, 1859.

MR. FELIX H. CAVE,

*Agent of the Amer. Guano Co., Richmond.*

Dear Sir—I am much pleased with the American Guano as a fertilizer. I used 100 pounds on 1000 tobacco hills, by the side of 100 pounds Peruvian, on the same number of hills. The American produced as good tobacco as the Peruvian. By the side of each I used 100 pounds of American and Peruvian mixed, 50 pounds of each—the mixed I prefer. The tobacco was much better than either American or Peruvian unmixd. I will try the American on wheat this fall.

Most Respectfully,

REUBEN NEWMAN, JR.

ORANGE COUNTY, Va., Nov. 15th, 1859.

CAPT. F. H. CAVE,

*Agent of the Amer. Guano Co., Richmond.*

Dear Sir—Agreeable to your request I furnish you with the result of my experiment with American Guano. I have only used it on tobacco, and in order to test it fully, I used one ton of American and one ton of Peruvian, side by side, throughout the entire crop. And am happy to inform you that the tobacco is of superior quality, and that produced by the American Guano was, in every respect, fully equal to that raised with the Peruvian. The quantity applied was 200 pounds per acre, broadcast, upon red land.

I have used the American Guano upon wheat this fall.

I remain yours,

Very truly,

T. B. CAVE.

The American Guano will be put up in bags or barrels, at the option of the purchaser, each package bearing the trade mark of the Company, (the American Eagle,) and my name in full, who is the Sole Agent of the American Guano Company for Richmond.

**FELIX H. CAVE,**

**Richmond, Va.**

Dec. 59—6mo.



**REESE'S**  
**PHOSPHO-PERUVIAN**  
**(OR MANIPULATED)**  
**GUANO.**  
**INTRODUCED 1856.**

IS COMPOSED EXCLUSIVELY OF  
 BEST PERUVIAN GUANO, AND  
 FINELY GROUND SOMBRERO GUANO,  
 ONE HALF EACH,  
 IN MINUTE, UNIFORM, AND INTIMATE COMBINATION.  
 CONTAINS

AMMONIA, \* \* \* \* \* 8 PER CENT.  
 PHOSPHATE OF LIME, 50 TO 55 PER CENT.

Sold by the following Agents and Dealers in Virginia.

STOKES & RIVES, Richmond, Va.  
 SCHAER, KOHLER & CO., Richmond, Va.  
 HUNT & BROTHER, Richmond, Va.  
 E. T. WINSTON, Richmond, Va.  
 PEEBLES & WHITE, Petersburg, Va.  
 WM. A. MILLER, Lynchburg, Va.

KNOX & BROTHER, Alexandria, Va.  
 HUGH SCOTT, Fredericksburg, Va.  
 ROWLAND & REYNOLDS, Norfolk, Va.  
 GRASTY & RISON, Danville, Va.  
 EDWARD F. SIMPSON, Washington, D. C.

**NOTE.**

The SOMBRERO GUANO used in our article is imported direct by us, and is discharged at our Works, where it is FINELY GROUND. Parties wishing to purchase SOMBRERO GUANO alone, will be furnished with it in strong bags, in quantities as desired.

**JOHN S. REESE & CO.,**

Feb 60—tf

77 South Street, Baltimore, Maryland.

## COUGHS.

The great and sudden changes of our climate, are fruitful sources of *Pulmonary and Bronchial affections*. Experience having proved that simple remedies often act speedily and certainly when taken in the early stage of disease, recourse should at once be had to "*Brown's Bronchial Troches*," or Lozenges, let the Cold, Cough, or Irritation of the Throat be ever so slight, as by this precaution a more serious attack may be effectually ward off.



- BROWN'S "That trouble in my Throat, TROCHES.  
(for which the "Troches" is a  
specific) having made me often TROCHES  
a mere whisperer."  
N. P. WILLIS.  
BROWN'S "I recommend their use to TROCHES.  
PUBLIC SPEAKERS."  
REV. E. H. CHAPIN.  
BROWN'S "Have proved extremely ser- TROCHES.  
viceable for HOARSENESS."  
REV. DANIEL WISE.  
BROWN'S "Almost instant relief in the TROCHES.  
distressing labor of breathing  
peculiar to ASTHMA."  
REV. A. C. EGGLESTON.  
BROWN'S "Contain no Opium or any- TROCHES.  
thing injurious."  
DR. A. A. HAYES,  
Chemist, Boston.  
BROWN'S "A simple and pleasant com- TROCHES  
bination for COUGHS, &c."  
DR. G. F. BIGELOW.  
BROWN'S "Beneficial in BRONCHITIS." TROCHES.  
Boston.  
BROWN'S "Beneficial in BRONCHITIS." TROCHES.  
DR. J. F. W. LANE,  
Boston.  
BROWN'S "I have proved them excel- TROCHES.  
lent for WHOOPING COUGH."  
REV. H. W. WARREN,  
Boston.  
BROWN'S "Beneficial when compelled TROCHES.  
to speak, suffering from COLD."  
REV. S. J. P. ANDERSON,  
St. Louis.  
BROWN'S "I heartily unite in the above TROCHES.  
commendation."  
REV. M. SCHUYLER.  
BROWN'S "EFFECTUAL in removing TROCHES.  
Hoarseness and Irritation of  
the Throat, so common with  
SPEAKERS and SINGERS."  
BROWN'S Prof. M. STACY JOHNSON, TROCHES.  
LaGrange, Ga.  
BROWN'S Teacher of Music, Southern TROCHES.  
Female College  
BROWN'S "I have been much afflicted TROCHES.  
with BRONCHIAL AFFECTION,  
producing HOARSENESS and  
BROWN'S Cough. The "Troches" are the TROCHES.  
only effectual remedy, giving  
power and clearness to the  
BROWN'S voice." REV. GEO. SLACK, TROCHES.  
Min. Ch. of England, Milton  
Parsonage, Canada  
BROWN'S

## Brown's Bronchial Troches.

Cures Cough, Cold, Hoarseness and Influenza.  
Cures any Irritation or Soreness of the Throat.  
Relieves the Hacking Cough in Consumption.  
Relieves Bronchitis, Asthma and Catarrh.  
Clears and gives strength to the voice of SINGERS.  
Indispensable to PUBLIC SPEAKERS.  
Soothing and Simple. CHILDREN can use them.  
As they assist Expectoration and relieve Hoarseness.  
Sold by all Druggists in the United States, at  
TWENTY-FIVE CENTS A BOX.

Mar 60—3c

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Mar 60

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Mar 60.

\$30,000!

To one or more persons who can command the above sum, and who may be disposed to conduct a large manufacturing establishment in the west, a most advantageous opening is proposed, whereby with reasonably good management, a fortune may be realized in a short time. Address

Reference may be made to } P. WILLIAMS,  
Jos. C. G. KENNEDY. } Washington, D. C.

Sept—1f



# RICHMOND FERTILIZER MANUFACTURING MILLS!

ROCKETTS, RICHMOND, VA.

S. HARTMAN, GENERAL AGENT,

OFFERS FOR SALE

## EXTRA FINE BONE DUST,

HARTMAN'S AMMONIATED SUPER PHOSPHATE OF LIME,

HARTMAN'S IMPROVED MANIPULATED GUANO,

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

THESE MANURES ARE WARRANTED GENUINE.

The BONE DUST is made of Bones in their Natural State, with all their organic matter. SUPER PHOSPHATE OF LIME is manufactured from Crushed Bones, which also have all their organic matter.

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

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

April 20—1f

### THE GREAT SOUTHERN

Hat and Cap Manufactory and Depot.

JOHN DOOLEY,

No. 81, Main Street, Richmond Va.

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

July 1858—1y

## BARKSDALE & BROS., COMMISSION MERCHANTS,

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

CLAIBORNE BARKSDALE, }

C. R. BARKSDALE. }

CHAS. H. BARKSDALE. }

RICHMOND, VA.

Feb 60—1y

### GREAT REDUCTION in THE PRICE OF HATS AND BOOTS.

FROM 15 to 20 per cent. saved by buying from J. H. ANTHONY, Columbia Hotel Building.

Moleskin Hats of best quality, \$34; do. second quality, \$3; Fashionable Silk Hats, \$2 50; Fine Calfskin Sewed Boots, \$3 50; Congress Garter Boots, \$3 25; Fine Calfskin Sewed Shoes, \$2 25

J. H. ANTHONY has made arrangements with one of the best makers in the city of Philadelphia to supply him with a handsome and substantial Calfskin Sewed BOOT, which he will sell at the unprecedented low price of *Three Dollars and a Half*

July 59—1y



### Southern Clothing House RICHMOND, VA.



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

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

E. B. SPENCE.

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

July 59—1y

4 Silver Medals—3 Diplomas—68 First Premiums!



## J. MONTGOMERY & BRO.

155 North High Street,

BALTIMORE, Md.

INVENTORS AND MANUFACTURERS

OF THEIR

### DOUBLE SCREENED ROCKAWAY GRAIN FAN,

*Celebrated for their efficiency, durability and ease in working.*

We would state for the information of Farmers and the trade, that our Fan is of the largest size—with 6 large sieves and screens, made of the best bright wire, on good strong frames. It is made especially for the Southern market, where all implements ought to be of the best and strongest make. We do not hesitate for a moment to say, that our Fan (considering the make, the number and quality of sieves, and the amount and quality of work it will do in a given time,) is from \$10 to \$15 cheaper than any in the market. We have started a BRANCH SHOP, at LYNCHBURG, VA., for the accommodation of those located in that section of country. Our Fan is so universally known that it is unnecessary for us to say more than it has not been beaten in a trial any time during the last eight years, and cannot be beat.

As the present wheat crop is unusually full of cockle, every farmer ought to order one of our Double Screened Rockaway Fans at once, as it is the only Fan in the market that will clean the cockle from the wheat.

The price of our Fans in Baltimore is \$34—and in Lynchburg \$36. Orders addressed to us at either place will receive prompt attention. A liberal discount to the trade.

We respectfully refer to S. Sands, Esq., ex-editor of the "American Farmer," Baltimore, as to the character of our Fan; and Wm. Palmer, Sons & Co., our agents, Richmond, Va.

July 1859—1y

J. MONTGOMERY & BRO., Baltimore, Md.

## GUANO.

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

### Thirty per cent less than Peruvian Guano,

and which we claim to be superior to any Guano or fertilizer ever imported or manufactured in this country. This Guano is imported by WM. H. WEBB, of New York, from Jarvis' and Bakers' Islands, in the "South Pacific Ocean," and is sold genuine and pure as imported. It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent and popular Agricultural Chemists, and found to contain, (as will be seen by our circulars,) a large per centage of

### Bone Phosphate of Lime and Phosphoric Acid,

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

### Free of Insects.

For orders in any quantity, (which will be promptly attended to,) or pamphlets containing full particulars of analyses and tests of farmers, Apply to

**JOHN B. SARDY, Agent,**

No. 58 South St., corner of Wall St., New York City.

Oct—1y

## IMPROVED HOGS.

The subscriber has for sale two very fine Essex BOARS, rather more than a year old. Also, one Suffolk—*one Chester County*, and several Essex Sows, Price \$30 each, delivered on the cars, or other public freight lines.

Nov. 1st, 1859.

JAMES E. WILLIAMS.



## E. H. SKINKER & CO., GROCCERS

AND

## COMMISSION MERCHANTS,

Cary Street, Richmond, Va.

Offer their services for the sale of

Wheat, Flour, Corn and Tobacco,

The usual advancements made on consignments.

Always on hand a full stock of GUANO,  
GROCERIES, IRON, &c., &c., at the lowest  
market rates. Mar 60—2t

## GUANO.

No. 1 PERUVIAN GUANO.

A A MEXICAN do.

ELIDE ISLAND do.

SOMBREIRO do.

NAVASSA or BROWN COLUMBIAN GUANO.

For sale by

E. H. SKINKER &amp; CO.,

No. 59 Cary St., Richmond, Va.

Mar 60—2t

## HIGHLY IMPROVED BREEDING STOCK.

Satisfied that stock of any kind to breed from, should be of an established breed, not an accidental result from a cross of extremes, I have selected the best males and females to be procured of Morgan Horses, Durham Cattle and Chester County Hogs for breeding purposes; the offspring of the cattle and hogs can be had now, and the services of the stallions after the 1st of April.

Black Hawk, sired by the famous Vermont Black Hawk, nine years old past, a noble animal of 2.44 gait, and perfectly gentle and docile, and his son, a bay, four years old, larger than his sire, and very promising, are both horses that will recommend themselves.

In proof of my confidence in these breeds and animals, I have expended over \$7,000 without waiting endorsement and patronage—satisfied that those who try them, will not regret it.

For particulars address  
April 60—3t

S. W. FICKLIN,  
Charlottesville, Va.

## SEED CORN.

I have for sale some Indian Corn, that I have been trying to improve for twenty years, by mixing different kinds with my seed at planting time, always keeping in view a deep grain and white husk. Samples can be seen at the store of Blair & Chamberlayne, No. Main Street, where orders will be promptly supplied.

PRICE \$1 50 per bushel.

Mar 60—2t

GARLAND HANES.

## FIVE SPLENDID STRAWBERRIES.

**HOOKER**,—Very productive; large, beautiful, and of UNEQUALED QUALITY.

**WILSON'S ALBANY**,—Exceedingly productive; FINE FOR MARKET.

**TRIOMPHE DE GAND**,—IMMENSE SIZE; splendid appearance, and high flavour.

**PYRAMIDAL CHILIAN**,—Very handsome, productive, hardy and good flavour.

**LARGE EARLY SCARLET**,—THE EARLIEST; productive and excellent.

As it is impossible to secure all the excellencies of this most popular fruit in one variety, we offer the above as comprising, in five sorts, the various points desirable.

We again confidently RECOMMEND the **HOOKER**, as by far the best for family use, if only one sort is to be planted—combining a greater number of excellencies than any other variety.

All of the above have perfect flowers, and will produce excellent crops, if planted singly or together.

**PRICES**—(Securely packed to be forwarded by Express:)

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|---|---------|
| Per 100 plants of any of the above varieties..... | \$ 2 00 |
| Per 100 plants, 20 of each variety.....           | 3 00    |
| Per 500 plants, 100 of each variety.....          | 7 50    |
| Per 1000 plants of the Hooker.....                | 10 00   |

H. E. HOOKER &amp; CO.,

COMMERCIAL NURSERIES.

Rochester, N. Y.

The following are some of the distinguishing points of the "*Hooker*," which originated in our Nurseries;

The plant is vigorous and hardy;

It is extremely productive;

It is of the largest size;

It is very dark coloured; flesh also deeply coloured;

It is the only large and productive Strawberry, which has also high flavour and quality; it is for the combination of these points that we claim its superiority;

It is excellent for preserving, retaining its high, rich colour when preserved;

It has perfect flowers, and consequently requires no other variety planted near to fertilize it.

Our Nurseries were established in 1830; and rank now among the most extensive in the United States, occupying two hundred acres. They are planted exclusively with Nursery productions, embracing every variety of Fruit and Ornamental Trees, Shrubs, Small Fruits, Roses, &c., &c.

Mar 60—2t

## J. R. KEININGHAM,

DEALER IN

## BOOKS & STATIONERY,

211 Broad Street, between 4th and 5th, RICHMOND, VA. March 1859.

## BALTIMORE MADE AGRICULTURAL IMPLEMENTS VERSUS EASTERN.

We notice that Messrs. R. SINCLAIR, JR., & Co., of this city, received FIRST PREMIUMS for their deservedly famed Agricultural Implements at the recent Agricultural Exhibitions and Fairs held in Maryland, Virginia, North Carolina, and the Southwestern States, namely:

By the MARYLAND STATE AGRICULTURAL SOCIETY, 14 Premiums.

By the VIRGINIA AND NORTH CAROLINA AGRICULTURAL SOCIETY, 9 Premiums.

By the SEABOARD AGRICULTURAL SOCIETY, held at Norfolk, 12 Premiums.

Also awarded to SINCLAIR & Co., by the KENTUCKY AND TENNESSEE STATE AND COUNTY FAIRS, FOUR (FIRST) PREMIUMS on SINCLAIR'S PATENT MASTICATOR, for threshing and cutting Corn Stalks, Straw, &c., making in all

**THIRTY-NINE FIRST PREMIUMS** in Favor of SINCLAIR & CO.'S Wares, and showing a decided preference by the judges in favor of Baltimore Made Implements.

Included in the above Premiums were Sinclair's Patent Reaping and Mowing Machine, Sinclair's Patent Straw and Fodder Cutters, Sinclair's Patent Spiral Threshing Machine, Wheat drill with Gnuano Attachment, Serrated Clod Roller, Corn Shellers, Corn Drills, &c.

In the above estimate of Premiums, the following were not included in the different contests, all having received their quota of Premiums at Fairs previously held, viz:

HORSE POWERS, Spur and Bevel Geared; CORN MILLS, Burr and Iron; FANNING MILLS; ROLLING SCREENS; AGRICULTURAL FURNACE; CHAIN PUMPS; LIME SPREADERS; GARDEN TOOLS, &c., &c.

The Agricultural Implements and Machinery manufactured by us are constructed in the most substantial and durable manner, great capacity, and particularly adapted for Southern use and usage. Planters or Merchants wanting supplies will be furnished with Price Lists on application.

**R. SINCLAIR, Jr. & Co.,**  
Manufacturers, Baltimore, Md.

April 60--6mo

## SADDLES, HARNESS, &C.



I manufacture a superior  
COLLAR

which I warrant not to chafe or gall. I have always on hand a good assortment of all articles in my line, which I will sell, wholesale or retail, as cheap as they can be procured anywhere. North or South.

**CHARLES I. BALDWIN,**

Franklin St., 2d square above Old Market.

Sept—ly



## MANUFACTORY OF THE CELEBRATED PITTS' THRESHING MACHINES.

### AND HORSE POWERS, Portable Steam Engines on wheels, &c.

Those celebrated Threshing Machines are so well and universally known in all sections of the country, that certificates and notices of their merits does not seem to be necessary in an article of this kind. As it is conceded by all, both Manufacturer and Operator, that there is no other Machine in the world can compare with it.

We have had numerous calls for smaller sizes, and are making, for this season, of suitable capacity for either two, four, six, eight, or ten Horse Power.

Those Machines are all Warranted, Descriptive Circulars and List of Prices furnished upon application to the proprietors.

**BRAYLEY & PITTS, Buffalo, N. Y.**

Or to either of our Agents—O. F. Wallace, Winchester, Va.; W. H. May, Alexandria, Va.; A. M. Jordan, Salem, Roanoke county, Va.

April, 1860—6 mos.

## PURE BRED STOCK FOR SALE.

Pure Bred Durham Cattle, at \$75 to \$250.  
Spanish Merino Sheep, Silesian Merino Sheep, and French Merino Sheep, at \$7 to \$20.  
Essex Pigs, Suffolk Pigs, and Goo's Improved White Pigs, at \$8 each.

Madagascar Rabbits at \$10 per pair.  
Brood Mares served by "Bush Messenger," at \$125 to \$500.

Colts got by "Cottrill Morgan," and by "Bush Messenger," 50 to 200.

All animals sold will be carefully boxed or haltered, and placed at the Express office.  
My residence is 4½ miles east of Brownsville, Fayette County, Pa.

POST OFFICE BOX No. 6.

**JOHN S. GOE.**

Feb 60--ly

## FOR SALE.

A great many FARMS, at various prices, and on accommodating terms.

**AUGUST & WILLIAMS,**  
Office of the Southern Planter.



## MR. LEFEBVRE'S SCHOOL, Grace Street, Between 1st and Foushee, Richmond, Va.

THE next session of our School begins on the first day of October, 1859, and terminates on the last day of June, 1860.

Our long experience in teaching, and the very liberal patronage we have received for so many years, have both enabled and encouraged us to make important improvements in our Institution.

A course of Literature, comprising English, French, German, Italian and Spanish classics, (the four last through the medium of the French,) has been successfully tried during the last session, and will be continued and enlarged in the next.

We have engaged Mr. EDWARD C. HOWARD to take charge of the English part of this course, as well as the Rhetoric, Belles-Lettres and First Reading classes of our Institution. Mr. H. is a gentleman of the highest qualifications—and we feel confident that his services will be duly appreciated. We would earnestly recommend our Literature class to graduating pupils.

The new house which we have erected will greatly add to the convenience as well as to the comfort of the young Ladies boarding in our family. Two Young Ladies only will occupy one room, except in case when three would desire to occupy the same chamber.

HUBERT P. LEFEBVRE, A. M., *Principal*,

Natural Philosophy, Literature, Moral and Mental Philosophy, French.

WILLIAM G. WILLIAMS, A. B., *Vice Principal*, Astronomy, Mathematics, Chemistry, History, Latin.

EDWARD C. HOWARD, Literature, Rhetoric, Belles Lettres, Reading.

MRS. GRACE BENNETT, English Branches. MISS MARY C. GORDON, English Branches.

MISS ELIZA BARTLETT, English Branches. MADAME L. V. BLANCHETT, French Governess.

SEÑOR CARLOS CARDORVEZ MERA, Spanish and Italian. MADAME MARIE ESTIENNE, Vocal Music.

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| For Modern Languages, each, . . . . .                                   | 20 00   | For Painting in Water Colors, . . . . .                           | 40 00 |
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| For Music on Piano, Guitar, Organ or Singing                            |         | All letters to be addressed to                                    |       |
| For one lesson (of an hour) a week, . . . . .                           | 40 00   | HUBERT P. LEFEBVRE, Richmond, Va                                  |       |
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## PAINTS. PAINTS. PAINTS. PURCELL, LADD & CO., DRUGGISTS,

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

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

### PAINTS, COLORS, VARNISHES, OILS, &C.

LEWIS' WHITE LEAD,  
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TURKEY UMBRE,  
LAMP OILS,  
SPITS. TURPENTINE.

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

### WINDOW GLASS,

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

Polished Plate, Sky Light and Ornamental Glass.

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

June 1859.

PURCELL, LADD & CO. Druggists,  
122 Main Street, Richmond

*Col B Davenport*

VOL. XX.

[JUNE.]

No. 6.

PUBLISHED MONTHLY.

AUGUST & WILLIAMS, PROPRIETORS.

J. E. WILLIAMS, EDITOR.



DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

PRINTED AT RICHMOND, VA.,  
BY MACFARLANE & FERGUSON.  
1860.



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## ALEXANDER GARRETT,

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

GENERAL COMMISSION MERCHANT,

AND DEALER IN

GROCERIES,

PERUVIAN, ELIDE ISLAND, AND RUFFIN'S PHOS-  
PHO GUANO, PLASTER, &c.Particular attention paid to the sale of all kinds of  
country produce:

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

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

## THE SOUTHERN PLANTER

Is published monthly, in sixty-four octavo pages,  
upon the following TERMS:

TWO DOLLARS AND FIFTY CENTS per an-  
num, unless paid in ADVANCE.

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| Twenty do do . . .               | 30   |
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And one copy free to persons sending us the NAMES  
and MONEY for thirteen or more new subscribers.

All money remitted to us will be considered at our  
risk ONLY, when the letter containing the same shall  
have been registered. This rule is adopted not for  
our protection, but for the protection of our corres-  
pondents, and we wish it distinctly understood that  
we take the risk only when this condition is complied  
with.

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Advertisements out of the city must be accompa-  
nied with the money or city references to insure in-  
sertion.

The Southern Planter,

OFFICE

NO. 148 MAIN STREET,

A few Doors below the Exchange Bank,

RICHMOND, VA.

# THE SOUTHERN PLANTER.



*Devoted to Agriculture, Horticulture, and the Household Arts.*

Agriculture is the nursing mother of the Arts.  
[XENOPHON.]

Tillage and Pasturage are the two breasts of  
the State.—SULLY.

J. E. WILLIAMS, EDITOR.

AUGUST & WILLIAMS, PROP'RS.

VOL. XX.

RICHMOND, VA., JUNE, 1860.

No. 6.

*From the Richmond Whig.*

Address of Hon. A. H. H. Stuart before  
the Central Agricultural Society of Vir-  
ginia, at Richmond, Oct. 28th, 1859.

*Mr. President and Gentlemen of the Vir-  
ginia Central Agricultural Society:*

In obedience to your request, I appear here to-day, to speak to you in behalf of the agricultural interests of our State. Although distrustful of my ability to offer anything worthy of the occasion, or calculated to interest or instruct the enlightened audience which now surrounds me, I am encouraged to make the attempt, by the conviction, that the same spirit of courtesy which prompted your invitation will induce you to look with indulgence on the imperfections of my discourse.

In preparing for the discharge of my duty, the first difficulty I had to encounter arose from the magnitude of my subject, and the multiplicity of its relations to the other great interests of society. It presents itself in so many and such attractive aspects, as to create embarrassment, in making a selection of those most appropriate to the present occasion.

I know that it is customary, at anniversaries like the present, to speak of the impor-

tance of agriculture, as one of the great interests of Society;—to trace its history and progress;—to discuss its relations to the natural sciences;—to explain the diversities of soil, and the systems of cultivation appropriate to each;—to indicate the proper rotation of crops, and the best means of augmenting production;—to descant on the charms and beneficent influences of rural life, and to bestow merited praise, on the public spirited projectors and patrons, of associations like that which I now have the honor to address.

Either of these topics would present a theme alike attractive and instructive, but, for reasons which I have deemed satisfactory, I propose, on the present occasion, to pass them all by, and to devote the hour that is allotted to me to the development of some practical views of the relations of agriculture to the other great industrial interests of our country.

It is unquestionably true that Agriculture is the most important interest of society. It is the principal source of production, and is, therefore, the basis of all other interests. It supplies the raw material for a large proportion of our manufactures, and infuses life and activity into all the operations of commerce. It gives occupation to



a larger per centage of our population than all others combined. But it is not an isolated interest. It cannot prosper alone. It is intimately connected with other interests, and its success or failure is, in a great degree, to be measured by the condition of those interests.

He who limits his views of agriculture to production only, can have but an imperfect idea of the subject. He has looked at it in but one of its aspects. To comprehend it fully, he must embrace a much wider field of enquiry and understand, not merely how the earth can be made to yield its richest returns to the husbandman, but, also, how those returns can be made most available for his comfort and happiness.

Of what value is production, without consumption? Of what use are abundant crops, unless some fair equivalent can be obtained for the surplus over the wants of the producer?

A correct view of the agriculture of a country, therefore, must embrace the consideration, not only of the modes by which the largest crops can be raised, but also of the means by which they can be best disposed of; or, in other words, how the best markets can be provided, and the best prices maintained.

The function of agriculture is to produce—of manufactures, to convert—and of commerce, to exchange. And, as it is obvious that a large portion of the productions of the soil are comparatively of little value, until they have been converted, by the processes of manufacture, into new forms, and the surplus has been exchanged for such commodities as the producer may need, it follows, as a necessary consequence, that there must be an intimate relation between agriculture, manufactures, and commerce.

It will readily be conceded, that if all the labor of the world was directed to the production of food, the surplus, above the wants of the producers, would be of little or no value, because there would be no demand for it. As every one would raise enough for his own use, he would not find it necessary to look to his neighbor for a supply. The surplus above the wants of the farmer would therefore be useless, and left to perish in the fields in which it was produced. To give value to it, a demand must be created for it. In the absence of such a demand it would soon cease to be produced. This demand can be created only by multi-

plying the occupations of the citizen, or, in other words, by withdrawing a portion of the population from the production of food and directing their labor to other pursuits. When this is effected a demand is created, proportioned to the number of laborers, who are thus rendered consumers instead of producers, and the foundation is laid for the interchange, between the different classes of laborers, of the fruits of their respective branches of industry. This interchange constitutes, in the first place, the barter,—and, in the more advanced stages of its progress, the commerce of the world.

The prosperity of the farming interest, then, depends upon the preservation of the proper relation between production and consumption. If an over proportion of the people are engaged in production, the supply will exceed the demand; the market for the products of the soil will be depressed; and the interests of agriculture must languish. If, on the other hand, occupation can be given to a large portion of the population, in the mechanic arts, in manufacturing, in mining, in navigation, and in commerce, the demand for the fruits of agriculture will be increased; their prices enhanced, and the farmer must prosper.

The benefits resulting from this division of labor are two fold. It tends, not only to enhance the price of what the farmer has to sell, in consequence of the increased demand for it, but also to cheapen what he may have occasion to buy, because of the increased competition among those who furnish such commodities as he may need.

These are elementary principles of social economy, which are, theoretically, familiar to every intelligent man. But, unfortunately, they are too much neglected in practice. I hope, therefore, I shall be pardoned for presenting them in their simplest form, as they have an important bearing on the line of thought, to which I wish to direct your attention.

Whether the proper relation exists in Virginia, and the United States, between production and consumption, is a question which deserves your most-serious consideration. The intelligent superintendent of the census of 1850 estimates that three-fifths of the adult population of the United States are engaged in the cultivation of the soil, and the statistics of our own State show that near one half of the adult male population are farmers, or in other words, producers of

provisions. In the term farmers, I do not include hired laborers, who are employed on farms, but only the independent proprietors or tenants, who cultivate separate farms.

The census tables of 1850 show that the whole number of white adults, in Virginia, engaged in the various professions and occupation, at that date, was 226,875. Of these, 106,807 were farmers, 46,989 laborers, 1,374 planters, and 3,747 overseers.

These figures would seem to indicate that too large a proportion of our people are engaged in the production of food; and the present low prices of almost every article of provisions confirms this impression. A larger quantity is produced than can be sold for remunerative prices. Every improvement which may be made in the system of farming will tend to a still further depression of prices, by increasing the supply. And when we contemplate the rapid settlement, now in progress, of the almost boundless grain-growing region of the Northwest, a region of unparalleled fertility, we must acknowledge, that the prospect is, by no means, encouraging to the farmer. High prices, in this country, have always been the effect of a foreign demand. This demand will always be, as it has been, fluctuating; for it depends, not only on natural causes, such as the failure of crops abroad, but upon political events which may disturb the tranquility of Europe. American farmers are, therefore, compelled to look more to the condition of things abroad than at home, in making their estimates, as to the breadth of land they shall seed, and the probable prices they will receive for their crops.

This fluctuation of prices is one of the most serious evils that can befall any country. It unsettles the value of every species of property. When prices are high the tendency is to speculation, to incur debt, and to form habits of expenditure, which, although they might not be deemed extravagant, if high prices were to continue, must prove ruinous, when, by some change in the policy of the great powers of Europe, or other cause, the foreign demand is cut off, and prices sink to their natural level.

The enquiry then forces itself upon our attention, how is this evil to be corrected?

The most effective remedy that I can suggest is, to diversify the occupations of our people; to withdraw a large number of them from agriculture, and to direct their labor to other pursuits; to build up home manufac-

tures, to stimulate the development of our mineral resources; to encourage domestic commerce, and all the mechanic arts, and thereby create a demand for the products of our farms at home. By adopting this policy we will diminish the number of producers,—increase the number of consumers—and make some progress towards the establishment of a more just relation between the supply and demand.

And here, to prevent misconception, I wish to say in advance that I do not propose, upon an occasion, and before an audience like the present, to enter into a discussion of any of the controverted questions connected with the jurisdiction of the federal government over this subject—whilst I entertain very decided opinions on these questions, and have not hesitated, under suitable circumstances, to express them, I desire carefully to abstain from introducing into this discourse anything that could offend the sensibilities of the most fastidious, or be regarded as invading a field, which, unfortunately for the best interests of the country, has been dedicated to partizan strife.

When, therefore, I speak of the encouragement of domestic industry, I throw out of view, for the present, any legislation by Congress directed to that end, and limit myself exclusively to such encouragement as can be afforded by the enlightened enterprise and public spirit of our own people, aided by the co-operation of our own General Assembly.

No one will deny that every furnace, and forge, and foundry—every woolen, and cotton and tobacco factory,—every shop for the manufacture of shoes, and clothing, and saddlery,—every mine that is opened,—every house that is created,—every ship that is built,—in a word, every enterprise that gives mechanical employment to our people, tends to promote the interests of the farmer, by increasing the demand for what he has to sell.

Let us, then, for a moment survey the extent of the field which presents itself for the employment of the labor of our countrymen.

The statistics of our foreign commerce show that the aggregate value of merchandise imported into the United States in the year 1858 was, in round numbers, 282 1-2 millions of dollars, and in 1857, 360 3-4 millions of dollars. If we analyze the tables, it will be found that of this latter



amount, about 100 millions worth could be produced, and ought to be produced, in our own country, by the labor of our own people. For example, we import of—

|                                |             |
|--------------------------------|-------------|
| Copper, in various forms,..... | \$3,617,000 |
| Iron,.....                     | 15,209,000  |
| Lead,.....                     | 2,305,000   |
| Paper,.....                    | 597,000     |
| Gloves,.....                   | 1,559,000   |
| China and Earthenware,.....    | 4,037,000   |
| Linseed,.....                  | 3,003,000   |
| Wine, in Casks,.....           | 2,448,000   |
| Wine, in bottles,.....         | 1,825,000   |
| Brandy,.....                   | 2,527,000   |
| Grain Spirits,.....            | 1,125,000   |
| Molasses,.....                 | 8,250,000   |
| Sugar, brown,.....             | 42,614,000  |
| Sugar, white and loaf,.....    | 154,000     |
| Tobacco,.....                  | 1,358,000   |
| Cigars,.....                   | 4,221,000   |
| Salt,.....                     | 2,031,000   |
| Coal,.....                     | 772,000     |
| Glass,.....                    | 1,166,000   |

Making an aggregate of.....\$99,819,000

Virginia alone could supply the iron, coal, copper, lead, salt, tobacco, glass and kollyrite for china and earthenware for the whole Union. Louisiana, Florida and Texas ought to produce the sugar, molasses and rum; and other States should produce the wine, brandy, distilled spirits, linseed, and many other articles now imported, in quantities sufficient for the consumption of our population. And yet, with a climate and soil adapted to the growth of all that we need, except tea, coffee and spices;—with mountains and valleys filled with iron, and coal, and salt, and copper, and lead, and gypsum;—we leave them all but partially developed, and draw our supplies from foreign countries!

An apt illustration of Virginia policy is to be found in an incident, which will probably be remembered by many of the inhabitants of this city, as it occurred within a short distance of the spot on which I now stand.

About twenty years ago, it became necessary to erect a banking house in Richmond for the use of the Exchange Bank, then recently incorporated, and although the structure is probably erected on a stratum of granite, and certainly stands within a mile of the finest granite quarries in the Union, the granite of which it is constructed

was imported from Quincy, in the State of Massachusetts!

If the articles which I have enumerated among the imports were, as they should be, produced in the United States—if the laborers necessary to produce them were consumers instead of producers of provisions, it is easy to perceive what an increased demand would be created for the breadstuffs, live stock and other products of our farms. An ample and a steady market, would spring up at our own doors, for everything we have for sale, and prosperity and comfort would spread through all our borders.

But this view of the interest of the farmer, in the growth of domestic manufactures, and in the home market which they supply, would be very imperfect without a reference to other aspects of the subject.

The prices of all commodities are regulated, not only by the laws of supply and demand, but, also, by the condition of the currency. Gold and silver are, by our Constitution and laws, the measure of value. It is of the highest importance that this standard, by which the value of other commodities is estimated, should itself be stable and uniform. Every one would understand, at a glance, the evils that would result from having a fluctuating standard of weights and measures, and the injustice of allowing parties to contract according to one standard and to fulfill the contract by another. The injustice, in this case, strikes the mind because the standards—the yard-stick, the pound weight, and the bushel,—and the subjects to which they are applied, are material and tangible. But the fluctuations in the measure of *value*, though less apparent are not less real nor less injurious than fluctuations in the measure of *quantity*. If a party were to contract to deliver, at a future day, a hundred bushels of wheat, which, according to the present standard, would mean a quantity sufficient to weigh 60 hundred pounds, it would be iniquitous to allow the seller, when the day for the delivery arrived, to discharge his obligations by tendering a quantity that would weigh only 40 hundred; or, to compel him to deliver a quantity that would weigh 80 hundred, in payment. This would be palpable to the meanest capacity. Yet, how few realize the fact, that equal injustice is constantly being practised, in consequence of changes in the measure of value. In times of prosperity, when the balance of trade is in favor

Of the United States, gold and silver are accumulated in the country. Like every other article of commerce, their value is affected to a great extent, by the ratio between the supply and the demand. When the supply is increased, the demand remaining the same, the value is diminished, and on the other hand, as the supply is diminished, the value is increased.

Let us now look at some of the practical effects of these fluctuations in the supply and value of the precious metals on the contracts of men. If a farmer contract a debt of \$1,000 to-day, when wheat is worth \$1 per bushel, he can discharge his debt by transferring to his creditor 1,000 bushels of wheat, or the price for which he can sell it. But, suppose he contracts a debt of that amount, payable in one or two years, and, in the meantime, the balance of trade has turned against the United States,—a rapid exportation of specie has taken place, and the quantity in the country is reduced one-half. It is plain, that the value of gold will have appreciated nearly in an inverse ratio to the quantity left. The measure of value will have changed; one dollar will now buy what it would have required two dollars to buy the year before; and the farmer will now have to give two thousand bushels of wheat, or its price, to pay the debt, which one thousand bushels would have paid, at the date of the contract. Thus, by a change in the condition of the currency, his debt is substantially doubled, because it requires double the amount of property to pay it.

We had many striking illustrations of this proposition during the commercial revulsion of 1857. In that year, our imports greatly exceeded our exports, and it became necessary to send abroad a large portion of the coin of our country, to pay our foreign indebtedness. Heavy drafts were, accordingly, made on the specie in general circulation, and on the reserved stocks in the banks. These drafts were, for a time, promptly met, but at length they became so onerous, that the banks were compelled to suspend specie payments. A panic soon followed, credit was prostrated, those who had money hoarded it, and debtors found it almost impossible to obtain coin, to discharge their obligations. Gold was nearly doubled in value, and those who were fortunate enough to have it were enabled to buy Virginia State bonds at \$54 per share of \$100, and all other property at similar rates of

depreciation. The debtor, therefore, who relied on the sale of Virginia stocks or other property to meet his obligations, found himself under the necessity of selling twice the quantity he had anticipated to pay his debt. And the mischief was aggravated by the fact, that the loss in all such cases, fell on those least able to bear it, and the profit accrued to the capitalist and the speculator.

These revulsions in our monetary system have been of such frequent occurrence, and have been attended with such wide-spread ruin, that it is time public attention should be directed to the discovery of the appropriate remedy. In my judgment they can only be averted by making more at home, and buying less abroad. We should incur no foreign debt which the exports of our own productions will not pay. We should keep our gold and silver at home, and thereby maintain the stability of the standard of value. If it is to fluctuate at all, it is better that the fluctuation should be in favor of the debtor than the creditor—by a depreciation in value, caused by too large a supply of gold and silver, than by a rise in consequence of a scarcity. This policy commends itself, especially, to the favor of those who are inimical to the extravagant system of credits, which has prevailed in our country. It will certainly tend to impose wholesome restraints on it by giving the creditor to understand that deferred obligations will probably be discharged in a depreciated currency.

An abundant supply of gold will also serve to develop new sources of wealth, and to stimulate industry and enterprise in every department of business.

The present is an auspicious time for the investigation of the subject, in all its relations and bearings. We are just recovering from the effects of one commercial crisis, and unless all the signs of the times are fallacious, we are fast drifting on to another. The importations of the present year promise to outstrip in amount those of 1856-'7. Already the clouds that indicate the approaching storm are visible in the horizon. Heavy indebtedness has been incurred, and there is no foreign demand for our bread-stuffs. Cotton will go far in liquidation, but it will not suffice to discharge it. Larger shipments of specie have commenced. The measure of value is being rapidly contracted, and prices have fallen, and will continue to fall, until they sink below the European



level. The gold and silver, which should be employed at home, is going abroad to pay for articles which ought to have been manufactured at our own doors.

Let us refer, for a moment, to the statistics of the import and export of the precious metals. The export of specie from New York and Boston alone, in the first eight months of the present year, amounted, in round numbers, to fifty-seven millions of dollars. The receipts from California and all other sources, for the same period, were about twenty-eight millions. The difference, twenty-nine millions, has therefore been drawn from the banks and the general circulation of the country.

On the 1st of January last, the banks of New York held about twenty-nine millions of specie, and at the close of August they held twenty-one and a-half millions. They lost, therefore, in the period referred to, but seven and a-half millions, and the difference between seven and a-half and twenty-nine millions, equal to twenty-one and a-half millions, must have been drawn from the general circulation, or, in other words, from the pockets of the people.

The farmers, in common with all other classes of society, but to a greater extent than any other, are now feeling the effects of this drain of the circulating medium from the country. The drafts are made, primarily, on the commercial cities. They, in turn, draw on their debtors in the interior. As long as the supply from this source continues, the commercial centres can maintain their standing, but when it is exhausted, suspension and bankruptcy, and all the evils which follow in their train, are inevitable.

The whole supply of coin in the United States was estimated, by the Secretary of the Treasury, (Mr. Guthrie,) in his report to Congress on the finances, in 1856-'7, at from (\$200,000,000) two hundred millions of dollars to (\$250,000,000) two hundred and fifty millions. If the export shall continue to exceed the import as it has done in the last twelve months, it is plain that it will not require many years to exhaust the stock on hand. Need I pause to comment on the countless mischiefs that would result from such a condition of things?

When will our farmers begin to comprehend their true interests, and to adopt the measures necessary to protect them? When will they learn that their prosperity is intimately—nay, indissolubly—associated with

the manufactures, and the commerce, and the currency of the country? When will they understand that every dollar of gold and silver exported from the United States contracts the scale by which the prices of their productions are to be regulated?

Gold is the medium of commerce, as well as the measure of value. By its agency all the exchanges of the subjects of commerce are effected. Withdraw gold from the country, and you at once depress the value of property—paralyze the arm of industry—stagnate the channels of commerce, and prostrate the interests of agriculture.

I proceed now to the consideration of the second topic to which I propose to invite your attention, viz: the relation of agriculture to the labor of the country.

In treating this branch of my subject, I do not propose to limit my observations to the labor which is directly employed in agricultural pursuits, but to present a brief review of its relations to the whole system of American labor, in all its departments. And, in this connection, I desire to make some remarks on the two systems of labor, free and slave, which exist in the two great geographical divisions of our confederacy; and to enquire whether it be true, as has been asserted in various quarters, and on high authority, that there is an inherent, necessary, and continuing antagonism between the two systems.

As preliminary to this enquiry, it may be proper to glance at the origin of the system of slave-labor in the United States.

History informs us, that more than a century elapsed, after the discovery of America, before any successful effort was made to establish permanent settlements of the white race on the eastern coast of our country. The first Colony was founded at Jamestown, in 1607, but for many years it had to struggle against such discouraging difficulties, that it barely maintained a precarious existence. A few years later, the Pilgrims landed on Plymouth rock, and, by degrees, sparsely populated Colonies spread themselves along the coast, from Maine to Georgia. The dangers and privations incident to the settlement and subjugation of a new country prevented rapid immigration to it; and, notwithstanding the strong inducements that were offered, in the form of liberal grants of land, the growth of the Colonies was, by no means, satisfactory to those interested. The number of laborers was in-

adequate to the efficient settlement and cultivation of the fertile lands. To supply this demand, the Mother Country, about the year 1620, resorted to the expedient of introducing into these Colonies a class of involuntary immigrants, in the persons of Africans, who had been captured in the wars between hostile tribes, in their native country, and according to their usages, sold into slavery. This policy was approved and practised by the Colonies for more than a century.

At the date of the declaration of our national independence, this system of involuntary servitude, or slavery, had become engrafted on the institutions of all the Colonies. I use the term *all* the Colonies, advisedly; for, although an impression has very generally prevailed, that slavery never existed in some of the New England States, the fact is otherwise, as may be seen by reference to the census tables. According to the census of 1790, there were 158 slaves in New Hampshire, and 17 in Vermont, and the official returns of 1830 show that there were slaves at that time in every New England State, except Vermont.

At the commencement of our national existence, therefore, a compound system of labor—partly free and partly slave—permeated the whole confederacy.

This system, continued, in all the States, until the drudgery of subduing the primeval forests, and clearing the country for cultivation and comfortable habitation, had been accomplished. Then the citizens of the northern and middle States began to turn their attention to other branches of industry, and the discovery was soon made, that while negro labor may be profitably employed in pursuits which require mere physical strength, it cannot compete, successfully, with white labor, in those avocations in which skill, ingenuity and intellect, constitute important elements. Experience also demonstrated, at an early day, that the negro race were physically unfitted to endure the rigors of a northern climate. These considerations led to a general conviction, in the Northern Colonies, that negro labor was unprofitable, and induced them to adopt measures to rid themselves of the incumbrance of an unproductive population.

And here, it may be instructive to pause, and contemplate the means by which that object was accomplished.

Some of our brethren of the North are disposed, like certain of the Pharisees of old, to thank God "that they are not as other men are," and to assume to themselves and their States great credit for disinterestedness and benevolence in liberating their slaves. I am as little disposed as any other man to withhold from them the praise to which they are justly entitled, for their many acknowledged virtues. I take pleasure in bearing testimony to their intelligence, integrity, industry, frugality, public spirit and general benevolence. But, respect for the truth of history constrains me to deny their right to be regarded as the benefactors of the negro race.

A general impression prevails, both in the North and South, that the people of the Northern States, influenced by a generous spirit of philanthropy, and a noble devotion to the cause of human liberty, voluntarily emancipated their slaves, by legislative enactments. If their legislation had been such as is generally supposed, it might well be questioned, how far it would establish their just claim to any high degree of merit, in a moral point of view; because, as I have already stated, it had become manifest, before any such laws were adopted, that the slaves of the Northern States were a burthen, rather than a benefit. The policy of those States might, therefore, be fairly attributed, rather to a disposition to rid themselves of an ignorant, improvident and unprofitable population, than to a desire to do justice to a "down-trodden" race.

But what are the facts of the case. My professional duty has led me to investigate the legislation of some four or five of the Northern States, on the subject of slavery; and I have yet to find a law of any one of them, by which a single slave has been made free. I think I may safely challenge the production of any such law, from the archives of any Colony or State of this confederacy. This is a bold proposition, but I believe it to be true. As far as I have observed, the whole system of Northern legislation has been directed, not to the emancipation of slaves, but to the removal of the slave population beyond their limits. All their laws on the subject were prospective. None of them, as far as I have been able to discover, operated to confer freedom on the slaves in being. They simply provided, that the offspring of female slaves,



who should be born within the jurisdiction of the States passing such laws, after specified dates, should be deemed free. All who were slaves at the time remained slaves. The laws were intended to operate only on the after-born children, and the rights secured to these were altogether contingent, and could never vest without the concurrence of the owner of the female slave. There was no prohibition of the removal of the females. If the owner thought proper to retain them in the State which had adopted such laws, her offspring, born after the appointed day, became free. Freedom, therefore, even to the after-born children, was not the effect of legislation alone, but of legislation and the concurrent action of the master, in retaining the female in the State, until the law could take effect on the children. Without the consent of the master, indicated by retaining her in the State, until after the prescribed date, the law would have been inoperative.

It requires no great sagacity to see that this is the whole object and tendency of their legislation, as I have already stated, not to the emancipation of slaves, but their removal to other States. It amounted, simply, to a notice to the owner to sell his female slaves before a given day, under penalty of forfeiting her increase. The practical effects were such as might have been reasonably anticipated. The owners of the females took especial care to sell them southward before the laws took effect, and in this way the unprofitable slaves were transferred to the South, where the climate was more propitious, and the productions better adapted to their peculiar capacities for labor.

This view of the effects of these laws is strongly fortified by facts derived from the census tables. We have no authentic means of ascertaining the number of slaves in any of the States, prior to 1790, and we cannot, therefore, institute all the enquiries which we might desire, but we do know that the policy of removal, miscalled emancipation, was adopted between 1776 and 1790, and was in full operation at the latter date. A reference to the census of 1790 shows, that the whole number of free negroes in the nine Northern States (including Maine) at that date, was but 27,109. The fact that the number of free negroes in those States was so small, in 1790, is very persuasive, at least, to prove, that under this much

lauded system of legislation, freedom accrued to a very small proportion of the slaves of the Northern States. Much the larger number were sold to the people of the South, and the descendants of those slaves, now held under the warranty of title given by Northern venders, constitute a large portion of the slave population of the Southern States; and the purchase money paid for them by citizens of the South, contributed, in no small degree, to build up the manufactures and commerce of the Northern and Middle States.

It is also instructive to observe how the anti-slavery legislation of the North has kept pace with the increase of the growth of the great staples of the South.

It was not until the latter part of the eighteenth century, after Hargrave and Arkwright had invented the spinning-jenny and Whitney the cotton-gin, that cotton became one of the important crops of the Southern States. As late as 1794, when Gen. Pinkney, of South Carolina, enumerated to John Jay the exports of South Carolina, cotton was not included in the list.

The inventions of the great mechanics, above referred to, gave a vigorous impulse to the culture of cotton, and it has now become the most important article of American commerce.

Cotton is an article peculiarly adapted to negro labor. Its culture is simple, and requires but little skill. It can be produced profitably only in the Southern States, where the almost vertical rays of the sun, and the debilitating influences of the climate, render it impossible for the white race to perform the labor necessary to till and secure the crop. The physical peculiarities of the negro, on the other hand, fit him admirably for the work. Created with a system of pores and glands adapted to the tropical climate of his native country, he thrives and grows strong under the sultry heat of the planting States, which would cause the most athletic of the Caucasian race, to sink into hopeless prostration.

When cotton became an important crop in the South, it opened a wide field for negro labor, and created a large demand for negro laborers. The opposite condition of things in the Northern States, where it had been ascertained by actual experiment, that negro labor could not be profitably employed, naturally led both sections to adopt a policy which would tend to the transfer of

the slave population from the Northern to the Southern States.

In view of these historical facts, and logical deductions from them, it is idle to pretend that the legislation of the North was dictated by any sentiment of negrophilism. It was the offspring of an enlightened self-interest, and of those natural and economic laws, which lead to the adjustment of all things according to their just relations and affinities.

Having thus examined the principles by which Northern policy, in regard to slavery, was guided, it is proper that I should now advert to the changes which have taken place in public opinion at the South, on the same subject.

At the date of our Revolution, the agriculture of the South was in a languishing condition, and many of our wisest men attributed its want of prosperity to the existence of slavery. Washington, Jefferson, Madison, Mason, Edmund Randolph, and other sages of that day, were deeply imbued with anti-slavery sentiments. Jefferson, in his first draft of the Declaration of independence, and George Mason, in the preamble to the Constitution of Virginia, made it one of the grave causes of complaint against the British sovereign, that he had, "by an inhuman use of his negative, refused us permission to exclude negroes, by law, from Virginia." In his Notes on Virginia, and other productions of his pen, Jefferson expressed his opposition to slavery in the strongest terms, and, faithful to his principles, after long and untiring efforts, he succeeded in excluding it from the North-western Territory, by the ordinance of 1787.

In 1788, George Mason, who had been a member of the Convention which framed the Constitution of the United States, in his letter to the Legislature of Virginia, explaining his reasons for withholding his signature from that instrument, assigned, as one of them, its failure to place an immediate interdict on the African slave trade.

I allude to these facts in no spirit of unkindness to either section, but for the purpose of showing that neither section has been governed in its policy by the high principles of benevolence to which they sometimes lay claim. The history of the world will prove that, while individuals may be, and often are, influenced by the nobler impulses of our nature, communities are controlled by their interest. The Northern

and Southern divisions of the Union constitute no exception to this rule. This fact should teach us a lesson of mutual charity and forbearance!

The fact having been established, that negro labor is indispensable for the cultivation of cotton, and that white labor can be economically substituted for it, in the production of cereals, live-stock, and everything that is grown in the Northern and Middle States, there has been a uniform tendency of the labor of the country, to adjust itself according to this standard. Slave-labor is rapidly concentrating itself in the planting States; while free-labor is fast taking possession of the grain-growing and grazing States.

Planting and negro labor have a natural affinity, which, legislate as we may, will eventually assert its power. Labor, like every other commodity, will seek the best market. It will go where it will command the highest price. This great principle of political economy withdrew slave-labor from the wheat and rye fields of the North, and it is this principle which is now draining the slave population from the border or provision States to the planting States.

The high prices of the products of Southern plantations enhances the value of slaves, and they are being rapidly sold to the planters. The interest on the prices they now command in market is almost equal to the annual value of their labor when employed in farming, and hence the farmer finds it to his interest to sell them.

The operation of this cause will be felt more sensibly every day. The acquisition of Texas, and the reclamation of the swamp lands of the Southern States, by enlarging the area of the cotton and sugar region, has tended greatly to enhance the price of negroes, and to withdraw them from Virginia, and the border States. Should additional territory be acquired in that quarter, the exportation of slaves will be accelerated, and at no distant day, it may become the pecuniary interest of Virginia to follow the lead of the Northern States, and send her slaves to the South. Everything seems to indicate a steady advance in the price of negroes. The demand for cotton is constantly increasing, and the failure of all attempts to produce it elsewhere has shown, that the world must be dependent on the United States for its supply. By a wise provision of nature, every country has the capacity



to produce the food necessary for its population. The price of food must, therefore, be regulated and restrained, by the general production of the world. But only a limited district of country is adapted to the production of cotton. It can, therefore, have but little competition in the market, and as the demand increases more rapidly than the supply, the price of cotton, and of the labor necessary to produce it, must continue to advance. No one can yet predict the effect which the extension of commercial relations with China, Japan, and the East Indies, is to have on the prices of the great staples of the South.

These facts lead thoughtful men to enquire, whether, at a future day, the line between the free and slave States, may not be more sharply and distinctly defined, than it is at present, and the institution of slavery be restricted exclusively to the planting States.

The tendency, is, certainly, in that direction at present, and a rise of twenty per cent. on the present value of slaves will lead to such an exodus, as has never yet been witnessed in Virginia, and the other grain-growing States. In this aspect, it is time that our people should consider whether the interest of Virginia will be advanced by the acquisition of additional territory adapted to the culture of cotton, when that acquisition is to be followed by the loss of a large portion of her effective labor.

This brief review of the history and progress of slavery is, I think, sufficient to show, that for the last seventy-five years, the tendency of labor of our country has been to adjust itself with reference to the productions of the different sections—free labor having acquired the ascendancy in all the mechanical, commercial and farming departments of industry, and slave labor in those connected with the production of rice, sugar, cotton and tobacco.

And here, we are naturally led to consider a doctrine, which has recently been presented to the country under the most imposing circumstances. About a year ago, a distinguished Senator from the State of New York, in an address to the people of that State, expressed his deliberate conviction, that there is an inherent, and irreconcilable antagonism between the systems of free and slave labor. He said :

“Hitherto the two systems have existed

in different States, but side by side within the American Union. This has happened because the Union is a confederation of States. But, in another aspect, the United States constitute only one nation. Increase of population, which is filling the States out to their very borders, together with a new and extended network of railroads and other avenues, and an internal commerce which daily becomes more intimate, is rapidly bringing the States into a higher and more perfect social unity or consolidation. Thus these antagonistic systems are continually coming into closer contact, and collision results.

“Shall I tell you what this collision means? They who think that it is accidental, unnecessary, the work of interested or fanatical agitators, and therefore ephemeral, mistake the case altogether. It is an irrepressible conflict between opposing and enduring forces, and it means that the United States must and will, sooner or later, become either entirely a slave-holding nation, or entirely a free-labor nation. Either the cotton and rice fields of South Carolina, and the sugar plantations of Louisiana will ultimately be tilled by free labor, and Charleston and New Orleans become marts for legitimate merchandise alone, or else the rye fields and wheat fields of Massachusetts and New York must again be surrendered by their farmers to slave culture and to the production of slaves, and Boston and New York become once more markets for trade in the bodies and souls of men. It is the failure to apprehend this great truth that induces so many unsuccessful attempts at final compromise between the slave and free States, and it is the existence of this great fact that renders all such pretended compromises when made vain and ephemeral.

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“I know, and you know, that a revolution has begun. I know, and all the world knows, that revolutions never go backwards.”

The proposition is certainly a startling one, and it took the country by surprise.

It involves an impeachment of the wisdom of the fathers of the republic, and a condemnation of the Constitution of the United States, as an abortive effort to blend together in harmonious co-operation elements essentially incongruous and antagonistic.

Is this proposition true? Does it em

body the wisdom of a statesman, in the highest acceptation of the term, or is it the plea of a partizan, addressed to the jealous prejudices of a section.

If the two systems of labor existed together, in the same localities, competing and interfering with each other, maintaining a constant rivalry, and provoking collisions, by constant efforts to supplant each other, there might be some ground for apprehending a conflict between them. But do the facts of the case justify any such assumption? On the contrary, does not the whole past history of the country negative the idea, and show that the tendency of the two systems is to separation,—to the withdrawal of each from the field appropriate to the other, rather than to mutual aggression, collision and conflict? Where, then, is the evidence of antagonism between them?—Upon what facts does this orator, who is so swift to pronounce judgment of condemnation on Washington and Hamilton, and Madison, and Jay, rely, to maintain his mischievous dogma? If it be true, the alternative he offers is submission or disunion; abolition or revolution! Is the country prepared for such an alternative? Do our northern brethren desire to press it upon us? The events of the next year may show. Their decision will derive new and fearful significance from events that have recently occurred within our borders. Should the sentiments of the Senator from New York be endorsed and adopted by the people of the North, it will be time for the people of the South to decide what course their interests, and their honor, and safety may require them to pursue.

I, for one, cannot believe that such an endorsement will be given. The solemn admonitions of Washington have not yet been forgotten by his countrymen. His prophetic wisdom foresaw the character of the appeals which "designing men" would make to local prejudices, and, in his farewell address, he warned the people against them in these impressive words:

"In contemplating the causes which may disturb our Union, it occurs as a matter of serious concern, that any ground should have been furnished for characterizing parties by geographical discriminations, *North-ern and Southern, Atlantic and Western*, whence designing men may endeavor to incite a belief that there is a real difference of local interest and views. One of the

expedients of party, to acquire influence with particular districts, is to misrepresent the opinions and aims of other districts. You cannot shield yourselves too much against the jealousies and heart-burnings which spring from these misrepresentations. They tend to render alien to each other those who ought to be bound together by fraternal affection."

Let the people of the United States look on this picture and on that! Here are the counsels of Washington—there the Senator from New York. Let the people choose between them!

Washington teaches that while it may be the province of "designing men" to foment local jealousies—to array section against section—to divide, that they may rule, as heads of dominant factions, it is the higher, and nobler, and holier mission of the patriotic statesman, to reconcile differences of opinion—to bring order out of chaos—to blend opposing forces into harmonious action, for the public good.

The idea that the tide of slavery, which, for three-quarters of a century, has been constantly receding from the North, is about to reverse its flow, is as absurd as to suppose that the waves of the Atlantic will again sweep over the crests of the Alleghenies. The people of the North cannot be imposed on by any such shallow sophistry.

But looking at the question in another aspect—has the South anything to fear from Northern aggression.

I answer, unhesitatingly, nothing whatever! This answer is dictated not only by a reference to the provisions of the federal constitution, which forbid all such aggressions, but by other and still more cogent considerations. I know that constitutional restrictions, and parchment guarantees, and the rights intended to be guarded by them, may be trampled under foot, and therefore do not always present a safe bulwark of defence.

But there is another, and in deference to the nomenclature of the author of the doctrine on which I am commenting, I will call it "a higher law," which men never violate wilfully, and which will ever remain sure and steadfast: I mean, the *law of self-interest*! If all higher considerations should fail—if the men of the North should be deaf to the appeals of justice—if they should prove regardless of all their constitutional and legal obligations, and feel



disposed to violate the rights of the Southern States, they would be restrained from doing so, by the knowledge of the fact, that the blow which prostrated the interests of the South would inflict an immedicable wound on the prosperity of the North.

Where, then, I repeat, is the evidence of antagonism between the interests or the labor of the North and of the South? Those who are disposed to indulge in narrow and contracted views of subjects may fancy they see evidences of an "irrepressible conflict" between heat and cold; light and darkness; summer and winter; the centripetal and centrifugal forces; and a thousand other objects in the material world, which seem to be irreconcilable; yet, under the rule of a wise and beneficent Providence, how beautifully all these apparently opposing elements work together in harmony, to accomplish the wonderful designs of Him whose hand directs the machinery of the universe!

When the scales are removed from the eyes of such as I have mentioned, they discern that the only discord was in their own wicked hearts, and that the seeming antagonism in the elements of nature was but harmony not understood!

So, it often happens, in regard to political affairs, that men whose minds are misled by local interest, or distorted by party prejudices, can see nothing in the progress of events but evidences of clashing interests and "irrepressible conflicts," while, to those who survey the same objects, from a loftier stand-point, every element is seen to be performing its appropriate functions, for the development of some wise and beneficent result.

How strangely must that mind be constituted, which can perceive a tendency to antagonism in two systems which move in different orbits, and have entirely different functions to perform; systems widely separated, geographically, and whose influence is felt only in the benefits which they reciprocally confer on each other!

Southern labor is devoted to the production of articles unsuited to the climate and labor of the free States. Its great staples are cotton, sugar, tobacco and rice. Of these, but one, tobacco, and that to a small extent only, can be produced north of the Delaware.

On the other hand, the labor of the free States is directed to the cultivation of grain and the feeding of live-stock, and to manu-

factures and commerce, and other pursuits which are better adapted to the habits of their people, and the qualities and peculiarities of their soil and climate.

How, then, can the labor of one section come into competition with that of the other? Do not the productions of the North find their best markets in the South? Are not the slaves of the planting States the largest consumers of the coarse woolens, and cottons, and shoes, and hats made by the labor of the North? Do not the planters also buy a large portion of the finer goods, and furniture, and hardware, and machinery, and carriages, and saddlery, and agricultural implements manufactured at the North?

And does not the the South supply the North with its cotton, and sugar, and rice, and tobacco, and other commodities, in their crude condition, ready to be converted by the labor and skill of the North, into the most valuable subjects of commerce? How then can there be antagonism between two sections of country, and two systems of labor, whose productions, and whose avocations, are so widely different? Antagonism implies opposition,—rivalry,—competition,—the interference of one with the other. But here, there is nothing of the kind. Neither produces what the other can profitably produce—on the contrary, each produces precisely what the other cannot produce, but what the other needs. Each offers to the other a good market for what it has to sell. An exchange, mutually beneficial, takes place between them. Both are enriched by it. The product of slave labor helps to pay the wages of the free labor of the North, and the product of free labor helps to pay to the owner of slaves the expense which he incurs, and the profit which he makes, by his operations on his plantation. Each section, and each system, consequently, contributes to the prosperity and wealth of the other. They are mutual benefactors, instead of antagonists. The relations between the two systems have become so intimate, and so interwoven with each other, that they can no longer be regarded as separate, independent systems, but are, in fact, harmonious elements of one great system of American labor. The truth of this proposition will be manifest, if we will turn our thoughts, for a moment, to the consequences which would ensue from a disturbance of the relations, which now happily subsist between these elements.

If slavery were, by common consent, abolished throughout the United States, we cannot doubt that the consequences would be similar to those which followed emancipation in the British West India Islands. Wherever the negro is found, his nature is the same. Their indisposition to labor has become proverbial. It exhibits itself, not only in their native country, and in the sultry climate of the South, but also amidst the bustle and activity of the Northern and Western cities, in which they congregate. They labor only under the pressure of necessity, and only to the extent which that necessity imperatively requires. As soon, therefore, as the discipline and compulsory authority of the master was withdrawn, they would sink into habits of idleness, which would leave the plantations of the Southern States, like those of Jamaica, desolate and uncultivated. They would seek a precarious subsistence, by irregular effort, and by depredations on the property of those around them. The production of the great staples of the South, would rapidly diminish, and ultimately they would cease to be articles of export. White labor could not be substituted, because experience has shown, that the white race cannot endure the exposure to the sun and atmosphere, which is necessary for the production of cotton, tobacco, sugar and rice. The abolition of slavery would, therefore, be equivalent to the banishment of those articles from the manufactures and commerce of the country. And what mind can conceive, or what pen portray, the consequences to the business, and comfort, and happiness of the civilized world! It would involve the destruction of countless millions of dollars of capital in the South, vested in lands, and in slaves and stock and machinery necessary to cultivate them; and in the North, in the factories erected to work up the products of Southern labor, and to produce all the fabrics necessary to supply its wants. It would involve the prostration of domestic trade, manufactures, and the mechanic arts—the stagnation of foreign commerce—the derangement of the balance of trade and rates of exchange—disastrous convulsions in the monetary system—the serious injury of our shipping interests—a decline in our national resources—the paralysis of industry in all its departments—a general depression in the value of property, and a scene of bankruptcy and ruin to which

the history of our country affords no parallel.

Such would be some of the more prominent and direct results of that system of emancipation which deluded enthusiasts and selfish agitators would seek to accomplish.

But the picture is, by no means complete. It is plain that the evils I have enumerated, would fall with more crushing force on the interests and people of the North, than on those of the South. But, there are others peculiarly affecting the free States, which should not be passed over in silence.

Who, that has visited the Northern States, has failed to note, with pride and pleasure, the evidences of prosperity and comfort that greet his eye at every turn? Well cultivated fields—neat farm-houses—thriving villages—cities thronged with a busy and enterprising population—factories, furnishing employment to thousands—harbors crowded with shipping—wharves loaded with the merchandise of the most distant lands—all bear testimony, which cannot be mistaken, to the material prosperity of the people. Innumerable school-houses, and churches, and noble institutions, devoted to literary and benevolent purposes, in like manner attest the attention which is bestowed on the culture and development of the moral and intellectual faculties of the citizens.

Explore the sources of all this wealth and prosperity—enquire what stimulates this industry into activity?—what gives vitality to this extensive domestic trade?—what freights these fleets of merchantmen, on their outward voyages, and supplies the means of buying the home-bound cargoes?—in a word, what sustains this whole system of industry, and equalizes the balance of trade between our own and foreign countries? Every enlightened man will answer that the productions of the planting States, the fruits of slave labor, contribute more than all other causes to these great results!

If, then, this system of labor should be suddenly overthrown, by emancipating the slaves of the South, and the substitution of a worthless, indolent, pauper population in place of the active, well-disciplined, and vigorous slaves who now supply the productive power of the South, who can compute the amount of injury that would accrue to the North? Strike the single article of



cotton from the commercial schedules, and what would become of the factories, and commerce, and navigation of the North; and of all the interests dependent on them? Let business men answer the question.

But these are not the only evils, that would enure to the people of the non-slaveholding States, from such a policy. If the Southern slaves were liberated, they would, naturally, desire to remove from the scenes of their labor and humiliation, and seek abodes among the people of the North, whose sympathy had cheered them in their bondage, and whose homes and hearts, they would reasonably infer, were open to receive them. The three millions of liberated slaves, thus left free to choose their own places of residence, would soon scatter themselves, in the Northern and Western States, in quest of the means of subsistence. The better class would at once come into competition with the laboring population of the North, in all the more simple employments for which they were qualified, and the draymen, hackmen, cartmen, porters, hotel-waiters, stevedores, domestic servants, day-laborers, and others of like occupations, would doubtless find them formidable rivals, who would supplant them, or greatly reduce the profits of their callings. Much the larger proportion, however, from their natural aversion to labor, would refuse to work, and with their families, sink into the lowest depths of destitution and wretchedness; and the jails, alms-houses, and penitentiaries of the North would be their only refuge from starvation. They would become an intolerable burthen, and all classes of society would rise up to expel them. Under these circumstances, I can readily see how the tendency to a "conflict" between the black and the white laborer would become "irrepressible." The white laborer whose avocation had, heretofore, been respectable, and who had been accustomed to receive wages adequate for the support of his family, would not tolerate the competition of those who would degrade the dignity of labor, and underbid him in his business. The taxpayers would not submit to the burthen of maintaining an idle and thriftless population. The land-holder would not be content to have near his premises a class whose subsistence would be eked out by pilfering. A conflict would necessarily ensue—a conflict of clashing interests, and hostile races brought into immediate collision—a conflict

which must necessarily result in violence and bloodshed.

Is this picture overdrawn? I refer those who think so to the riots that have already occurred from these causes, in Cincinnati, Philadelphia, and other cities and townships in the non-slaveholding States. And when it is remembered that but a few hundreds of free negroes, and these above the average of their race, for freedom is generally conferred on the most worthy, or acquired by the most thrifty, have led to such outbursts of popular indignation and violence, what would be the consequence of having THREE MILLIONS OF THEM, of all ages, sizes, classes and conditions, precipitated on the non-slaveholding States!

I maintain, therefore, that precisely the opposite of the proposition of the distinguished Senator from New York is true. As long as slavery exists, it will retain the negro population in the Southern States—it will keep them separate and apart, and prevent their coming into competition with the laboring classes of the North—and the fruits of their labor will be auxiliary to the interests of the white race.

But the moment they are emancipated, the present line of demarcation between the two systems of labor will be eradicated. The levee, which confines the negro race within the Southern States, will be broken down, and a deluge of free negro migration will pour its desolating flood over the whole North and West, sweeping before it the peace and happiness and best interests of the people. The Northern States will then discover, when it is too late to repair the mischief, that they have rashly and wickedly undone all that was done for them by the wise policy of their earlier statesmen.

Were I a Northern man, therefore, and disposed to assume the championship of Northern interests, I would admonish my fellow citizens not to aid in the emancipation of the slaves of the South, but to remonstrate against it, and to resist it by all fair and honorable means, as fraught with incalculable mischief to the free States. I would conjure them to leave the whole subject in the hands of those immediately concerned, and of Him, who, although his purposes cannot be fathomed by human sagacity, we know, shapes the destiny of nations, and ordereth all things wisely and well.

Let us, then, by common consent, discard

from our minds and our hearts all these unfounded notions of antagonism between different parts of our common country. Factions agitators have existed in every age—sacred history teaches us an instructive lesson on this subject. In the early days of Christianity, we are informed, the members of the church of Corinth were blessed, above all others, with spiritual gifts. To one was given wisdom, to another knowledge, to another faith, to another the gift of healing, to another the working of miracles, to another prophecy, to another discerning of spirits, to another divers kinds of tongues, to another the interpretation of tongues. All these gifts proceeded from the same spirit, and all were intended to work together for one common object—the salvation of man and the glory of God! But the possessors of these various gifts, mistaking diversity for discord, began each to exalt himself above his neighbor, and to vie with him in the display of his endowments. A learned biblical commentator and historian (Thomas Scott) informs us that “this gave rise to vain glory, envy, corrupt emulations and repinings, which were equally opposed to piety and charity.”

Thus it would seem that the very abundance of the gifts bestowed on the Corinthians became the chief source of danger to their spiritual welfare.

This led the great Apostle to the Gentiles to administer to them a rebuke for their dissensions, full of wisdom and profitable for instruction. After adverting to the munificent endowments which they had received at the hands of God, and the improper use they were disposed to make of them, he said, (1st Corinthians, chap. 12 :)

“For, as the body is one, and hath many members, and all the members of that one body, being many, are one body, so also is Christ.

“For by one spirit we are all baptised into one body—whether we be Jews or Gentiles,—whether we be bond or free, and have all been made to drink into one spirit.

“For the body is not one member, but many.

“If the foot shall say, because I am not the hand, I am not of the body, is it therefore not of the body?

“And if the ear shall say, because I am not the eye, I am not of the body, is it therefore not of the body?

“If the whole body were an eye, where

were the hearing? If the whole were hearing, where were the smelling?

“But now hath God set the members, every one of them, in the body as it hath pleased him.

“And if they were all one member, where were the body?

“But now are they many members, yet but one body.

“And the eye cannot say unto the hand, I have no need of thee; nor again the head to the feet, I have no need of you.”

These words of counsel and admonition were addressed by St. Paul, eighteen centuries ago, to the factious Corinthians. But they were written and incorporated into the Holy Scripture, for the instruction of all nations and all ages. May not the people of the United States learn a lesson of wisdom from them?

No nation ever possessed such a heritage as we enjoy. Providence has lavished on us every blessing in the richest profusion. With a territory stretching from the Atlantic to the Pacific ocean, and almost from the Tropical to the Arctic region, we embrace within our limits every variety of soil and climate, and an aptitude for every production essential to the comfort and happiness of man. If we were isolated from all the rest of the world, we have within our own borders every material element of national prosperity and greatness. And, as if with the design of securing perpetual harmony and union between the different parts, Providence has wisely ordained a natural and necessary division of labor between them, by adapting each to particular staples and occupations which are unsuited to the climate and soil of the others. The Southern States produce the cotton, sugar, rice and tobacco necessary for the whole country. The North supplies the skill and labor to manufacture the raw material into such fabrics as are required by the other sections. And the Middle States furnish the food for the North and South. Neither can successfully compete with the other in its peculiar department of industry. Each is benefitted by the exchange of its surplus productions for those of the others, and they thus reciprocally minister to each others wants. And by a remarkable departure from the general law of nature, which requires large streams to seek their outlet to the ocean, by the shortest route, the great father of rivers, instead of flowing eastward to the Atlantic,



pours his vast volume of waters in an almost due southward course, from the northern limits of the Confederacy to the Gulf of Mexico, thus passing through all the great divisions of our country, and furnishing a highway for commerce between them unequalled in extent and excellence on the face of the globe.

If the climate, soil and productions of our whole country were similar, competition and rivalry might engender ill feeling between the different parts. But each has its separate gift and their natural diversities, instead of being elements of discord, are sources of union, harmony and strength.

But, like the foolish Corinthians, some of our people are disposed to indulge "in vain glory, envy, corrupt emulations and repinings," which are alike opposed to truth, charity and patriotism.

To all such may we not, reverently paraphrasing the language of the Apostle, say

"For as the body is one and hath many members, and all the members of that one body, being many, are one body, so ALSO IS OUR COUNTRY!

"For by one spirit are we all baptised into one body, whether we be Jew or Gentile, bond or free, and have all been made to drink into one spirit—the spirit of the Constitution!

"For our Confederacy is not one member but many. If the North shall say, because I am not the South I am not of the Union, is it, therefore, not of the Union?

"And if the East shall say, because I am not the West, I am not of the Union, is it, therefore, not of the Union?

"If the whole country were manufacturing, where were the cotton and sugar growing?

"If the whole were agricultural, where were the commercial and manufacturing?

"But now hath the wisdom of our fathers set the separate States, every one of them, in the Union as it hath pleased them.

"And if they were all one State, where were the Union?

"But now are they many States, yet but one Confederacy.

"And the East cannot say unto the West, I have no need of thee; nor, again, the Northern States to the Southern, we have no need of you.

"And whether one member suffer, all the members suffer with it; or one member

be honored, all the members rejoice with it!"

These are the teachings of inspiration! And I appeal to my fellow citizens in all parts of the country, if they do not convey to us an instructive lesson of practical wisdom and patriotic duty!

Let us, then, in everything that affects the interests of our country, cultivate a comprehensive, catholic, national sentiment! Let us discard from our confidence and our councils all "fanatical agitators" who attempt, by any device whatever, to array one portion of the Union against another. Let us remember that, while each section has its appropriate function to perform, each is essential to the welfare and security of the whole. Let us bear in mind that "the liberty and independence we possess are the work of joint councils and joint efforts—of common dangers, sufferings and success." Instead of fostering local jealousies, and striving to inflame one section against another, let me urge you, fellow citizens, in the impressive language of Washington, to raise up your minds and your hearts to a just appreciation "of the immense value of your National Union, to your collective and individual happiness, so that you may cherish a cordial, habitual and immovable attachment to it—accustoming yourselves to think and to speak of it as a palladium of your political safety and prosperity—watching for its preservation with jealous anxiety—discountenancing whatever may suggest even a suspicion that it can in any event be abandoned, and indignantly frowning upon the first dawning of every attempt to alienate any portion of our country from the rest, or to enfeeble the sacred ties which now link together the various parts!"

#### To Measure Hay Stacks.

More than twenty years since, the following method for measuring hay, was taken from an old publication. I have both bought and sold by it, and I believe it may be useful to many farmers: Multiply the length, breadth, and height into each other, and if the hay is somewhat settled, ten solid yards make a ton. Clover will take from ten to twelve solid yards per ton.

Five hundred and twelve cubic feet in a compressed or well settled mow is regarded equal to a ton of good hay.

### Kentucky University.

[The UNIVERSITY of KENTUCKY was duly installed on the 21st of September, 1859. Among the interesting proceedings on the occasion, PRESIDENT MILLIGAN delivered his inaugural address, the introductory part of which contains such a philosophical train of thought upon the still comparatively obscure subject of educational development, that we cannot resist the inclination to lay it before our readers.—ED.]

#### PRESIDENT MILLIGAN'S ADDRESS.

*Mr. President; Gentlemen of the Board of Curators; and Fellow Citizens of Kentucky.*

It has already become a proverb, that "The present is the age of improvement." There is not a branch of science within the wide range of human knowledge, that has not been more or less enriched by contributions from some of the master minds of the nineteenth century.

It is not, however, so much in the department of the sciences, as it is in that of the arts, that we excel our predecessors. It is not so much in the discovery of truth, as in its varied applications to the practical purposes and conveniences of life, that we are in advance of all past generations. Some of the most sublime discoveries in science were made by the Galileos, the Keplers, the Bacons, the Lockes, and the Newtons of even the seventeenth century. But these discoveries were to most persons of that age what the gold mines of California were to the wild tribes of the West. Very few then knew how to appropriate them.

But now all is changed; or at least, is rapidly changing. Every thing is now assuming a more highly practical tendency. Agriculture and the mechanic arts are greatly improved by the application of science; our rivers, lakes, and oceans are navigated by the power of steam; information is carried from city to city, and from continent to continent, with the velocity of lightning; and in a word, every thing is onward and upward and Westward.

A question then rises just here of very great interest to every true philanthropist: What is the cause of all this? To what particular agency or instrumentality does this state of universal improvement owe its origin and its progress? Why does the nineteenth surpass every preceding century

in all the elements of wealth, power, and civilization.

This question has been very differently answered by different classes of individuals. The mere politician who is wont to contemplate every thing through the medium of political glasses, has usually found his answer in the great improvements that have been recently made in the science of government. But this does not satisfy the more enlightened and inquisitive metaphysician. The question still occurs to him, whence this great improvement in political science? It is an effect: and it must have a cause as well as the recent improvements in agriculture, horticulture, and the other arts and professions.

The Christian philosopher who stops not with the consideration of second causes, but who is accustomed to trace every event in the history of human progress up to the Divine will, or rather to the Divine nature, where all true philosophy ends, will, of course, refer all this to the agency of Him who made the universe; who governs it; and who is now evidently directing all things to the speedy introduction of that glorious era, when "the wolf shall dwell with the lamb; and the leopard shall lie down with the kid; and the calf, and the young lion, and the fatling together, and a little child shall lead them."

To this general solution of the problem, I have no objection. It certainly presents to us a very just and rational conception of the whole matter. But it does not meet the specific object of our present inquiry. Our question does not refer to Divine but to human agency. We do not ask, what has God done, but what has man done, under the Divine guidance, to bring about this happy state of society. Or, to be still more particular, what is the first link in the chain of human instrumentalities that has given rise to this wonderful progress in all the elements of modern civilization.

Waiving for the present, the consideration of all the merely speculative theories of human progress, I hesitate not to affirm my solemn conviction, that the true answer to this question is to be found only in the superior education of the nineteenth century. This is the grand "*primum mobile*," the great efficient mainspring of all the schemes that man has ever devised and executed for the elevation, civilization, and beatification of his race.



But let me not be misunderstood here. We often differ in our conclusions, merely because we use different nomenclatures. We often use the same word to represent very different and distinct ideas. This is particularly true of the term *education*. But few words have a wider currency; and yet very few are more imperfectly understood. The popular meaning of this term is extremely erroneous. It is generally used, as you are all aware, in the sense of acquiring and storing away ideas; which, like so many measures of wheat, oats, or barely, are to be retained in the graneries of the human mind; or to be dealt out to the highest bidder according to the wholesale or retail prices of such gross commodities.

But as its etymology denotes, it primarily and properly signifies a process just the reverse of all this. It is not the treasuring up in the mind of any thing "*ab extra*," but it is the developing, moulding, harmonizing, adjusting, polishing, and refining of that which is within the man himself.

This idea is so fundamental, that I beg to illustrate it with all possible simplicity, even before this very intelligent audience. As the occasion is somewhat elementary, I will no doubt be excused for introducing, at this point, a few very plain and elementary suggestions.

Allow me then in the first place, and by way of illustration, to call your attention to the world of wonders, that lies concealed beneath the surface of even the most simple organized substance. Who, for example, that has never witnessed the mysterious process of vegetation, could imagine, "*a priori*," that a single grain of corn is susceptible of such a development as we every year behold? True, indeed, without the influence of certain external agencies, its vital energies would remain forever latent. This may be well illustrated by the grains of corn that are sometimes found in the Egyptian pyramids, and among the ruins of ancient cities. But, by the application of heat, light, moisture, and electricity, the germ is quickened into life. We have first the root; next the blade; then the stalk; after that the blossom; then the ear; and finally the full-grown corn in the ear. It is now, allow me to say, an educated grain of corn. Whether it has been properly educated or not, depends of course, on circumstances.

Now all this is very analogous to the education of the infant man. His is the most

complex of all created constitutions. He is a perfect microcosm within himself. He has a material body; an animal soul; and a god-like spirit. These again are endowed with numerous and various faculties, each of which, by the use and application of proper stimuli, is susceptible of the most wonderful and astonishing development. How amazing for example, is the difference between the muscular powers of the child and of the full grown Goliath! Or between the mental powers of the infant Newton, and those of the philosopher Sir Isaac, whom God

"To mortals lent, to trace his boundless works  
From laws sublimely simple."

We do not of course pretend, by any system of education, to make every man a Newton. There is a natural limit to the development of every organized substance, whether vegetable or animal, beyond which no created power can extend it.

"For education ne'er supplied  
What ruling nature has denied."

The educator creates nothing. He produces neither mind nor matter. He merely develops, moulds, and polishes the raw material. But if he cannot make the moss bloom as the rose, if he cannot cause the daisy to tower aloft like an oak of Bashan, or like a cedar of Lebanon, he may nevertheless develop every faculty in each particular individual, to the full extent of its own natural capacity.

This, then, for the sake of distinction, we may call the first element of education. But it is only in theory that we can separate the developing from the moulding, polishing, and refining process. While our latent powers, energies, and susceptibilities are being brought out from the deep recesses of our being, by each one's being exercised on its own appropriate objects, they all receive at the same time a particular cast; they are, as it were, moulded in the types of the educator: they are either brought into a state of more active and sympathetic harmony, or they are crushed beneath the fetters of the most inexorable and oppressive despotisms.

This is so very obvious that it scarcely needs any illustration. It is a matter of daily consciousness, with every youth, that the performance of any one action begets in his system an increased facility for its repetition. This again, strengthens the same tendency, and so on till a corresponding habit is formed. We all remember with

what fear and trembling we made our first essay in the simple art of chirography. To form the first letter of the alphabet required at that time a very considerable effort. But now it almost forms itself; that is, it forms itself, if we have been so fortunate as to form a habit in harmony with the natural laws and constitution of our chirographic organs. But otherwise, the die is cast. The decree of habit is, Let the fully developed hand that is cramped now, be cramped forever.

This is a very simple and familiar illustration of the force and power of habit over all our faculties of body, soul, and spirit. So plastic indeed is the infant constitution, that it may be easily cast into almost any mould whatever. We do not, of course, by this, intend to indorse the absurd dogma that "Man is a mere creature of circumstances." Not at all. Such a hypothesis has no foundation whatever in fact. There is evidently in the mind of every man a natural affinity for truth, just as there is in his body a natural tendency to assume the upright position. But we all know that the human frame has in its infancy been distorted into a thousand hideous forms; and we are just as painfully conscious that the infant mind has been as often cast into false systems of politics, philosophy, morality, and religion. The present chart of the civilized world is a melancholy illustration of this fact.

How exceedingly important, then, it is that during the process of education all the faculties of every youth should be so exercised on their corresponding and appropriate objects as to secure their full and complete development, and so as to form, at the same time, habits in harmony with his own primitive constitution, and with the relations that he sustains to the entire universe. This is a matter on which there is no room for exaggeration. Here it is that all the powers of language become utterly bankrupt, and every attempt at hyperbole falls far short of expressing the simple, eternal realities and consequences that are involved in the education of every son and daughter of humanity.

The third object or element of education, is the acquisition of useful knowledge. Knowledge is the food of the soul:

"Man loves it dearly: and the beams of truth  
More welcome touch his understanding's eye  
Than all the blandishments of sound, his ear,  
Than all of taste, his tongue."

When, therefore, a man's whole constitution has been developed, moulded, polished and refined to the fullest extent of its capabilities; when all his faculties have been made to harmonize with each other, and with the laws and principles of the physical, intellectual, and moral universe; when his mind has been filled with knowledge, and his heart with wisdom; then, and not till then, can it be said with propriety that he has been perfectly educated. He may indeed have a strong and athletic physical constitution; he may have been well instructed in many of the arts and sciences; but a perfectly rational and complete education he has not received, while any of the things specified are wanting.

You now comprehend what I mean, when I say that education, in its proper and comprehensive sense, is the basis of all that tends to elevate, enrich, adorn, and refine human nature. And not only so, but I am sure that you also now fully acquiesce with me in the justness of the sentiment. Indeed, it is only necessary to state the premises, and the truth of our proposition follows with all the clearness and force of a mathematical inference. For if matter is not capable of self-improvement, if it is mind that discovers and that applies all the elements of wealth, power, and whatever else pertains to the individual, the social, and the general good of mankind, then it clearly follows that its success in all this must ever be in the ratio of its own education. Of what use, for example, is the gold of California, the coal and iron of Kentucky, or the diamonds of Golconda, to the man who has neither the intelligence nor the wisdom that is necessary to appropriate them?

We boast of our civil and political institutions; and well we may, for they are the very best under the broad heavens. But of what use would they be, with all their varied and multiplied excellences, to the savage tribes of the West! or even to our Mexican neighbors? The fact is, that men always have had, and that they always must and will have, laws and institutions corresponding to their own mental and moral development. Deprive the rising generation, therefore, of what is properly implied in the art and mystery of education, and you at once render worthless all that was ever purchased by the blood of our Revolutionary fathers; you virtually annihilate our whole scheme of civil government; you destroy our system of



internal improvements, with all the varied comforts and conveniences of social life: you seal the Bible; shut up the fountains of human happiness; and convert this whole land, which is now beautiful as the rose of summer, and delightful as the fragrance of autumn, into one vast, dreary, and howling wilderness.

The greatest problem, then, that man was ever required to solve is the problem of his own education. To show how human nature may be best developed and moulded, and in all respects adapted to the ends and objects of its being and destiny, is to do more for the elevation and general good of mankind than did Columbus by the discovery of a continent. And the man who does most for the execution of the plan is, next to its projector, the greatest benefactor of his race.

I have not the vanity to suppose that I have made the great discovery. An experience of more than twenty years in this most difficult of all the arts, has convinced me that the problem is not yet fully solved. It remains for a second Peter, bearing the keys of the Kingdom, to reveal the mystery.

Some things, however, follow very clearly from the premises now before us. If education consists, as I have said, not merely in the acquisition of knowledge, but primarily and chiefly in the development and proper discipline of all our faculties, then it is evident, for example, that it must of necessity be a very long, laborious, and expensive process; that there is in fact no royal road to it; but that it requires the combined influence of the nursery, the common-school, the academy, the college, the church, and the university to complete it. These, I repeat, are all essentials. Take away any one of them, and the chain of means is broken; our whole system of education is rendered inefficient; and the feeble, irregular pulsations of society will soon indicate that a fountain of life has been exhausted, or, at least, that the stream has been diverted from its proper channel.

I am aware that all do not think so. I know there are some very honourable men, even in the Commonwealth of Kentucky, who seem to regard our colleges and universities as non-essentials, if not indeed as public nuisances. They refer us to a Franklin, a Washington, and a Clay, who, without a collegiate education, have gained for them-

selves a name and a reputation as enduring as the annals of our Republic.

But these men forget that the sage of Boston, the hero of Mount Vernon, and the orator of Ashland were nature's favorite sons. They also forget that each of these illustrious patriots and statesmen deeply deplored his own want of a thorough course of collegiate instruction and discipline. They forget that Franklin, strongly recommended the study of the ancient classics, especially to professional men; that Washington was the founder of a college which still does honor to his name and memory; and that Mr. Clay was always the sincere friend and eloquent advocate of a thorough and liberal system of public instruction.

But we need not the testimony and advocacy of even a Franklin, a Washington, or a Clay, in behalf of our colleges and our universities. To test their real value and importance in a scheme of education, we have only to look into their own intrinsic merits; we have only to inquire what has already been accomplished through their instrumentality, and how much of the world's comfort, happiness, and prospective civilization still depends on them.

For if education is a blessing to society, why should it not be made as general and as thorough as possible? Why stop with the instruction and discipline of the common-school and the academy, while there is so great a demand for the very best educated mind in all the relations of life?—What would now be the condition of the world, had colleges and universities never been established as a means of education? How many would now have the Bible faithfully translated into their own living vernacular? Where would now be the fifty million copies of the Word of Life that have revealed to all nations the strait and narrow way that leads to honor, to glory, and to immortality? What would we now know of those polished arts and inventions that

—“have humanized mankind,  
Softened the rude, and calmed the boisterous  
mind?”

Where would now be most of those standard works of literature and science which are at once the guide of the farmer, the mechanic, the pedagogue, the lawyer, the physician, and the statesman?—Is it not perfectly obvious to every student of history, that nearly all the great improvements that have recently been made in the arts and in

the sciences may be traced, either directly or indirectly, to minds that have been thoroughly trained and disciplined in the halls of our colleges and universities? And is it not just as obvious to every man of reflection, that upon such minds we must always rely even for the preparation of text books to supply the wants of the nursery and the common-school, to say nothing of the solution of those higher and more complicated problems on the demonstration of which must ever depend the progress of Christian civilization?—Take, for example, the most popular text-books that are now used in the common-schools of Kentucky. Who are their authors and compilers? Is not almost every child in this Commonwealth familiar with the names of a Webster, a Goodrich, an Olmsted, a Davies, a McGuffey, and many others who, having graduated with the highest collegiate honors, devoted much of their subsequent labors to the preparation of text-books for the education of youth? Regard this question, then, as we may, it is evident that the common-school is just as dependent on the university as the university is on the common-school.

But I have no desire to introduce invidious comparisons. I do not wish to array the higher against the lower classes of our literary institutions; nor to discuss their comparative value as elementary parts of our social system. As well might we array the head against the heart, and contrast their influence on the life, the health, and the activity of the body. No, my fellow-citizens, let there be no antagonism between the nursery, the common-school, the academy, the college, the church, and the university. Let them ever be united; and let them always co-operate in the great work of qualifying each successive generation for more enlarged spheres of usefulness and happiness on earth, as well as for the higher, purer, and holier enjoyments of heaven.

### Wax and Rosin for Painting.

To oil coats there is this objection, that they require a comparatively long time to dry. When oil of turpentine is used, though it evaporates fast enough, it leaves the painting soft; and although, by the addition of some other substances, the drying may be hastened, it even then takes up too much time, and leads to the substitution of whitewash and other water. Mr. Alluys

now proposes a mixture which yields a coat of paint that will dry as fast as whitewash, but leave as durable and elastic a coat as that of oil. To prepare it, instead of more linseed oil, as usually, he adds to the paint, ground in oil, a solution of wax and rosin in spirits of turpentine. The mixture thus prepared has the appearance of common oil and paint, and acts like such. On the evaporation of turpentine, it leaves a coat sufficiently hard to bear gentle rubbing without coming off. Barreswil has reported some experiments with this mixture, and finds, that although it becomes sufficiently dry and hard after a time, it does not equal a good oil coating in this respect; but he has no doubt that for some purposes it will be found quite desirable. He gives the following formula for its preparation: 10 parts of pure yellow wax are dissolved in the same quantity of linseed oil, and 5 parts of rosin in 8 of spirits of turpentine, at a slow heat, (in separate vessels,) until quite liquid, when they are taken from the fire and mixed, with constant stirring, until they thicken. In this condition the mixture serves for out-door and store work. If to be applied with ground paints, it is thinned with spirits of turpentine, as required.

*Dingler's Polytechnic Journal.*

### A Timely Warning.

A short time ago, we were sitting in our office, cogitating upon the depravity of mankind, when there came a loud and peculiar rapping at the door. Very politely we gave the invitation to 'come in,' the door opened, and a gentleman in black entered, and handed us his card. The gentleman in black, the card informed us, was Mr. Satan!

"How dy'e do now-a-days?" said he.

"Just tolerable thank you," we answered.

"About to get up some local and miscellaneous?" he asked.

"Yes," we responded; "about to write an article to delinquent patrons."

"Why are your subscribers delinquent? You publish an excellent paper," he remarked.

We felt flattered by a so distinguished opinion, and answered: "Yes, we feel proud of our paper; but cannot say the same of a majority of our subscribers. More than half of them owe us."



"You astonish me," he exclaimed. "And," he continued, "can't you do anything with them?"

"It seems not," we answered.

"Well," said Satan, "I am sorry I hav'n't made their acquaintance ere this. They'll just suit me! Make out the list: 'I'll take them!' And with a polite bow, His Majesty of the "Iron-works" departed.

—Delinquent reader, this may be fiction, but we fear it will prove to be a reality. Take warning thereof, and pay the printer.

### Dress of the Japanese Women.

The dress of the Japanese women is simple, but graceful. The robe which crosses the breast, close up to the neck, or a little lower, according to the taste of wearer, reaches nearly to the ground, and has loose sleeves, leaving the waist free. This robe is confined round the body by a shawl, which is tied behind in a bow, the ends flowing.—Everything in Japan, even to dress, is regulated by law; and the sumptuary laws have been very strict until lately, when contact with Europeans appears to be bringing about a slight relaxation. The color worn by all classes of men in their usual dress is black, or dark blue, of varied patterns; but the women very properly are allowed, and of course avail themselves of the privilege, to wear brighter dresses. Yet their taste is so good that noisy colors are generally eschewed. Their robes are generally striped silks of gray, blue, or black, the shawl some beautiful bright color—crimson, for instance—and their fine jet-black hair is tastefully set off by having crimson crape, of a very beautiful texture, thrown in among it. Of course we speak of the outdoor dress of the women—their full dress within doors is far more gay.—*Amer. Ruralist*.

### Coal Ashes as a Fertilizer.

Wm. Leonard of South Groton, Mass., gives the following statement in the N. E. Farmer, of his experience with this material as a manure:

"On an old mowing field too much run down, we top-dressed a square piece of ground fairly with clear coal ashes, early in the spring. While the crop was growing, at all stages the difference was perceptible. When ready for the scythe, it was more in quantity; and as to quality, it produced about equal parts of herds grass and red

clover. If the clover was not introduced by the agency of the ashes, we know not how it was introduced; for four years none was seen there before, or in any other part of the field, and this was the only clover seen in said field the past season. Both grass and clover was more vigorous, green and lively within the top-dressed square, and just as visible all around was the exhausted crop, which said as audibly as grass could say, in its declining state, that it had received no such assistance from this individual fertilizer.

"On the hill-side not at all renewed for its wealthy properties in soil, we planted the Davis Seedlings and Jenny Lind potatoes, in clear coal ashes, half a shovel full in a hill. Below, on equally as good ground, we planted the same kinds of potatoes in compost manure, and the coal ashes, single handed, turned out the largest, best, fairest, and most numerous quantity of potatoes. In reality, they were the best raised on the farm. Almost side by side, in compost manure, our potatoes were somewhat infected with rot; in the ashes they were all healthy and sound almost to a potato."

### Renovating Orchards.

The *Gardners' Monthly* says: "Established orchards, on thin or impoverished soil may be renovated in the following manner: If a tree has been planted, say fifteen years, and attained the size we might expect in that time, get, say ten feet from the trunk, and dig a circle two feet deep all around it, and fill in with a good compost; the effect the next season will be quite marked. If the tree is older or younger, the distance to start with the circle from the trunk, will of course be proportionate. A top dressing will also be of great assistance, as well as a vigorous pruning out of all weak or stunted branches. Moss and old bark should also be scraped off, and if the trunk and main branches can be washed with a mixture of sulphur and soft soap, much advantage will follow.

"Old decayed bark on fruit trees is always a sign of a want of vigor. When a tree is growing thriftily it cracks this old bark so freely, as to make it easily fall off; but when the tree is weak and enfeebled, the bark often becomes indurated before it has got cracked, and in this state the tree becomes what gardeners call 'hide-bound,'

and artificial means must be abjured to aid the tree to recover.

In the cherry and plum trees this is easily done, by making longitudinal incisions, through the bark with a sharp knife. In the peach and apricot, also, I have employed this process with advantage, in spite of learned theories, which have attempted to show up the absurdity of the practice."

### The Seckel Pear.

A writer in the *Minnesota Times*, speaking of the fruits, gives the following account of the Seckel Pear:

About the year 1761, a Frenchman was banished from his native country, and settled on the "neck" below Philadelphia. This point of land, then deemed valueless, is a low marsh, lying between the Delaware and Schuylkill rivers, immediately above their confluence. He built his "cabin" on the bank of the Delaware. Some years after taking possession, he observed a small tree growing up near his door. He guarded it with scrupulous care. It proved to be a pear tree. When of sufficient age to bear fruit, he found, much to his surprise, that the pears were of a superior quality and lusciousness. Caring some to market they attracted attention, and were speedily sold. For two score years he derived quite a revenue from that source, obtaining fabulous prices.

I have been told by persons fully acquainted with the facts, that in some instances he obtained *thirty* dollars a bushel. From the fact that "Peter," (his name) was in the habit of hanging his "sickle," a useful harvest implement, on a branch of said tree, it took the name of the "sickle" tree. Modern parlance has refined said vulgarity into "Seckel." The art of grafting not being practised then to any considerable extent, and "Peter" not wishing to impair his exclusive monopoly, permitted no one to obtain shoots. When he died, in 1821, he bequeathed his possession to Stephen Girard.

These strange beings had long been neighbors; but a portion of the time inveterate enemies. A reconciliation was brought about in the following singular manner: Girard had a trench cut near the boundary line of "Peter" of considerable depth, for the purpose of draining his land. When a "high tide" was in, this trench was nearly full of water. It so happened, one day,

that "Girard" tumbled in said ditch, and was unable to extricate himself and called loudly for help.

His enemy Peter heard the dolorous cry and cautiously approached to ascertain the cause. Girard was almost suffocated by the muddy water. It occurred to his mind that it was a happy time to exhort *favorable peace*. He accordingly proposed his own somewhat selfish terms. The well nigh drowned Stephen gladly acceded, and Peter signed and sealed the provisions thereof by pulling his heretofore bitter adversary out of the awful ditch. The peace so unauspiciously inaugurated, was preserved inviolate, to the death of "Old Peter," and Stephen Girard became his sole heir.

After Stephen Girard became the fortunate possessor of old Peter's heritage he permitted grafts to be taken from the old Seckel tree. By this means the variety was extended. From this one tree all the numerous Seckel pear trees, throughout the length and breadth of the Union at the present day, originated. Probably but few even of our intelligent fruit growers are aware of this indisputable fact.

*From the American Agriculturist.*

### Horses Need Air and Light.

If anything can be done to add to the comfort and health of the horse, no animal deserves more to have such an effort made. Our stables should be constructed with special reference to his comfort and health, and to these all other accessories must yield.

Our fathers' and grandfathers' barns were of the wide, old-fashioned sort, with all manner of loop-holes and air-holes: between the vertical boarding you could put your whole hand. They were originally tight, but when well seasoned, there was light without windows, and the pure air circulated freely. Here was perfect ventilation; and yet talk with those same men about the necessity of ventilating a stable, and they are ready to prove that they have kept horses all their lives, who did well, worked well, were always in fine health and spirits, and that a ventilator is only a fancy idea—one of the new-fangled notions of the present generation.

Our stables have been improved in architectural beauty, and in more permanent form of construction; they are pleasing to the eye, tight, proof against the wind and



weather, and with solid walls of brick and stone—all of which the poor horse would gladly exchange for the pure, fresh air, of which he is now deprived.

In providing for the necessities of a horse, it would be well to ask ourselves, how we should like to be placed in the same situation. If it is healthy for a man to live day and night in a close, damp cellar or underground apartment, then it is healthy for a horse. If it is healthy for a man to live on the lower floor, in an unventilated apartment, with a manure and root cellar beneath him, whose pestiferous miasmas are penetrating every crack, mingling with the foul air he breathes, and rising still higher, permeating the food he consumes, then it is healthy for a horse. But why argue against barn cellars and ill-ventilated apartments?—the proof is abundant to all who want it, and he that cannot be convinced, must cease to wonder why his horses have diseases of the skin, the lungs, the eye, etc., or the glanders, the grease, the scratches, and other diseases that are directly traceable to the impure atmosphere in which he compels them to stand and breathe.

We would, therefore, in the construction of a stable, endeavor to provide against these evils. Build root cellars and other cellars entirely distinct from the barn—at least not directly under the horse stalls; let there be a free circulation of air under the floor, and particularly so throughout the stable apartments. Ventilate the horse stable through the roof, and entirely independent of the other portions of the barn; let the connection between the horse stable and the hay mow be closed tight, except when hay is being delivered. Ventilate the carriage-house through the hay mow and roof.

Let your horses' heads be towards the side or end of the barn, and provide the head of each stall with a fair sized window: a horse wants, under all circumstances, whether tired, sick, or well, plenty of light. When there is light and plenty of fresh air, it is a common practice to turn the stalls the other way, and keep the horse somewhat in the dark. A good horseman knows that a horse enjoys light and air as much as he does himself, and he will thrive better in the coldest winter on the lee side of a hay stack, than he will in a badly ventilated barn, however comfortable it may be otherwise. It is stated that, if the gases exhaled from a horse's body were confined around

him by a gas-tight bag, they would cause his death in twenty-four hours, allowing him at the same time to have his head out and to breathe the pure air.

If you want satin-skinned horses, in fine health and spirits, ready at all times to work or to drive, a thorough system of ventilation will be one very important step towards it.

A manure shed should be built outside the stable, and sufficient only to afford protection from wind and rain, with a door connecting with the barn, and running to the floor of the stable, which should only be open when the stable is being cleaned. The exhalations of the manure heap are then not permitted to return to the stable—nor should any of the gases generated in the stable, be allowed to pass into the carriage room or hay mow.

As a matter of economy, it is just as cheap to build a stable calculated to give a horse the greatest amount of comfort, as to build it in any other way. Cellars are handy arrangements, and in the first cost it may be cheaper to put them under the barn, but a few years' experience will show the heaviest balance on the debit side.

GEO. E. WOODWARD.

*New York, April 1860.*

### Geological

#### INFUSORIAL DEPOSITS WITHIN THE CORPORATE LIMITS OF THE CITY OF RICHMOND.

At a recent meeting of the Boston Nat. Hist. Society, Prof. W. B. Rogers presented some masses of infusorial earth from the tertiary strata of Virginia and Maryland, and gave a description of the geological and other conditions in which this and the associated deposits exhibit themselves in and near Richmond, in the former of these States.

The tertiary formations which underlie the wide plain extending from the seaboard to the eastern margin of the granitic and gneissoid rocks, approach their termination along this meridian, in a series of strata, which are separated by only a short interval from the irregular granitic floor. A little further towards the west they reach their boundary, partly by a rapid thinning away, and in part by abutting, along the hill-sides, against the indented shore of these ancient rocks, here rising to the level of the general upland surface.

In the deep ravines leading into the valley of Shockoe Creek, especially on its western side, we meet with several extensive exposures of the tertiary strata, one of which embraces nearly the whole thickness of both the Eocene and Miocene formations, as locally developed in this neighborhood. In all these localities, the *Infusorial deposit* is found occupying a position immediately above the upper limit of the Eocene stratum, or separated from it by a thin layer of whitish or of more or less ferruginous clay. Like the associated beds, it fluctuates in thickness, as traced from one neighboring exposure to another, varying from twenty to upwards of thirty feet at the different localities on the north side of the valley, and presenting, when measured some years ago on the opposite or Church Hill side, a thickness of nearly fifty feet. In addition to the microscopic fossils, which, in a more or less perfect condition, make up so large a portion of the mass, this deposit presents a few casts of shells of well-known Miocene forms, of which the *Astarte undulata* may be mentioned as of the most frequent occurrence. It also contains imperfectly preserved remains of a slender creeping plant, as well as fragments of woody stems and branches, flattened and converted into lignite, and in some cases filled in all directions with the perforations of a *Teredo*.

The material of the Infusorial stratum is generally of a very fine texture, admitting of being bruised between the fingers into an almost impalpable powder, singularly free from gritty particles.

Although usually of a light-gray, almost white color, it includes in some localities layers of an ashy tinge, which are, however, not inferior to the rest of the deposit in the abundance of their minute organic forms. It has throughout a tendency to lamination in a horizontal direction, and towards its upper limit is so distinct as to cause it readily to separate in their crumbly plates. But of all its mechanical peculiarities, its great lightness is the most characteristic. From experiments made many years ago, Prof. Rogers found that, when pure and quite free from moisture, this material, in its ordinary state of compactness, has a weight only one-third as great as an equal bulk of water. The minute silicious fossils for which this deposit has long been noted, belong, as is well known, almost entirely to the family of *Diatomaceæ*, and includes a

very large proportion of *Coscinodiscus* and allied forms, where exquisitely thin plates, lying in parallel positions in the mass, have probably contributed to the laminated structure before referred to. The number of such frustules and other silicious skeletons in each cubic inch of the pure material can only be reckoned by millions, and a cubic foot would contain a multitude far exceeding in number the entire human population of the globe.—*Annual of Scientific Discovery for 1860.*

#### Action of the Soil on Vegetation.

The late Professor Gregory left the following summary of recent views relative to the action of soil on vegetation :

1. Way, and after him, Liebig, has shown that every soil absorbs ammonia, and also potash, from solutions containing them or their salts, generally leaving the acid, which takes up lime, &c., from the soil in solution. The ammonia and potash, which are absorbed in very large proportion by arable soils, are rendered thereby quite insoluble.

2. Arable soils absorb also silicic acid in very considerable proportion, and it also becomes insoluble.

3. Arable soils also absorb the phosphoric acid of phosphate of lime, or of ammoniaco-magnesian phosphate, apparently solving the acid, which also becomes insoluble.

4. Hence the soluble ingredients of manures cannot be conveyed to the plants in the form of a solution percolating the soil, (such as liquid manure, or a solution formed by rain-water with the acid of carbonic acid,) since such a solution is deprived of its dissolved ingredients by filtering through a very moderate amount of soil.

5. Hence, also, as the food of plants must thus be fixed in the soil in an insoluble form, it is plain that it can only enter the plant in virtue of some power or agency in the roots, which decomposes the insoluble compounds in the soil, and thus renders soluble the necessary matter.

6. The absorbent power of soils is partly chemical and partly mechanical, as is the case with charcoal.

7. The quantities of alkalies, of phosphates of ammonia, &c., capable of being supplied to plants by rain-water, after it has been percolated through the soil, even supposing the whole to be assimilated, does not amount to more than a mere fraction of what the plants contain.



8. The theory of the transference of ammonia, potash, silica, phosphates, &c., from the soil to the plant, is not yet understood; but the old theory, that the rain conveys the food to the plant directly, is certainly not the true one.—*Edin. New Phil. Journal.*

### Diseases of Plants.

Great obscurity attends this department of botany, and much remains to be done ere a system of vegetable nosology, (*nosos* disease Gr.) can be completed. It is, however, of great importance, whether we regard its bearing on the productions of the garden or the field. Some have divided the diseases of plants into *general*, or those affecting the whole plant and *local*, or those affecting a part only. A better arrangement seems to be founded on their apparent causes, and in this way have been divided by Lankester into four groups. 1. Diseases produced by changes in the external conditions of life; as by redundancy or deficiency of the ingredients of the soil, of light, heat, air, and moisture. 2. Diseases produced by poisonous agents, as by injurious gasses, or miasmata in the atmosphere, or poisonous matter in the soil. 3. Diseases arising from the growth of parasitic plants, as Fungi, Dodder, &c. 4. Diseases arising from mechanical injuries, as wounds and attacks of insects.

Plants are often rendered liable to the attacks of disease by the state of their growth. Thus cultivated plants, especially such as become succulent by the increase of cellular tissue, appear to be more predisposed to certain diseases than others. Concerning the first two causes of disease, very little is known. Absence of light causes *blanching*, which may be looked upon as a diseased state of the tissues. Excess of light may cause disease in plants, whose natural habitat is shady places. Excess of heat is sometimes the occasion of a barren or diseased state of some of the organs of the flowers, and frost acts prejudicially on the leaves, stem and flowers. By excess of moisture, a dropsical state of the tissue is induced.

Concerning the influence of atmospheric changes on plants, very little has been determined. Many extensive epidemics seem to depend on this cause. Thus, the late potato disease must be traced, apparently, to some unknown miasma conveyed by the air, and operating over large tracts of country;

the disease probably affecting some plants more than others, according to their state of predisposition, and in its progress leading to disorganization of the textures, alteration in the contents of the cells and vessels, and the production of Fungi, &c. In the early stage of the disease, a brown granular matter was deposited in the interior of the cells, beginning with those near the surface. For some time the cell walls and starch-grains remained uninjured, but were ultimately attacked, the former losing their transparency, and the latter becoming agglomerated in masses. Subsequently to this, parasitic organisms of various kinds made their appearance, cavities were formed, and rapid decay took place. Among the vegetable parasites were detected species of *Fusisporium*, *Oidium*, *Botrytis*, *Capillaria*, *Polyactis*, &c. The prevalence of hot or cold weather, the amount of light and moisture, changes in the atmosphere, and electrical conditions of the air and earth, are in all probability connected with epidemic diseases. By some, the late potato disease is attributed to supposed evaporation and transpiration, depending on the hygrometric state of the atmosphere. The vessels and cells are said to become charged with fluid, stagnation of the circulation takes place, and thus disease and death are induced.

*Gangrene* in plants, is caused by the alterations in the contents of the cells, leading to death of a part. In succulent plants, as Cactuses, this disease is apt to occur. Sometimes excision of the diseased part checks the progress of the gangrene. *Canker*, which attacks apple and pear trees, is a kind of gangrene. Some of the most important diseases of corn and other agricultural crops, are owing to the production of Fungi. These have been divided into: 1. Those attacking the grain, as *Uredo fœtida* or pepper-brand. 2. Those attacking the flower, as *Uredo segetum* or smut. 3. Those attacking the leaves and chaff, as *Uredo Rubigo* or rust. 4. Those attacking the straw, as *Puccinia graminis* or corn mildew.

*Smut-balls*, *pepper-brand* or *blight* is a powdery matter, occupying the interior of the grain of wheat, &c. When examined under the microscope, it consists of minute balls, four millions of which may exist in a single grain, and each of these contains numerous excessively minute sporules. It is caused by the attack of the *Uredo Caries*, or *fœtida*. In this disease the seed retains its

form and appearance, and the parasitic fungus has a peculiarly foetid odour, hence called *stinking rust*.

*Smut*, or *dust-brand*, is a sooty powder, having no odour, found in oats and barley, and produced by *Uredo segetum*. The disease shows itself conspicuously before the ripening of the crop. Bauer says that in 1-160,000th part of a square inch, he counted 40 spores of the uredo.

*Rust*, is an orange powder, exuding from the inner chaff scales, and forming yellow or brown spots and blotches in various parts of corn plants. It owes its presence to the attack of *Uredo Rubigo*. It is sometimes called *red gum*, *red robin*, *red rust*, and *red rag*. Some consider Mildew (*Uredo linearis*) as another state of the same disease.

Those Fungi which are developed in the interior of plants, and appear afterwards on the surface, are called *entophytic* (*entos* within, and *Phuton* a plant Gr.) Their minute sporules are either directly applied to the plants entering their stomata, or they are taken up from the soil. Many other Fungi grow parasitically on plants, and either give rise to disease, or modify it in a peculiar way. Among them may be mentioned species of *Botrytis*, *Fusisporium*, *Depazia*, *Sclerotium*, *Fusarium* and *Erysiphe*. *Fusisporium solani* is considered by Martins as the cause of a certain disease in the potato. In the recent potato disease the *Botrytis infestans*, a species of *Fusarium* and other Fungi, committed great ravages, spreading their mycelium or spawn through the cells of the leaves and the tubers, and thus accelerating their destruction. Berkeley, Morren, and Townley consider the *Botrytis* as the cause of the disease. Various species of *Botrytis* also attack the Tomato, Beet, Turnip and Carrot. A species of *Depazia* sometimes causes disease in the knots (joints) of Wheat. A diseased state of Rye and other grasses, called *ergot*, owes its production to the presence of a species of *Spermoëdia*. By the action of the fungus the ovary becomes diseased and altered in its appearance, so as to be dark-coloured, and project from the chaff in the form of a spur. Hence the name of *spurred rye*. The nutritious part of the grain is destroyed, and it acquires certain qualities of an injurious nature. Spontaneous gangrene is the consequence of living for some time on diseased rye. Ergot has been seen in *Lolium*, perenne and arvense, *Festuca pratensis*, *Phleum*, *pratense*, *Dactylis glome-*

*rata*, *Anthoxanthum odoratum*, *Phalaris arundinacea*, &c.

Fruits when over-ripe are liable to attacks of Fungi, which cause rapid decay; wood also, especially *Alburnum* or sap-wood, is injured by the production of Fungi. Dry rot is the result of the attack of *Merulius lacrymans*, which in the progress of growth, destroys its texture, and makes it crumble to pieces. Some kinds of wood are much more liable to decay than others.

The diseases caused by attacks of Fungi may be propagated by direct contact, or by the diffusion of the minute spores through the atmosphere. When we reflect on the smallness of the spores, the millions produced by a single plant, and the facility with which they are wafted by the wind in the form of the most impalpable powder, we can easily understand that they may be universally diffused and ready to be developed in any place where a nidus is afforded. Perhaps some of the diseases affecting man and animals may be traced to such a source. Quett found that he could propagate the ergot by mixing the sporules with water, and applying this to the roots.

In order to prevent these diseases, it has been proposed to steep the grains in various solutions previously to being sown. For this purpose, alkaline matters and sulphate of copper have been used. In all cases, the seed should be thoroughly cleansed. Smut and pepper-brand have been averted by these means. In the case of the latter, diseased grains are easily removed by being allowed to float in water, and the grains that remain are washed with a solution of lime, common potash, or substances containing ammonia, which form a soapy matter with the oil in the fungus. A weak solution of sulphate of copper acts by destroying the fungus. To prevent wood from dry rot, the process of kyanizing and burnetizing have been adopted: the former consists in making a solution of corrosive sublimate enter into the cells and vessels; the latter, in impregnating the wood with a solution of chloride of zinc. Creosote has also been used to preserve wood. Boucherie proposed that a solution of pyrolignite of iron should be introduced into trees before being felled, by making perforations at the base of the trunk, and allowing the absorbing power of the cells and vessels to operate. This plan does not appear to have been successful, although reported favourably to the French



Academy, and also recommended by Mr. Hyett.

Other diseases in plants owe their origin to insects. *Earcockles*, *purples*, or *pepper-corn*, is a disease affecting especially the grains of wheat. The infected grains become first of a dark green, and ultimately of a black colour. They become rounded like a small pepper-corn, but with one or more deep furrows on their surface. The glumes spread open, and the awns become twisted. The blighted grains are full of moist white cottony matter, which, when moistened and put under the microscope, is seen to consist of a multitude of minute individuals of the *Vibrio tritici*, or eel of the wheat. The animalcules deposit their eggs in the ovary, and their young are hatched in eight or ten days. Henslow calculates that 50,000 of the young might be packed in a moderately sized grain of wheat. The *Vibrio* retains its vitality long. It will remain in a dry state for six or seven years, and when moistened with water will revive. The Wheat-fly, or *Cecidomyia tritici*, is another destructive insect. It deposits its eggs by means of a very long retractile ovipositor, and is seen abundantly in warm evenings. The *Cecidomyia* destructor, or Hessian fly, also causes injury, and is said to be very destructive to wheat in America. These insects are destroyed in numbers by the *Inchneumons*, which deposits their ova in their bodies. The Apple-tree mussel, or dry-scale *Aspidotus conchiformis*, attacks the bark of Apples, Pears, Plums, Apricots, and Peaches. Many of the *Coccus* tribe are highly injurious to plants. One of this tribe, in 1843, destroyed the whole orange trees in the island of Fayal, one of the Azores. Many insects cause the rolling up of leaves. *Tortricida viridana* acts thus on the leaves of the Oak, and various species of *Losotenaria* do so with other trees. *Sacchiphantes abietis* is the aphid which causes the leaves of the Spruce-fir to be united together, so as to have the appearance of a cone.

Many insects, called miners, make their way into the interior of leaves, and hollow out tortuous galleries, sometimes causing an alteration in the colour of the leaves. Galls are caused by the attacks of species of *Cynips*, which are provided with ovipositors, by means of which they pierce the bark or leaves with the view of having a nidus for their ova. These galls are very common on the Oak, and are called *oak-apples*. Some-

times they have one cavity, at other times they are divided into numerous chambers, each containing a grub, pupo, or perfect fly, according to the season. Galls are produced on the twigs, catkins and leaves of the Oak. The artichoke gall of the Oak depends on an irregular development of a bud, caused by the attack of insects, and consists of a number of leafy imbricated scales resembling a young cone. On examining the galls of commerce, the produce of the *Quercus* infectoria, some are of a blue colour, containing the larva of the insect; others are pale, and are marked with a perforation by which the insect has escaped. Extensive ravages are committed in Elms and other trees by the attacks of *Scolyti*. The presence of much moisture, such as the rapid flow of sap, destroys them. Mr. Robert found that the flow of sap might be promoted by taking off the suberous layer of the bark, and he proposes this as a method of getting rid of the insects. Some galls are formed in the substance of leaves, and burst through the cuticle in the form of ovate bodies, with crenate borders and opercula, which are perforated in the centre. These galls resemble parasitic fungi. *Oak-spangles* are galls of this nature. They are attached by a central point to the under surface of the leaf, the inner side being smooth—the outer red, hairy, and fringed. Each contains a single insect, which retains its habitation till March, long after the leaves have fallen to the ground.

It is impossible in this place to enumerate all the insects which attack plants. Almost every species has certain insects peculiar to it, which feed on its leaves, juices, &c., and often cause great injury. Those which are common to hothouses and greenhouses, have called for the special attention of horticulturists, and various means have been suggested for their removal or prevention. Among them may be enumerated, vapour of tobacco, and ammoniacal liquor of gas-works, to kill aphides; vapour of sulphur, for the red spider; vapour of turpentine, for the wasp; vapour of crushed laurel leaves, for the white-bug; coal-tar, for the wire-worm, &c.—*Balfour's Botany*.

Every one that asketh, receiveth; and he that seeketh findeth; and to him that knocketh, it shall be opened.

The eyes of the Lord are in every place, beholding the evil and the good.

*From the British Farmer's Magazine.*

### Feeding Statistics.

SIR,—Agriculturists have been called upon to believe that great discoveries have recently been made in the science and practice of the feeding of animals. To use the words of one of the most notorious of the new lights on this subject:—"The manufacture of an alimentary and condimental compound for the seasoning of the food of live stock, is one of the most important advances in applied science which the pen of the agriculturist has to record."

Being largely interested in the feeding of stock for profit, and having devoted a great deal of time and money in inquiries to obtain fixed data relating to the feeding of animals, the conclusion to which I have arrived is, that no proof has yet been given that these new foods have any practical value whatever in an economical point of view. Nor does a knowledge of the composition of these foods add anything to what was previously known on the subject of feeding.

To enable those who are practically engaged in feeding stock to judge for themselves what profit they are likely to derive from the use of food costing from £40 to £50 per ton, I propose to call attention to a few facts connected with the subject of feeding, which have been established by the results of my own experiments.

The first question to consider is, what is the probable amount of saleable increase, or meat, that may be calculated upon as the produce of a given amount of ordinary good fattening food? The second is, what is the probable value of the manure? In offering a very few brief observations on these two points, I shall not attempt here to give any exact estimates of the comparative feeding properties of different foods, but merely state the average quantity of ordinary mixed foods of recognised good quality, required to produce a given amount of gross increase or of carcass weight. I shall, however, give estimates of the comparative value of the residue remaining for manure, from a given weight of a number of the most important of our stock-foods.

If feeding experiments are conducted over a sufficiently long period of time—if they include a sufficiently large number of animals to neutralize the influence of individual peculiarities, and if they are in all

other respects performed with sufficient care, results will be obtained from which there would be but little deviation whenever the experiment was repeated. Results so obtained may be expressed in a few figures, which, for all the practical purposes of general estimates, may be safely taken to represent the average result of well managed stock-feeding.

My own experiments show that oxen and sheep, fed liberally upon good fattening food composed of a moderate proportion of cake or corn, a little hay or straw chaff, together with roots or other succulent food, will yield over a considerable period of time, one part of increase in live weight, for from eight to ten parts of dry substance supplied in such mixed food. The quantity of dry substance of food required will vary between these limits according to the exact character of the food and other circumstances; but nine parts of dry substance of food, for one of increase in live weight, may be taken as a very fair average result for oxen and sheep with good food and good management. The dry substance of the fattening food of pigs contains much less indigestible woody fibre, and a larger proportion of assimilable constituents than that of oxen and sheep, and in their case one part of increase in live weight should be obtained from the consumption of four to five parts of dry substance in their fattening food. By the "*dry substance*" of food is meant that portion which would remain after driving off, by a suitable heat, all the water which in their natural state they contain. For practical purposes it may be assumed that oil cakes and foreign corn will, on the average, contain rather less than one-seventh, and home-grown corn, hay, &c., rather more than one-seventh of their weight of water, the remainder being the so-called "*dry substance*" of the food. In the same sense the commoner sorts of turnips will, on the average, contain more than nine-tenths, and swedes, mangolds, &c., less than nine-tenths of their weight of water, the remainder being dry substance. Potatoes consist of about one-fourth dry substance and three-fourths water. From these data the farmer will be able to judge for himself whether or not he gets a proper increase in weight or live stock for the food consumed; and from comparative experiments he can decide whether or not he gets an adequately greater rate of increase by mixing with his other food some



of the mixtures offered to him at £40 or £50 per ton. To aid him still further in his calculations on this point, it may be stated, that owing to the fact that during the fattening process the saleable carcass increases very much more rapidly than the internal and other offal parts, it may be reckoned that nearly 70 per cent. of the gross increase of oxen and sheep fattening over a considerable period of time will be saleable carcass. Calculations of a similar kind, in regard to pigs, show, that of their increase in weight whilst fattening, little pigs less than 90 per cent. may be reckoned as saleable carcass.

So much for the means of estimating the value of the increase in live weight of fattening food stock. I now turn to the question of the probable average value of the manure obtained from the consumption of descriptions of food.

The valuation of the manure resulting from the consumption of different foods is founded upon estimates of their composition, and upon a knowledge, experimentally acquired, of the probable average amount of those constituents of the food valuable for manure, which will be obtained in the solid and liquid excrements of the animals. In the estimates of the value of the manure from different foods, given in the following table, I have based my calculations upon what I consider the average composition of several articles, when of good quality.

TABLE,

*Showing the estimated value of the Manure obtained from the consumption of 1 ton of different articles of Food; each supposed to be of good quality of its kind.*

| Description of Food.              | Estimated money value<br>of the Manure from 1<br>ton of each Food, |
|-----------------------------------|--|
| 1. Decorticated Cotton-seed Cake, | £6 10 0  |
| 2. Rape Cake,.....                | 4 18 0   |
| 3. Linseed Cake,.....             | 1 12 0   |
| 4. Malt-dust,.....                | 4 5 0  |
| 5. Lentils,.....                  | 3 17 0   |
| 6. Linseed,.....                  | 3 13 0   |
| 7. Tares,.....                    | 3 13 6   |
| 8. Beans,.....                    | 3 13 6   |
| 9. Peas,.....                     | 3 2 6  |
| 10. Locust Beans,.....            | 1 2 6(?)   |
| 11. Oats,.....                    | 1 14 6   |
| 12. Wheat,.....                   | 1 13 0   |
| 13. Indian Corn,.....             | 1 11 6   |
| 14. Malt,.....                    | 1 11 6   |
| 15. Barley,.....                  | 1 9 6  |
| 16. Clover Hay,.....              | 2 5 0  |
| 17. Meadow Hay,.....              | 1 10 0   |

|                           |         |
|---------------------------|---------|
| 18. Oat Straw,.....       | £0 13 6 |
| 19. Wheat Straw,.....     | 0 12 6  |
| 20. Barley Straw,.....    | 0 10 6  |
| 21. Potatoes,.....        | 0 7 0   |
| 22. Mangolds,.....        | 0 5 0   |
| 23. Swedish Turnips,..... | 0 4 3   |
| 24. Common Turnips,.....  | 0 4 0   |
| 25. Carrots,.....         | 0 4 0   |

It will be seen how enormously the value of the manure from one ton of different foods varies according to the composition of the food itself. Now, from the actual analyses that have been made of several of the expensive "condimental" compound foods, as well as from a knowledge of the chief articles used in their manufacture, it may be safely asserted that a ton of few, if any of them, would yield a manure of anything like the value of either of the first nine articles in the above list. In the case of the majority of these new foods, the value of the manure from a ton of the food would certainly be much less than that from a ton of any one of those nine articles.

To conclude: No experimental evidence upon indubitably trustworthy authority has yet been brought forward to prove that the use of the foods, costing from £40 to £50 per ton, will so improve the rate of increase of fattening stock upon a given weight of dry substance of food, as to compensate for the heavy cost of these condimental additions. Any intelligent farmer can, however, by the aid of the information which has been given above, satisfy himself on the point, if he will rigidly rely upon scales and weights, instead of upon merely casual observation. And with regard to the value of the manure, the figures in the above table, and the observations we have made upon them, will show him how much of his £40 or £50 he may expect to recover in the form of manure.

J. B. LAWES.

*Rothamsted, Jan. 18th.*

A GENTLEMAN once introduced his son to Rowland Hill, by letter, as a youth of great promise, and likely to do honor to the University of which he was a member; "but he is shy," added the father, "and I fear buries his talents in a napkin." A short time afterwards the parent, anxious for his opinion, inquired what he thought of his son? "I have shaken the napkin," said Rowland, "at all the corners, and there is nothing in it."

### Did'nt Think.

Walking in the country one morning, in early spring-time near an orchard gate, very soon we observed a large man hanging to the top-most limbs of a small apple tree with one hand, while with the other he was cutting off twigs and branches. We bade him good morning. He answered cheerfully; and, we ventured to hint that the tree he had climbed, bore a heavy burden. "Yes," he said, the trees all need pruning, but I can only attend to a few of them. The others wouldn't bear my weight."

"Why don't you fasten your saw to a pole, stand on the ground, and prune such limbs as most require it?" we asked.

"Well, I declare," he answered, that would do—I didn't think of it."

There was a valuable lesson in that confession—"didn't think of it." It explained why in many respects, the farmer was not prosperous. He was a hard worker. He endeavored to be economical; but he was always behind. His orchard didn't yield abundantly—his cattle had diseases—his grain was often poor—and he could only sell at a low price, *because he didn't think*. He had never learned fore-thought—he did not understand how judicious head-work assists hand work.

Did'nt think—that is the sorry explanation of much error—of many a crime—of many a failure—of many a hardship, and many an abuse.

Little boys and girls, bear in mind that whatever advantages you may have at home, in school, in business, or in society, unless you think, your lives will be sad and your efforts unsuccessful. Learn, then, while you are young, the art of thinking. To be great and good, you must understand the art of reflection, as well as appreciate the pleasure of memory.—*Rural Register*.

NEW AGRICULTURAL PRODUCT.—Mr. Louis Baker, of this city, has succeeded in raising the "Japan pea," a desideratum which has not before been obtained. The seed which he planted were brought to the United States by Commodore Porter, but have heretofore always failed to germinate. The pea which has just been raised has a pod of all varieties of length up to *thirty-one inches*, the whole of which is palatable and rich. It is very prolific, and when introduced will form a valuable agricultural product.—*Wash. States*.

### Parasite Plants.

Parasite plants, as the name imports (*Para*, beside, and *sitos*, food—Gr.) are those which derive their food from other plants—sending prolongations of their tissue into other plants, and preying upon them. Many fungi, for instance, develop their spores (seeds), and spawn (mycelium) in the interior of living or dead plants, and thus cause rapid decay. The disease of corn (edible grains in general, and wheat in particular), called smut and rust, and the dry rot in wood, are due to the attacks of these parasitic fungi. The minute dust, or powder produced by these plants, consists of millions of germs, which are easily carried about in the atmosphere, ready to fix themselves on any plants where they can find a nidus. There are also flowering plants which grow parasitically, and they may be divided into two classes:—1. Those which are of a pale or brownish color, and have scales in place of leaves; and 2. Those which are of a green color, and have leaves. The former, including *Orobanche*, or broom-rapes, *Lathræa*, or tooth-wort, *Cuscuta*, or dodder, derive their nourishment entirely from the plant to which they are united, and seem to have little power of elaborating a peculiar sap; while the latter, as *Loranthus*, *Viscum* or Mistletoe, *Myzodendron*, *Thesium*, *Euphrasia*, *Milampyrum*, and *Buchnera*, expose the sap to the action of air and light in their leaves, and thus allow certain changes to take place in it. The Mistletoe, from its power of elaboration, is able to grow on different species of plants, as on the apple, beech, oak, &c. Some of these parasites are attached to the roots of plants by means of suckers, as in the case of Broom-rapes, Tooth-wort and *Thesium*; while others, as Dodder, Mistletoe, &c., feed upon the stems. The plants to which the parasites are attached give origin frequently to their specific names. The species of *Cuscuta*, or Dodder, inhabit all the temperate and warm parts of the globe, and are peculiarly destructive to clover and lint (flax). They are produced from seed which at first germinates in the soil like other plants; but after the stem has coiled closely round another plant, and becomes attached to it by means of suckers, then all connection with the soil ceases, and the Dodder continues its life as a parasite. A remarkable tribe of parasites, called *Rafflesias*, has been found in Sumatra and Java. They are leafless, and produce brown-colored



flowers, which are sometimes three feet in diameter. On account of their only producing a flower and root, they are denominated Ritzanth, (*ritza*, a root, and *anthos*, a flower—Gr.)—*Balfour's Botany*.

### On the Essential Manuring Constituents of Certain Crops.

At the Aberdeen Meeting of the British Association, Professor Vöelcker detailed the results of certain field experiments, having special reference to the turnip crop, which had extended over a period of four years. These are the most important points cited:

1. That fertilizers destitute of phosphoric acid, do not increase the yield of this crop.
2. That phosphate of lime applied to the soil, in the shape of soluble phosphate (super-phosphate), increases this crop in an especial manner, and that the practical value of artificial manures for root crops chiefly depends on the relative amount of available phosphates which they contain. Thus it was shown that three cwt. of super-phosphate per acre produced as large an increase of turnips as fifteen tons of farm-yard manure.
3. That ammoniacal salts and nitrogenized constituents, yielding ammonia on decomposition, have no beneficial effect upon turnips, but rather the reverse.
4. That ammoniacal salts, applied alone, do not promote, as maintained erroneously, the luxuriant development of leaves; but that they produce this effect to a certain extent when salts of ammonia are applied to the land in conjunction with the mineral constituents found in the ashes of turnips.

The report likewise states that numerous analyses of turnips have been made, from which it appears that the more nutritious and best ripened roots invariably contain less nitrogen than half-ripened roots, or turnips of low feeding qualities. In the latter the proportion of nitrogen was found, in several instances, two to two and a half times as high as roots distinguished for their good feeding qualities. Similar experiments upon wheat showed that nitrogenized ammoniacal matters, which proved inefficacious in relation to turnips, increase the yield in corn (grain) and straw very materially, and that the increase of wheat was largest when the ammoniacal constituents were associated with mineral matters.—*Annual of Scientific Discovery*, 1860.

Open rebuke is better than secret love.

### Farmers—Take a Hint.

It is very surprising to see how slow men are to take a hint. The frost destroys about half the bloom of the fruit trees; everybody prognosticates the loss of fruit; instead of that, the *half* that remains is larger, fairer, and higher flavored than usual, and the trees, instead of being exhausted, are ready for another crop the next year. Why don't the owner *take the hint* and thin out his fruit every bearing year? But no: the next season sees his orchard overloaded, fruit small, and not well formed; yet he always *boasts* of that first-mentioned crop without profiting by the lesson it teaches.

We heard a man saying, "the best crop of celery I ever saw, was raised by old John —, on a spot of ground where the wash from the barn-yard ran into it after a hard shower." Did he take the hint, and convey such liquid manure into trenches to his garden? Not all; he bragged about that wonderful crop of celery, but would not take the hint.

We knew a case where a farmer subsoiled a field, and raised crops in consequence, which were the admiration of the neighborhood; and for years the field showed the advantage of deep handling. But we could not learn that a single farmer in the neighborhood took the hint. The man, who acted thus wisely, sold his farm, and his successor pursued the old system of surface scratching.

A staunch farmer complained to us of his soil as too loose and light; we mentioned ashes as worth trying. "Well, now, you mention it," said he, "I believe it will do good. I bought a part of my farm from a man who was a wonderful fellow to save up ashes, and around his cabin it lay in heaps. I took away the house and ordered the ashes to be scattered, and to this day I notice that when the plow runs along through that spot, the ground turns up moist and close-grained."

It is strange that he never took the hint! There are thousands of bushels of ashes lying not far from his farm, about an old soap and candle factory, with which he might have dressed his whole farm.

A farmer gets a splendid crop of corn or grain from off a grass or clover lay.

Does he take the hint? Does he adopt the system which shall allow him every year just such a sward to put his grain on? No; he hates book farming and scientific farm-

ing, and this "notion of rotation," and jogs on the old way.

A few years ago our farmers got roundly in debt, and they have worried and sweated under it, till some of them have grown grayer, and added not a few wrinkles to their faces. Do they take the hint? Are they not pitching into debt again?—*Fruit, Flowers, and Farming.*

### A Good Way to Grow Potatoes.

I plant medium-sized sets in good dry loam, about the first of April, and do not cover them more than two inches. As soon as the tops come through the ground, I commence moulding, and never allow the tops their free liberty to the light of night till the month of May is about to say farewell, by which time my crops are nearly or entirely moulded up, and no more labor is required from me on their account, till I find it necessary to pick off the blossom. So now the green tops are generally appearing over the face of the ground, let me recommend to hand-scarify or fork the ground lightly between the rows; and as this is proceeded with, cover these young tops which show themselves completely, though slightly, over head with mould, and by constantly attending to this earthing over head and ears, the mere chance of frost pinching them is done away with; and another consideration, by frequently attending to this, is also of immense advantage to the future of the plants in regard to the openness of the soil and the circulation of air to their roots; the earthing over process thus becomes by degrees completed when in the generality of cases we see it about to be begun.

Besides, the early earthing-over plan, as I will call it, offers another great advantage, by securing a vigorous growth in the tubers. It is easily to be supposed that roots should necessarily be formed before their leaves, as should those of a hyacinth, in order to insure a first-rate flower, but when the tops are allowed to take an undue precocity they are drawing too hard upon the supplies, and nearly ruining the prospects of a crop in order to satisfy an extravagant ambition.—Now, by repeatedly earthing them over head in their infancy, this growing parade is checked and smothered, and the formation of young tubers consequently accelerated, and by the latter end of May, when the

tops are allowed their full freedom, the tubers also begin to insist on their share of nourishment from the roots and stems combined, which check all undue extravagance in the branch, and the result becomes a reciprocal action for both? Is it not so? At any rate, I have never had grander tops since I adopted this method.

In finishing off the earthing over, make them to present broad shoulders, slightly inclining towards the stems; thus insuring moisture, and the largest body of soil possible for the tubers to form and grow in within reach of atmospherical warmth and its influence, for by the delectable pointed right angular mouldings generally seen, this is rendered impossible. And so we will now suppose ourselves well on in June, with young potatoes every day for dinner, which, between ourselves, is by no means an unpleasant idea.—*Correspondent American Agriculturist.*

### Underdrainage.

WHY IT MAKES SOIL MOISTER IN DRY WEATHER.

Every one can understand why the drainage of land should leave it dryer after rains. It is because the excess of water is carried off through the tiles. Farmers experienced in the cultivation of drained lands, who have drained extensively and tried the effects, agree, *nem. con.*, that it makes the soil moister in times of drouth. But why this is so, they cannot exactly see. If we can make the following understood, they will see that, by the laws of nature, an increase of moisture in dry times, is just as much a natural consequence of drainage, as a diminution of water in wet times.

All soils have, in different degrees, a retentive power over water; that is, they hold a certain portion of water, after all has been drained out that will. Sands hold the least. A moderately compact loam holds twice as much as sand; a stiff clay three times as much, and some peaty soils four times as much.—When you supply a soil with water beyond its capacity to hold it, the excess flows off, if unobstructed, and leaves the soil with only so much water as it has a capacity for—in other words, leaves it saturated, and no more. Thus, if you pack your pails, each with a hole in its bottom, one with a common loam, one with clay, and one with peat, each of these soils having been tho-



roughly dried, and then by slow degrees pour a pailfull of water on each, you will find that nearly all the water will pass through the sand; less through the loam, still less through the clay, and very little or none through the peat.

In a heavy rain any soil is more than saturated—has in it for a time more water than it can hold—but the water soon drains off, in case no obstruction is presented, and leaves the soil with its appropriate quantity of water; that is, so much as it can hold and yet be in a sound condition, such as to feel solid under your feet, and not to poach when the cattle walk over it.

But while the soil remains full of water, as while a heavy rain is falling, the air is pressed out, and then, as fast as the excess of water settles away into the earth, the air follows, and occupies its place. The soil examined in this state would appear to be made up of particles, each particle moistened with water, and air circulating through the intervening spaces. The difference between this and a soil that is water soaked, is that the spaces in one case are completely filled with air, in the other with water.

It is a well established fact, that air always contains more or less watery vapor, varying from half to one and a half per cent, and averaging about one per cent. The more air is heated, the more water it can hold in solution; and if it is suddenly cooled, it gives up a portion of its water to any object it comes in contact with. For illustration, you set a tumbler of cold water upon your dinner table, on a dry summer's day. You may wipe the outside as dry as you please, but soon it will be wet. The children say the tumbler sweats. But the truth is, the heated air coming in at the door and windows, as it passes by the tumbler is cooled; its capacity for water is lessened; and it deposits a portion of its water on the cool surface of the tumbler.

Just so, when a soil is open and porous, with a free circulation of air among its particles, the air coming into the soil in a heated state, is cooled by contact with the particles, and deposits on their surface a portion of its watery vapor, precisely as on the tumbler, in the other case. It will not do to say that these particles of water, thus deposited, are too small to amount to anything. On the millions of particles in a single spadeful of soil, they amount to a great deal, equal, throughout the body of

the soil; in the course of a day, to a pretty good shower; and this is the reason why farmers who underdrain, and plow deep, and stir the soil often, seldom or never suffer from drouth.—*Ind. Farmer.*

*From the Charlottesville Review.*

### Tobacco Fertilizers.

HOLKHAM, April 19, 1860.—You were so polite as to solicit me to say something occasionally through your paper on the subject of agriculture, and I embrace this opportunity of urging upon the growers of tobacco the propriety, I might say the absolute necessity, of selecting good soil only, and cultivating at least one-third less; concentrating their manures, home-made and bought, on a smaller surface, and making larger, heavier and richer tobacco, which invariably commands a remunerative price, because so few planters have the sagacity to adopt the only sure mode of raising this description of tobacco.

At this time the price of ordinary tobacco is so low, that no one can afford to grow it, while large, rich, heavy tobacco pays well. Some planters will doubtless say their soil is too poor to produce tobacco of this description, not so, however, except in but few instances. The writer of this has generally as good tobacco as his neighbors, whose lands are held from fifteen to twenty-five dollars per acre higher—overcoming the great inferiority of soil which this fact will indicate, by a greater concentration of manures and given to its cultivation and general management, that attention, which could not be given to a large and faller crop.

It may be said that if every one adopts this plan, the best tobacco will likewise come down to a ruinously low price. I grant it; but this can never be the case, as the farmers (generally with but few exceptions) seem to prefer groping in Egyptian darkness, and rarely abandon the error of their ways. Having received a great number of inquiries by letter and otherwise, as to the fertilizers I shall use on my soil for tobacco, to save much trouble I will here state, that I shall apply one half-barrel to the acre, of plaster, containing 10 per cent. potash, which I procure of Samuel Sands, Esq., of Baltimore, editor of the Rural Register; and in addition to this, from one hundred and fifty or two hundred and fifty pounds of a preparation made by R. H. Sta-

bler, Esq., for Messrs. Fowle & Co., Alexandria, containing two-thirds Peruvian Guano, and one-third Soluble Phosphate, made by treating Sombbrero Guano, with sulphuric acid. I used this last, on my wheat last Fall, as did several of my neighbors, and from present appearances, I consider it an exceedingly valuable fertilizer. All of the simple phosphates, unless treated with sulphuric acid, are too insoluble, I fear, to produce any perceptible effect on the immediate crop, and especially those grown entirely during the Summer and Fall.

Experiments have been repeatedly made in England, (where there is so much more humidity than here,) establishing the fact that one bushel of soluble phosphate will produce as great an effect on the crop as five in the crude insoluble state.

Many short-sighted farmers will doubtless be deterred from using the above fertilizer to the extent which I have recommended; but who should hesitate one moment, when an expenditure of from eight to ten dollars per acre, will ensure a crop, in ordinary seasons, worth from \$125 to \$150 per acre, and afterwards a good crop of wheat and stand of grass.

I shall experiment, also, with some Elide or California Guano, applying at the same time the preparation of Plaster and Potash, which I consider highly important, whatever else may be preferred.

In writing the above, no one, I trust, will be induced to suspect even that I wish to disparage other preparations, of which there are now such a number, nearly all of which seem to have produced good effects on some soils, and with some persons. As an humble farmer, in my plain way I have endeavored to respond to those who have been so kind as to deem my opinion and practice of some value.

Such as they are, very hurriedly written, I send them for publication, trusting that those, at least, who have induced me to prepare them, will properly appreciate my motives.

If acceptable to your readers, I may perhaps say more to them, occasionally, on subjects interesting to Agriculture.

In haste most truly yours,

JOHN R. WOODS.

Let your light so shine before men, that they may see your good works, and glorify your Father which is in Heaven.

## Cooking by the Sun's Rays.

BY PROFESSOR JOSEPH HENRY.

Were it not for the ærial envelope which surrounds our earth, all parts of its surface would probably become as cold at night, by radiation into space, as the polar regions are during six months' absence of the sun. The mode in which the atmosphere retains the heat and increases the temperature of the earth's surface may be illustrated by an experiment originally made by Suassure. This physicist lined a cubical wooden box with blackened cork, and, after placing within it a thermometer, closely covered it with a top of two panes of glass, separated from each other by a thin stratum of air. When this box was exposed to the perpendicular rays of the sun, the thermometer indicated a temperature within the box above that of boiling water. The same experiment was repeated at the Cape of Good Hope, by Sir John Herschel, with a similar result, which was rendered, however, more impressive by employing the heat thus accumulated in cooking the viands of a festive dinner. The explanation of the result thus produced is not difficult, when we understand that a body heated to different degrees of intensity gives off rays of different quality. Thus, if an iron ball be suspended in free space, and heated to the temperature of boiling water, it emits rays of dark heat, of little penetrating power, which are entirely intercepted by glass. As the body is heated to a higher degree, the penetrating power of the rays increase, and finally, when the temperature of the ball reaches that of a glowing white heat, it emits rays which readily penetrate glass and other transparent substances. The heat which comes from the sun, consists principally of rays of high intensity and great penetrating power. They readily pass through glass, are absorbed by the blackened surface of the cork, and as this substance is a bad conductor of heat its temperature is soon elevated, and it in turn radiates heat, but the rays which it gives off are of a different character from those which it receives. They are voluminous, and have little penetrating power; they cannot pass through the glass, and are retained within the box, and thus give rise to the accumulation of the heat. The limit of the increase of temperature will be attained when the radiation from the cork is of such an intensity that it can pass through the glass, and



the cooling from this source becomes just equal to the heating from the sun. The atmosphere which surrounds the earth produces a similar effect. It transmits the rays from the sun and heats the earth beneath, which in its turn emits rays that do not readily penetrate the air, but give rise to an accumulation of heat at the surface. The resistance of the transmission of heat of low intensity depends upon the quantity of vapor contained in the atmosphere, and perhaps also on the density of the air. The radiation of the earth, therefore, differs very much on different nights and in different localities. In very dry places, as for example, in the African deserts and our own western plains, the heat of the day is excessive, and the night commensurably cool. Colonel Emory states, in his Report of the Mexican Boundary Survey, that, in some cases, on the arid plains, there was a difference of  $60^{\circ}$  between the temperature of the day and that of the night. Indeed, the air is so permeable to heat, even of low intensities, in this region, that a very remarkable difference was observed on some occasions when the camp ground was chosen in a gorge between two steep hills. The inter-radiation between the hills prevented in a measure the usual diminution of temperature, and the thermometer in such a situation stood several degrees higher than on the open plain.—*Scientific American*.

### The Tendency of Inventions to Mitigate Human Toil.

The application of machinery is the extension of man's mechanical powers. With the levers and pulleys of his own mechanical frame, he can raise a given weight, or transport a burden through a given space. But how limited the extent of his unaided efforts? How soon must all his native energies be exhausted? But seizing nature's elements, and applying nature's mechanical laws, he extends his powers to inanimate objects, so that instead of his mind directing the machinery of his own hands, or his own mechanical system only, it becomes the directing agency of a vast and complicated machinery, effecting results beyond the capability of thousands of his species. Without artificial machinery, the efforts of the human mind must be limited by the efforts of the human hands; but with the full development of mechanical inventions, the

mind will be enabled to establish a most comprehensive supremacy over the world of matter. How feeble the power of the human hand, compared with the stroke of the steam-engine, and yet these hands can direct all its movements. How diminutive is the helmsman when contrasted with the mighty ship, which he directs in her course through the waste of waters; and yet it is but the extension of his moral and physical power over the varied parts and movements of this vast machine. How apparently insignificant are the operations in a spinning mill, compared with the magnitude of the machinery by which they are surrounded; and yet all these wheels, and shafts, and spindles, are but an extension of their own mechanical system, presided over, and directed by mental being. The desired results are increased ten thousand-fold, and yet, the amount of manual and mental exhaustion is proportionally diminished. It is thus, that by mechanical inventions, man establishes his supremacy over elements of nature, in order to employ them in his service, and render them subservient to his interests.

How different is the amount of physical force required in a modern quarry, with powder for rending the hardest rocks, with levers and cranes for lifting the huge masses—with railway tracks to remove them to a distance, and machinery to prepare and place on the building—compared with ancient times, when hundreds of slaves were yoked to a block of stone, to remove it from the quarry to the destined building! Similar changes have occurred in every other department of operative production. The plow rapidly effects what a whole community could not accomplish with the spade. The sickle, the scythe, and the modern reaper cut down the yellow grain with a velocity which the hands of the whole population, unfurnished with an implement, could never have attained. Thus labor is set free from the agricultural world, to meet the demands of the commercial, without a diminution of the food raised, or the capability of preserving it. Nay, so divinely regulated have been the agricultural and manufacturing implements, that modern draining, sub-soil plowing, reaping, threshing, grinding and baking machinery, stand contemporary with the steamship, the spinning mill, the power loom and the railway. And thus, there is division of labor upon an extensive scale, each department is found keeping pace with

every other. Consequently, the increase of the human family, or their advancement in one or other department of civilized comfort never outstrips the amount of requisite provision yielded by the soil. Nor even where that provision is increased a thousand-fold, does the burden of toil press heavier upon the peasant or the agriculturist. Progressive discovery and invention are constantly balancing between the amount of produce required, and the amount of toil; so that the latter is gradually diminishing in each department, while the former is steadily increasing throughout the whole.

Thus, it is manifest, that in every department of labor, machinery is taking the place and performing the office of human hands. The products of the mineral, vegetable, and animal kingdoms are assuming the place, in the region of toil and accomplishing the purpose of men under a former system. In the spinning mill, the power-loom, and the railway, the steam-engine is the substitute for animal strength. A pint of water and a pound of coal originate a power and sustain a motion which would soon wear out the human system of the strongest operative. The metal fingers moved with exhaustless energy and devouring speed, set at defiance all attempts at manual competition. A steam engine of one hundred horse power has been computed at the strength of eight hundred and eighty men.\* This is sufficient to produce and sustain the motion of fifty thousand and spindles each producing a separate thread of a mile and a quarter in length in twelve hours. Thus every twelve hours of fifty thousand spindles will produce sixty-two thousand five hundred miles of thread, a length sufficient to go two-and-a-half times round the globe. In ordinary practice these fifty thousand spindles require seven hundred and fifty persons to superintend their operations; but, by the aid of this machinery, propelled by the power of steam, they can convert as much raw cotton into yarn as would have required two hundred thousand persons by the former method of spinning. Thus, by the aid of inventions, which is simply the employment of so much water, and coal, and iron, the labor of one individual is made equal to the combined efforts of two hundred and twenty-six. This holds true in a greater or less degree of every other department of machinery where steam is em-

ployed; the rapidity of production is accomplished by the decrease of human toil. How remarkably is this illustrated by the railway, which is, indeed, the great conservator of human strength! Where the same distance is traversed by walking, or even by the best modes of locomotion previously introduced, how soon would the human system wear down under the operation? But the entire sum of physical strength would be utterly inadequate to meet modern demands; hence, all that has been obtained beyond the powers of walking, must be put to the account of human inventions. Nor is the amount alone affected; this entire increase of locomotive power has been obtained while there has been a corresponding decrease of bodily fatigue.

The reduction of human labor might be illustrated by the history of each individual mechanic, as well as by the productive power of all combined. The human mind is gradually planning and constructing some implement of industry which may release the human hands. Thus the mind is gaining supremacy over matter—the mental is directing and controlling the material. The higher and nobler faculties of man are expanding, while the physical powers are relieved and his toil diminished. But this process will not be completed by merely transferring the burden of toil from the physical to the mental. The ultimate tendency is to relieve the whole man from toil as a burden, and to make necessary labor a pleasant exercise. In the rapid progress of the present age may be seen signs of approaching deliverance from the evils incident to manual labor. Already are the heavier kinds of work transferred to untiring machinery, so that by mere direction, one man can accomplish what previously hundreds could not have effected.

#### OBJECTION.

“Why has not the introduction of modern inventions already produced the results specified?” Is it not a fact that the population of our cities is as busily occupied as before the introduction of spinning mills and railways? It is fully admitted that the fruits of modern inventions are but partially developed, and the community as a whole, is more busily occupied than even under the former system. But there are both moral and social reasons sufficient to account for the fact. The moral state of the masses is

\* Instincts of Industry.



not yet such as to admit of that full measure of relaxation which machinery is calculated to afford, while there are social revolutions sufficient to account for the seeming paradox, that while machinery is doing the work of man, humanity itself should be more occupied. It must be observed that in connection with this rapidly increasing power of production at home, new nations have been springing up abroad, at once absorbing the operative classes and increasing the demand, in accordance with the powers of production; while national wealth and comfort have been increased to all. Besides, the covetous spirit of man may and will pervert the choicest blessings. The race for riches has kept pace with the newly developed means of acquisition, and consequently, that release from grinding toil, which ought legitimately to be awarded to the operative, has been either wasted in fruitless competition or turned into channels of personal aggrandisement. But though, in the present progressive state of transition, in the social history of the world, and in the earlier efforts of mechanical invention, the demand may seem to keep ahead of the increasing speed of production; and though this at first sight would seem to indicate that no release from toil can be expected by the introduction of mechanical inventions, yet, viewing the subject as a whole, it is evident, that when machinery has attained its climax, and when the various departments have been balanced and adjusted, and when the entire system of manufacture and commerce shall be directed and regulated by sound moral principles, the necessary tendency of machinery must be to emancipate the operative classes, and thus to equalize the privileges of those who employ, and those who labor. Even under all the disadvantages resulting from a transition state, and in spite of the covetousness of the age, the hours of toil are already abridged, and the physical system so far relieved as to encourage mental culture. The ultimate result of this must be the revival of social and domestic affections, which are ready to expire under the exhaustion of physical slavery. Enlightened legislation has judiciously fixed the age as well as the time, beneath and beyond which grasping employers shall not be permitted to protract the hours of toil in public factories. This legal movement has been succeeded by another, still more praiseworthy, as it presents a nobler aspect of mutual interest between em-

ployees and employed, in which merchants and shopmen have voluntarily agreed to abridge the hours of daily attendance, besides, in many notable cases, adding the Saturday half-holiday as preparatory to the Sabbath. Let the covetous learn that "a man's life consisteth not in the things that he possesseth;" and let the avaricious be taught the benevolence of the gospel; then shall the Saviour's definition of a day be taken as a standard, and all classes shall enjoy the domestic bliss of the evening. "Are there not twelve hours in the day?" was the interrogation of Him who set the sun in the firmament. Will any man be prepared to say, that this is not a sufficient time to devote to the pursuits and objects of this present world? The aid of machinery renders the abridgment of the period of labor practicable. It is avarice alone that gives rise to a spurious competition, and encroaches upon the privileges of domestic life. It is evident that even now the long-hour system, opposed as it is to the claims of nature and grace, is doomed. That God who made the sun to rule the day, also framed the human constitution in accordance with this physical arrangement, and that which the introduction of sin has deranged in the past history of man, the grace of the gospel will rectify in the coming Millennium. \* \* \*

#### THE TENDENCY OF INVENTIONS TO ALLEVIATE HUMAN MISERY.

It has been previously established that the whole tendency of machinery, legitimately applied, is to reduce the quantity, and improve the character of manual labor. The transference of the heavier portions of human toil to mechanical inventions, is the direct method of cutting off a vast amount of physical suffering. Indeed, under proper regulation, machinery it is possible to remove all that constitutes actual suffering in legitimate labor. But it is very evident that the mitigation of mental and physical exhaustion must be accompanied by a reduction of disease. The substitution of activity in superintending machinery for the patient endurance of grinding toil, must necessarily tend to the health of the mental and physical system.

Mechanical inventions also tend to promote health, and to alleviate human misery, by removing these physical causes which produce disease, especially in towns and cities. The improvements of modern times

in architecture, in the formation of streets, in the introduction of water, the subterranean sewerage, the burning of smoke, the disinfection of putrid substances, the lighting, ventilation and construction of public buildings and private habitations, must all tend to improve health, prevent disease, and mitigate suffering. The progress of medical science, aided by chemical investigations, gives even increasing success to the pharmacopæia of Nature, while, already, the improvement of surgical instruments, in conjunction with the use of chloroform, and other narcotic agents, has mitigated the excruciating pain formerly endured under surgical operations. Besides, the discovery of this agent, has marked a new epoch in the healing arts, by giving a wider range to human ingenuity, by sparing the feelings of the operator, as well as the pangs of the subject. Is it not a remarkable fact that this secret should be disclosed in Britain at the very time when it may be most extensively employed in dressing the wounds, and amputating the shattered limbs of her soldiers, upon a distant field of battle? Are these not signs of coming deliverance from a vast amount of physical evil? What the achievements of the future may be, none can predict, but enough has already been realized to warrant the hope that agents such as these may be rendered available in mitigating all those forms of suffering which are incident to the nature of man in a fallen state. The mind must be skeptical indeed, that recognizes not the hand of God in the discoveries and improvements of medical science, as readily as that hand is seen in the forms of disease. Do we not, even now, behold in the triumphs of the present age the harbingers of that blessed future, which the poet anticipated under the sanction of inspiration, and of which he says:—

"Disease was none; the voice of war forgot;  
The sword, a share, a pruning hook, the spear.  
Men grew and multiplied upon the earth.  
And filled the city and the waste, and Death  
Stood waiting for the lapse of tardy age  
That mocked him long."—*Pollock.*

*Blakeley's Theology of Inventions.*

Blessed are they which are persecuted for righteousness' sake, for theirs is the Kingdom of Heaven.

Blessed are the pure in heart, for they shall see God.

### Agricultural Letter.

We lay before our readers the following Reports to "The Nottoway Club," which have been kindly furnished us for publication in the *Planter*, by the permission of its members.

We are under obligations to them for many similar favors, hitherto bestowed: and we hope that we shall be their debtor for a great many more, in future.

Would that Virginia could justly boast of many such "Clubs" in her borders; they would afford strong protection to her agricultural interests, and prove a mighty weapon with which to combat, and beat down ignorance, prejudice and sloth.

*For Sou. Planter, from the Nottoway Club.*

*Brickland, Va., May 9th, 1860.*

TO RICHARD IRBY, ESQ.

Dear Sir,—I am in receipt of yours inviting me to a meeting of the Nottoway Agricultural Club, on to-morrow, at the Nottoway Foundry, to celebrate its tenth anniversary.

It would be very agreeable to me to accept your kind invitation, if it did not interfere with prior engagements.

Agricultural reunions have gotten to be an institution at the South, and their beneficial influence is obvious throughout the whole planting regions. They extend social relations, engender rivalry and imitation—diffuse information more impressive and practical when aided by our valuable periodicals, and the Nottoway Club is doing its work like men and patriots.

With a diversified soil of "Chinquelin" ridges, where every ounce of manure gives you the American weed, with valleys of Chocolate loam and numerous streams bordered with flat, rich bottoms, it may well be questioned whether it would be prudent to exchange for the blue limestone lands of our mountain valleys, or the deep, wide alluvial soils of the "great Father of Waters." Your lots with wide hanging tobacco, and gracefully waiving wheat fields, and lawns well sodded with grass and clover, attract the attention and favorable mention of the traveller, and attest the benign influence of your society. Your county is entitled to the banner in the competition for the greatest quantity of tobacco to the hand, and by the "accumulation and application of manures." The cultivators of your chinquelin ridges, have long been buying out the river bottoms and mountain valleys.



My earliest lessons in planting were given to me by the Fitzgeralds and Irbys—The first said, "to make good crops, or succeed in planting, give your fields a daily gaze"—accompanying the injunction, by applying a finger to the under lid of each eye, exposing a pair of as large, intelligent black eyes as any man ever had. Who could forget such natural teaching?

The second, to my question, "Do tell me the secret of your success in the management of Overseers?" Replied, "do not excite their prejudices; teach them their character is their capital, and that your interest and theirs is identical. Why sir, my overseer has been living with me five years and has never owned a saddle; he thinks the grass would get an advantage of him if he went to the Courthouse." In those days, Overseers boasted of their right to visit monthly courts, and that practice sometimes gained them a blood shot eye, and always grassy crops for their employer.

This gentleman was justly regarded as a worthy model of the Virginia planter, and by the zealous exercise of his sound, good sense, in every department, and by the "accumulation and application of manures," he produced a high degree of improvement, and demonstrated that the system may be carried too far and imperil health. Superabundance of vegetable matter, breeds animalcules, fungi and malarious fevers. His experiment proved there should be limits to the vegetable application to soils; and, doubtless, he was a martyr to the successful and profitable application of his farming theories.

The mission of your society is based on just and benevolent principles, to improve the condition of a copartnership of labor; the stock contributed on the part of the white man is *mind*, and that of the black man, *muscle*.

The fulness of the corn-crib and smoke-house, is common property, and should crasse or drought come, the black man knows he will be amply fed, clothed and cared for, unless "Masser" has lost his credit. Then he is ready and willing to form a new copartnership.

The white partner is sovereign to the extent of his domain, and is responsible for his administration to good neighbourship and the laws of society; his interest, feelings and humanity alike, inducing him to give ample protection to his negroes, abundant, whole-

some food, good clothing, with the best nursing and medical skill when sick. The black man is best off, when restricted to his own log cabin literature;—the moral teachings of example; his religious exercises;—the excitement of the dance. He is naturally religious, and his implicit faith makes him the better Christian and slave. The white man has more individuality and care; the black man more faith and contentment.

It is a system that is progressive; it must and will last forever. Tobacco and cotton have become to be necessities, and the world will have them. Tobacco has lived and gotten into general use, in despite of governmental prohibitions and taxations, and all the fulminations of fanatical clergymen and doctors of medicine. The wants of man require cotton and will have it. The white man never has made cotton, nor will he ever do it. As the tropics are as a wall of fire to the whale, so is the climate of the cotton growing belt to the laboring white man.

African labor must and will continue to furnish tobacco, cotton, sugar and coffee,—utilitarian progress will crush out abolitionism. It is the foundation of a new sociology, and will preserve the individuality of man, our federative system and self-government.

Agriculture is the great desideratum of Americans, Professors, Lawyers, Doctors, Merchants and the Sailor regard their vocations as the pedestal, Pisgah's Top, the attainment of which is to enable them to retire to the comforts and mellow influence of a good plantation—Washington, Jefferson and a host of great men, hastened from the highest pinnacle of fame, to wear away their three score years and ten on their own farms. If the "old man eloquent" had have owned a plantation in Nottoway, well stocked with African laborers, as Nottoway plantations generally are, he would not have died "in harness."

With thanks to yourself and the committee, and the hope that your society may continue to achieve good results,

I am, very truly,  
STERLING NEBLETT.

For So. Planter, from the Nottoway Club.

#### Experiments with Peruvian and Sombrero Guanos.

In the spring of 1859, I determined to make a comparison of the results of the application of Peruvian and Sombrero Guano,

and of the two in combination; to that end my tobacco lot was as nearly equally manured, with home made manures broadcast, as I could accomplish it, nearly the whole of the lot was then dressed with a mixture of equal quantities of Peruvian and Sombrero Guano, at the rate of 260 pounds to the acre in the drill; through the middle of the lot, I then drilled ten rows with 260 pound per acre of Peruvian Guano unmixed, and immediately along side, ten rows with 260 pounds per acre of Sombrero Guano. In the fall, say 1st of October, I cut one hundred plants of tobacco from each experiment, taking the plants as they stood without selection, they were placed on marked sticks, and lay in the same room; in the month of January, 1860, they were stripped and weighed the same day: the one hundred plants manured with the mixed Peruvian and Sombrero weighed 34 pounds, or at the rate of 1360 pounds per acre; those manured with Peruvian Guano, weighed 42 pounds, or at the rate of 1680 pounds per acre; the one hundred plants manured with Sombrero Guano, weighed 40 pounds, or at the rate of 1600 pounds per acre. To the eye, the tobacco manured with the mixed Guano seemed to be largest, but, to my surprise, weighed least; that manured with the Peruvian Guano, when stripped, was manifestly the richest and heaviest.

Respectfully submitted,

WM. R. BLAND.

April 12th, 1860.

*For the Southern Planter, from Nottoway Club.*

### Reciprocal Relations of Farmers and Millers.

MR. PRESIDENT:

In discharge of my annual obligation, I propose to discuss a subject of much more importance than is usually attached to it. I refer to the reciprocal relations of farmers and millers. Owning three mills myself, I can take the liberty of expressing the opinion that there is not a more fruitful source of imposition and injustice to each party, as such operations are usually conducted. I claim no exemption for my own, but if any imposition be practised, I desire to furnish the means of detection. Injustice is frequently visited on the miller by the usual practice of selecting a mill-boy without any regard to his honesty or carefulness. I have known turns to leave the mill with the boast

of the miller, for favorable turn out, but so depleted by depredation before reaching the owner, as to excite complaint. Such occurrences indicate the necessity and propriety of some uniform standard of management, precluding such results. The plan I recommend is, for the farmer first to secure what is termed a sealed half bushel measure, with iron strips across the top, to prevent abrasions from the friction of measurement, or variation from the convexity or concavity of the striker; that the owner should for one time at least, attend to the measurement of the corn, (even measure) that he accompany it to the mill, and see in person to the tolling and grinding—that he shall measure the product at the hopper, and again at home, the quantity being slightly lessened by the agitation and compression of the removal; that he shall then measure out for each person on his farm, the requisite quantity for a day or week, and ascertain thus exactly how much corn will make the requisite quantity. This being once done, will answer for life, and tend to preserve the satisfactory, mutual intercourse of the parties, as well as check any proclivity to dishonesty on the part of the miller or mill-boy. For the benefit of those who may not find it suitable or convenient to superintend the process, I will present some results in a measure superceding such necessity. A bushel measure is generally considered to contain but 8 gallons, but it will be found generally to contain near 10 gallons, and properly ground will yield 13 gallons of meal at the hopper. I regard it as not an unreasonable calculation on the part of the farmer, that after paying  $\frac{1}{2}$  for toll, he should receive back in bulk  $\frac{1}{2}$  accession in meal. If properly ground the bulk is not reduced by the process of sifting, as it lies lighter after that operation. The calculation should always be made by an even measure, as the heaping may be irregular. Perhaps the safer plan would be to weigh all, though there is a necessary reduction in weight from evaporation, wastage, &c. Where there is regularity in the quantity sent and ground, and at regular intervals, the miller can tell when it is received, whether there is any material diminution, and can refuse to receive it, reporting the fact, and the person sent to mill can do the same, and when it is understood that such particularity is mutually observed, no difficulty is likely to arise.

This regularity also ensures a constant



supply, otherwise some suffering will result from sudden exhaustion. I am persuaded that a regard for these regulations is essential to a proper and friendly understanding and intercourse with all concerned, and that no person can properly and safely complain without them. I am farther persuaded that no person in the usual negligent arrangements of the country, loses less than the amount of his annual taxes, or will save less by a proper observance of these necessary precautions. This discussion might be advantageously extended as to the proper system of management in providing and distributing supplies for servants either by the day or week, and on which I would be gratified by the views of others, preparatory to a decision, and most judicious selection.

May 10th, 1860. E. G. BOOTH.

#### Report on Guanos.

Last year I tried several different kinds of guano. I laid off rows of corn, and applied on alternate rows Peruvian and American in equal quantities, as nearly as practicable, at about the rate of 200 lbs. to the acre. The early part of the season being wet and favorable to the growth of corn, the crop took a rapid growth, the Peruvian bringing it forward much the most rapidly, and the American showing quite plainly. The latter part of the season proving dry, the Peruvian gave back, and at the maturing of the corn, there was no perceptible difference between that and the American—neither of them, owing to the peculiar season, proving of any material benefit. There have been seasons in my experience, where Peruvian will do more harm than good, and this was one of that sort.

I also tried Mexican and Nevassa guanos, and Superphosphates of Lime, Rhodes', and one made in Philadelphia, Twell's. I could observe no material difference between them, all of these being used in combination with Peruvian guano on Tobacco. The season being very wet, I am disposed to think none of them had a fair chance to show their merits, and I am doubtful whether I was repaid for their cost.

Respectfully submitted, by  
May, 10th. RICHARD IRBY.

If ye forgive men their trespasses, your heavenly Father will also forgive you.

#### Manufacture of Wafers.

The mode of making the best quality of wafers, as practiced by the English manufacturers, is as follows:—Fine wheat flour is taken, and mixed with white of eggs and isinglass into a very smooth paste; this is spread over tin plates evenly, and dried in an oven, several of the plates being placed one over the other to communicate a glossy surface to the wafers. When dry, the sheets of paste thus formed, are laid up in a pile, about an inch or more in depth, and cut into circular pieces by a hollow punch, which, allows the wafers to pass up its tubular cavity and discharge themselves sideways as the cutting proceeds, which is effected with great rapidity. The variety of colors that are ordinarily communicated to wafers, is given to them in the paste, by the usual pigments in the dry powder state, or previously dissolved in the water employed. The French isinglass wafers, made in France, are formed of isinglass dissolved in water to the proper consistence, which is poured out upon plates of glass provided with borders, and laid upon a level table; to prevent the blue from sticking to the plates, a little ox-gall, or other, suitable material, is robbed over them. Previous to the isinglass becoming quite dry, they are cut through along the borders. The leaves are then removed and cut with hollow punches, as in the case of other wafers. The various colors are also communicated to them by pigments while in the fluid state.—*Scientific Artisan.*

#### Cutting Glass without a Diamond.

A subscriber to the *Agriculturist*, A. Mead, N. Y., writes that glass may be readily cut with a file, by keeping it wet with spirits of turpentine, which gives it a "bite." We have seen the following process recommended for dividing circular vessels as bottles, jars, etc. Fill the vessel with any kind of oil up to the point where the division is to be made. Heat an iron rod to redness, and slowly introduce it into the top of the oil; the glass will crack in an exact circle around the surface of the liquid. The heat imparted to the oil, causes the inner side of the jar to expand rapidly, and thus makes a break.

[REMARKS.—The last recommendation is of doubtful utility. We have often cut off glass bottles readily by first filing a small

notch for a starting point, and then applying a hot iron rod, or poker, moving it slowly back and forth along the line where we wished the crack. By keeping the iron ahead of the break, you can *lead* it in any direction desired, so as to cut off the bottle square or at any angle. When at work in the laboratory, we often made extempore tumblers for holding various substances, by thus cutting off the upper part of bottles, of which the necks had been broken. We have also made gas transferers, etc., by cutting off the bottom of cracked bottles, leaving the neck and main body whole, with the bottom open. After a little practice any one can, with a hot iron, *lead* a crack in a bottle, tumbler, or along flat glass, in any desired direction. The sharp edges can be smoothed or rounded with a fine file, or by grinding. We have often cut a pane of glass nearly true across, by filing a slight notch in the edge, laying on cold iron, or even a strip of wood for a rule, and then passing a hot iron back and forward, along the place where the fracture is desired.—ED.]—*American Agriculturist*.

### Can't Afford It.

Those who are counting the cost of dissolving the Union, may close their calculations somewhat after the fashion of the old woman in the subjoined anecdote:—"A person having occasion to visit an old couple in Durham, of extremely penurious habits, found them holding counsel together upon a matter which apparently weighed heavily upon the minds of both, and thinking it was respecting the probable dissolution of the wife, who was laying dangerously ill, proceeded to offer them all the consolation in his power; but was cut short by being informed that this was not exactly the subject they were discussing, but one which afflicted them still more deeply; viz: the cost of the funeral; and, to his astonishment, they continued their ghastly calculations until every item in the catalogue, from coffin to night cap, had been gone through, with much grumbling at the rapacity of 'the undertakers,' when the bright thought suddenly struck the husband, and he exclaimed—"Well, Janet, lass, you may not die after all, ye ken." 'Deed, and I hope not, Robert,' replied his helpmate, in a low, feeble voice, 'for I am quite sure that we canna afford it.'"—*New York Observer*.

### Make the Best of Everything.

An important lesson to learn, and the earlier it is learned in life the better, is to *make the best of everything*. As the old adage says, "It is no use to cry over spilt milk." Misfortunes that have already happened cannot be prevented; therefore, the wise man, instead of wasting the time in regrets, will set himself to work to recover his losses. The mistakes and follies of the past may teach us to be more cautious for the future; but they should never be allowed to paralyze our energies, or surrender us to weak repinings. A retired merchant relates that, at one period early in his career, he had got almost to the verge of bankruptcy; "but," says he, "I ploughed a deep keel, and kept my own counsel;" and by these means he soon recovered. Had this man given way to despair, had he sat down to prevail his apparently impending ruin, he might now have been old and poor, instead of having retired in a splendid position. He adds, that a characteristic was, that through life, in all circumstances, he did the best that he could, whatever that was, consuming no time in useless regrets over misspent time or bad speculations.

The rule holds good, not only in mercantile affairs, but in the whole conduct of life. The man who is born to indifferent circumstances will never rise, if, abandoning himself to envy of those more blessed by fortune, he goes about sullenly and complaining, instead of endeavouring to use to the best of his ability what few advantages he has. The patriot deploring the decline of public and private morals, will never succeed in reforming the commonwealth, if he stickles for visionary or impracticable measures, rejecting those more moderate ones that are really attainable. The friend will soon have no intimates at all, if, making no allowances for the infirmities of human nature, he judges too harshly of the conduct of his acquaintances. Many a matrimonial quarrel might be avoided, if husband and wife, instead of taking offense at each other on slight provocations, would dwell rather on the good traits the other displays. There are not a few statesmen now living in retirement, who might have still gratified their ambition by serving the public, if they had understood, amid the fatigues and disappointments of public life, *how to make the best of everything*.



### Report of P. T. Tyson, Esq., Maryland State Agricultural Chemist, on Bones.

Bones were first used as a manure in Germany, and afterwards, in the year 1771, were introduced into England. Little use however, was made of them prior to the beginning of the present century, since which period their use has rapidly extended throughout Great Britain.

The high prices of bones in England have drawn, and continue to draw, them from almost every part of the world; even the bones of the soldiers who fell at Waterloo, and at the siege of Sevastopol, have contributed to enrich the soil of Great Britain.

The first bones used for manure in this country, it is believed, were crushed at the establishment of Mr. Wm. Trego, and sold to farmers in Harford and Montgomery counties in the year 1836.

They were sold for some time at 33 to 35 cents per bushel, or about half their present value. The prices in England are about 40 pr. et. higher than they have yet reached in this country.

When I first applied bones in Harford county, in 1839, the operation was watched with interest by my neighbors, some of whom thought they would prove an extravagant and useless application; and there were those who appeared to have formed theories in reference to manures which ruled bones out of the list, because, as they believed, they were of "too dry a nature."

Their good effect, however, soon became manifest, and the result was to produce heavy crops upon soils which had been long lying idle, after having been rendered sterile by improvident planting and farming of former times.

The use of bones soon extended, and my old neighbors are now perfectly willing to pay double the prices which were then thought extravagant.

Whilst in Harford during May last, I had an opportunity to notice the durable effect of bones which I applied to land from seventeen to twenty years since. All the fields to which they were applied continue to produce heavy crops under the judicious management of the present owner, Mr. Hanway.

There was one field of 10 acres upon which I applied 300 bushels of crushed bones. He enlarged it, and applied 15 bushels to the acre over the whole, but finding the 10 acres which I had manured as

above so much more productive than the rest, he applied to the latter (which I had not taken in) 18 or 20 bushels more per acre. He expected, by this means, to equalize the fertility of the whole enlarged field. He informs me, however, that his expectation in this regard was not realized, and he was satisfied would not be until he shall apply another manuring of bones, as he intends to do, to the part upon which I had applied none.

Loudon, Johnston and other writers. inform us that the effect of heavy dressings with bones are clearly shown in England to endure for forty or fifty years.

We shall be prepared to discuss the cause of all this after having described the chemical and physical constitution of bones.

A bone may be described in general terms as a spongy structure, made up in part of a frame-work of phosphate and carbonate of lime, whose interstices are filled with animal matter analogous to gelatine, and a small portion of fat or oil. A piece of bone long exposed to dilute muriatic acid will be deprived of its phosphoric acid and other mineral matters, and leave the cartilage or gelatine in nearly original form. If we expose a bone in an open fire until it shall burn white, its form will not be changed, but the animal matter will have been burnt away. If, however, the bone be exposed to heat in a close vessel, all its animal matter, except a portion of the carbon, will be driven off. The remaining carbon, with the earthy matters, constitute what is called animal charcoal, ivory black, or bone black.

We have on record numerous results of analysis of bones of different animals, but the following, which gives the composition of the bones of the ox, will answer our present purpose:

|   |       |
|---|-------|
| Animal matters analogous to gelatin and albumen, called azotic compounds, | 33.30 |
| Phosphate of lime,  | 55.85 |
| "    "    magnesia  | 2.05  |
| Carbonate of lime,  | 3.85  |
| Fluate of lime,   | 2.50  |
| Soda, common salt, &c.,   | 2.45  |

The above are the results obtained from a fresh clean piece of bone. Those collected by the bone crushers cannot but have more or less of dirt adhering to them, and after being crushed, they will absorb a portion of water. This adds to

their weight probably about 5 per ct., and, of course, lessens the proportion of the other constituents; but it will be safe to assume that 100 lbs. of ground or crushed bones of commerce contain an average amount of gelatine and other azotic compounds, . . . . . 32 lbs.

And phosphate of lime, . . . . . 53 "

Of this last there is phosphoric acid . . . . . 24½ "

And lime, . . . . . 28½ "

The proportion of ammonia produced by the decomposition of the animal matters may be estimated to average about 7 parts of the above 32.

We may, therefore, assume the value of 100 lbs. of crushed bones to consist in :

Ammonia, . . . . . 7 lbs.

Phosphoric acid, 24.5 } . . . . . 53 "

Lime, . . . . . 28.5 } . . . . . 53 "

Carbonate of lime, . . . . . 3 "

Fluate of lime, . . . . . 2½ "

Phosphate of magnesia . . . . . 2 "

Soda, muriate of soda, &c., . . . . . 2½ "

In addition to the above, there are carbonic acid and sulphuretted hydrogen, produced by the decomposition of the animal matters.

It has been stated to me that crushed bones had, in some instances, been adulterated with useless foreign matters, but I have met with no certain evidence of the fact; on the contrary, an examination of a number of samples which farmers had received from several different sources, showed them to be as pure as is practicable with an article of that kind.

There are difficulties in the way of adulterating ground bones, occasioned by the fact that a small addition of foreign matters can be readily detected with a good pocket lens, which every farmer ought to possess.

They are not injured if boiled merely long enough to abstract the grease they contain, but if the boiling be continued until more or less of the gelatine be removed, their value is lessened, because it is from the gelatine that the ammonia is produced. Pure fresh bones should lose from 33 to 37 per cent. of their weight, when burned in an open vessel until they become white.—But if they have been robbed of part of their gelatine they will lose less weight by burning.

Prof. Johnston, in his *Agricultural Chemistry*, refers to a discussion which sprang up

some years since, in reference to which of the constituents of bones we are to attribute their value. Sprengel asserted that it was to their phosphates only, and this opinion was favored by Liebig. Others again gave all the credit to the ammonia formed from their animal matter. It would, in my opinion, be a waste of time to give the views of the contestants.

Both sides certainly knew that all soils which are deficient in phosphoric acid, are rendered more fertile when it is supplied; and it would be certainly difficult to find a field long in cultivation whose productiveness would not be increased by the use of ammonia, provided one or more of the essential elements be not deficient or altogether absent.

It seems strange that such a question could have been raised by distinguished men in the present day, when there is certainly no room to doubt for one moment the efficacy of both phosphoric acid and ammonia as constituents of manure.

Much difference of opinion has prevailed from the first use of bones, as to the best mode of applying them. In Germany it was for a long time the practice to burn them. Whether this was owing to ignorance or the want of bone-crushing mills, we do not know. I believe, however, that this practice has ceased, and that crushed bones are now used in both Germany and in France.

Stoeckhardt, in his *Agricultural Chemistry*, laments that, owing to the want of appreciation of bones in Germany, they are largely exported to England for manure.

In England they are crushed or ground fine, when they are to be drilled in with turnip seed; but a rather coarser kind is used when sown broadcast.

In this country they are also crushed, but the kind suited for drilling in is not often used, owing to its additional cost.

There are three modes of applying crushed bones to the soil :

1. In the dry state, as purchased.

2. Dissolved in sulphuric acid.

3. Causing an incipient decay, or, more correctly, putrefaction of their animal matter.

If the object is the permanent improvement of the soil, without caring so much about a maximum growth of the first crop, the crushed bones may be applied in the



dry state, without any previous preparation. This was the least expensive mode. (1.)

When they are applied for the benefit of only one or two crops, without looking to the permanent improvement of the soil, the phosphate of lime may be made soluble by means of sulphuric acid or oil of vitrol. (2.)

When the object is to have the bones in such a state as to produce an immediate effect upon the first crop, and which will be continued during many years, it is better to treat them as will be hereafter shown, so as to bring their animal matter into an incipient state of putrefaction, improperly called by some fermentation. (3.)

I have had some experience in the application of dry bones to land, and have also been able to collect the opinions of many who have extensively applied them in this manner. It has the advantage of saving time and labor, but requires a larger dose to produce a given effect upon the *first* crop. Its effects, however, are more lasting, and will continue during a long series of years. This method may answer when the ground is intended to be kept permanently in grass. Gypsum should always be mixed with them in the proportion of 1 bushel to 10 of bones.

The system of dissolving in acid, I have been always satisfied, is less advantageous than the putrefactive process, and therefore I have never used the dissolved bones.

In a paper read before the meeting of the British Association, at Dublin, in 1857, Sir J. Murray claims that he was the originator of the practice of using dissolved bones more than forty years ago. Long experience, however, in the use of them has induced him to change his opinion upon that subject, and he now objects to the use of dissolved bones. He states that he finds "the soluble phosphates too soluble; that that they melt too fast, and are carried into the subsoil or pass off into streams during rains."

He adds that "his present views result from many years experience," and "that they have been confirmed by a long series of experiments, carried on for him by the governor as well as the gardener of the Richmond (England) Lunatic Asylum."

The prompt action of dissolved bones upon crops brought them prominently into

notice, and induced many farmers to prepare and use them, and, besides, induced a host of parties to prepare them on a large scale to save the farmers the trouble of so disagreeable a process, and not without danger. I am fully convinced that if any one will take the trouble to make proper comparative experiments with dissolved and putrified bones, and notice the results, during five or ten years, they will come to the same conclusion as Sir J. Murray did, who has the candor to acknowledge the errors into which he has led his brother farmers.

The books and periodicals for years past contain numerous directions for dissolving bones, and it is remarkable that they should differ so greatly in the proportions of acid required.

In the Patent Office Report of 1856, Mr. Brown recommended the use of five pounds of sulphuric acid to 100 lbs. of bones, and to compost them with muck.

An article in the Country Gentleman of the 28th October, 1858, by Prof. Gilham, of the Va. Military Institute, refers to an article of Prof. Norton, which recommends 50 or 60 lbs. for whole bones and 25 and 45 lbs. for ground bones, and adds that he (Prof. Gilham) found even 100 lbs. of acid were not sufficient to dissolve 100 lbs. of bones.

The real state of the case is, that if it be desired to dissolve all the phosphates in 100 lbs. of bones, or about two bushels we must apply 59 lbs. of sulphuric acid, whose specific gravity is 1.85, diluted with three times its weight of water. And to effect a complete solution they must be frequently stirred during three or four weeks. If the bones be whole it will require many months to dissolve all their phosphates.

If it be desired to dissolve a part only, a less proportion of acid may be used. My own opinion is, the less, the more economical to the farmer in the long run.

We must not omit to count the cost of applying sulphuric acid to bones, which, of course, will be modified by the proportions used.

Let us first ascertain the cost of effecting a complete solution of the phosphate of lime in bones:

|   |        |
|---|--------|
| 1st. 100 lbs. of ground bones, costing  | \$1.46 |
| 59 " sulphuric acid (3 cts.),   | 1.77   |
| We should add for labor and the cost of a vat or tub, which is soon destroyed, freight on acid, &c. |        |
|   | .08    |
|   | -----  |
|   | \$3.31 |
| 2nd. If we use acid sufficient to dissolve half the bones, the cost will be as follows :            |        |
| 100 lbs. bones,   | \$1.46 |
| 30 " sulphuric acid (3 cts.),   | .90    |
| Labor, &c., as before,  | .08    |
|   | -----  |
|   | \$2.44 |

As a bushel of bones will average in weight 45 lbs., we have to deduct 55 per cent. to get at the cost of one bushel; therefore,

|                                      |        |
|--------------------------------------|--------|
| One bushel fully dissolved will cost | \$1.49 |
| One bushel half dissolved will cost  | 1.10   |

It will be seen, therefore, that by dissolving we much more than double their cost, and if but half dissolved, their cost is increased more than two-thirds in amount.

It is true that a smaller quantity will suffice for an immediate effect, which may suit a temporary tenant, but let the land-owner bear in mind that the *whole ultimate benefit* is in proportion to the *weight of bones* applied. It is true the action of the acid upon the carbonate of lime produces a portion of gypsum, but so far as that article is concerned, we can purchase it at less than one-fifth the cost of making it.

When bones or phosphatic guanoes are dissolved in acid it is usual to add absorbent materials, so that it may be made sufficiently dry to admit of being spread. Neither lime nor ashes should be used for this purpose, because it would precipitate the phosphate and neutralize the effect of the sulphuric acid.

Great care should be taken when the acid is poured into the water, which must be done before the bones are added. It must be done very gradually, because it generates heat above the boiling point, and is apt to be thrown into the faces and on the clothes of the workmen.

Sir J. Murray thinks there is much loss by the soluble phosphates being carried off by water; but there is good reason to believe that the cause of their effects being so slight after one or two crops, is more owing to certain known chemical reactions in the

soil. Soluble salts of alumina and iron, especially the latter, are never absent from soils, and when a soluble phosphate of lime comes in contact with either of these, the phosphoric acid is precipitated as phosphate of iron or alumina. Both of these, according to Bischoff, are among the most insoluble substances known in water and carbonic acid. But some experiments of Dr. Piggot prove that they are soluble in alkaline silicates.

Whilst it does not seem proper to apply sulphuric acid to bones, yet I think it probable that we may advantageously use either that or muriatic acid in *small* proportion to some of the phosphatic guanoes, especially to those containing phosphates of iron and alumina.

It remains now to notice the third mode of preparing bones, which consists in causing putrefaction and decay.

This mode has been evidently coming more into use within a few years past, and we often find directions in the agricultural journals for effecting it, most generally by making them into composts with stable manure or other matter. I have, however, met with nothing in that way that appears likely to answer a better purpose than that practiced by me 19 years ago, after experimenting to some extent. And as inquiries have been made in answer to which I had found it necessary frequently to describe the process, it will now be repeated in full.

Having smoothed over the surface of the ground (under a shed, if convenient), place thereon evenly, a layer of 3 in. of ground bones, and then an even layer of good fine soil or earth, free from stones or sticks. Give a good sprinkling of gypsum over each layer of earth. Another layer of bones is applied upon the layer of earth, and the same alternations are to be repeated with the gypsum until we have four of each bones and earth, and the height of the pile will be 24 inches. As the bones are usually dry, each layer should be well moistened with water or *better with urine*, in order to hasten the process. It is proper to place two or more sticks in the pile reaching to its base, which should be frequently examined by feeling them, in order to judge of the degree of heat produced. If the weather be warm they will begin to heat in a few days, and in a week or two they will become hot. When upon taking out the



sticks they feel unpleasantly hot, the process should be checked by chopping or spading down the mass from top to bottom, which, if carefully done, mixes the materials well together, and they are ready for spreading.

If the process be commenced during cold weather it may be hastened by placing at the bottom a layer of fresh horse dung about six inches thick, and covering the pile with straw or fodder to retain the heat.

There is much testimony in favor of using salt as a manure, and it cannot be applied more advantageously than with the bones, because it promotes their solubility. It would be better to place the proper dose of salt with the gypsum upon each layer of the earth.

In reference to the quantity of bones to the acre, I may say, that after trying them in quantities from 30 bushels down to 10, I came to the conclusion that 10 bushels to the acre was the most advantageous quantity. I became satisfied, also, that this quantity, prepared as I have just indicated, and uniformly sown, will be as effective for a year or two as double the quantity applied in the dry state.

Should the soil be dry when wheat ground is dressed with dry bones, and continue so for some time after, but little effect will be produced by them upon the autumn growth.

The effect of the putrefied bones will be obvious within a few days after the young wheat appears above the surface. The putrefaction in the first case goes on very slowly; but when the bones have been once heated it will proceed more readily, and of course furnish an earlier supply of the much needed ammonia, as well as phosphoric acid.

One great advantage of bones over ammoniated guano arises from the fact that putrefaction and decay have progressed in the latter until nearly all the ammonia which they are capable of yielding has been already formed. And as it is very soluble in water, much of it is rapidly washed off during heavy rains, leaving a portion, which is absorbed and retained in the soil. This is going on whenever the ground is wet, so that when the soil is not frozen in winter, the ammonia is passing off and there is no crop growing to appropriate it.

When bones are applied, either dry or in the manner I have suggested, (3,) they are

giving out their ammonia as the crops require it, but in cold weather the putrefaction is nearly or quite suspended, according to the temperature, and again resumed in the Spring; at first slowly and then rapidly in hot weather, when it is most wanted by the crop.

I have very rarely met with those who have used bones for manure without being satisfied with their effects. Experience has shown, however, that their effects are not so promptly evinced in stiff clay soils as in those of a more porous character. The compactness of very stiff soil prevents sufficient access of air to assist in the decay of the bones. When applied to *very* wet soils the animal matters decompose so slowly as to produce little benefit to crops.

#### BONE BLACK OR ANIMAL CHARCOAL.

In former days bullock's blood was largely used in refining sugar, but in the improved modern process very little blood is used. The principal reliance is upon animal charcoal, through which the hot syrup is filtered for the purpose of being decolorized. It is coarsely crushed or ground and the finer portions and dust sifted out, which would otherwise clog the filtering cloth or pass through with the syrup. After each operation the charcoal is again exposed to heat in closed iron vessels, and the dust, etc., sifted out as before. It is this material that is sold for manure under the name of bone black.

All the animal matter, except a portion of carbon, has been expelled by heat, leaving the carbon with the phosphates and other earthy matters of bones, and is, of course, valuable as a manure.

I have been informed that the refineries in Baltimore dispose of their bone black to manufacturers of fertilizers in Philadelphia; the whole amount being annually about half a million of pounds.

A sample which I obtained from Dougherty & Woods, of Baltimore, was analysed by Dr. Piggot, with the following results, viz.:

|                                  |       |
|----------------------------------|-------|
| Phosphate of lime, . . .         | 70.10 |
| Phosphate of magnesia, . . .     | .15   |
| Carbonate of lime, . . .         | 11.85 |
| Charcoal (animal), . . .         | 10.98 |
| Oxide of iron and alumina, . . . | 3.01  |
| Sand, . . .                      | 2.83  |
| Soluble salts, . . .             | .41   |
| Soluble organic matter, . . .    | .13   |

It is to be regretted that this large amount of phosphate of lime should be carried out of our State instead of being used at home. There is no doubt of it being valuable for manure, as its constituents clearly indicate, because of the phosphate and carbonate of lime it contains. Its carbon also will prove a source of carbonic acid in the soil.

#### CRACKNELS OR GREAVES.

This material consists of the tissues and other matters remaining after the melting and straining off the fat of animals.

At one establishment in Baltimore (the Butchers' Hide and Tallow Association) there are 100,000 lbs. of this material produced per annum, all of which is sold at one cent per lb. to parties in Philadelphia, to be used in the manufacture of Prussian blue. I have no means of knowing the whole amount produced in Baltimore, but it must be considerable.

Boussingault determined the proportion of nitrogen to be 11.88 per ct., which will produce during the decay of the material more than 14 per ct. of ammonia, or nearly equal to the amount in the best Peruvian guano. It seems, therefore, that it would be worth more than one cent a pound for manure, if it were powdered or otherwise reduced to such a fine state of division as would admit of its being properly mixed with the soil. As it comes from the press its cakes are about three feet square and about six inches thick, which are easily transported without being packed. It is in fact almost as solid as wood itself, and will require suitable machinery to bring it into a proper state for manure.

It is but very recently I learned that it was produced in quantities worthy the attention of farmers, but it is my intention to examine further into it as early as practicable.

A mixture of cracknels and the bone black of the sugar refiners would constitute a very valuable manure.

#### "Shall I buy 'American Guano'?"

During the past few months, this question has been addressed to us by subscribers, personally and by letter, a great number of times. In fact we expect that every few minutes during the day, some one will knock at our door and almost invariably ask on entering, "What do you think of this American guano?" We therefore offer a general reply

here. But first let us correct a false impression that we have any "preconceived prejudice" against the article. On the contrary, we would gladly commend it in the highest terms, could we do so consistently with our own views. We dislike as much as any one, the monopoly of Peruvian guano, and would be right glad if American farmers could dispense with its use altogether. We could heartily wish that all that is claimed for the "American guano" might prove to be below its real merits. It would be a national blessing, of more value than all the gold of California. Several enterprising men have devoted their time and money to its introduction, and, so far as we know, they have done this in the belief that they are doing the country, as well as themselves, good service, in hunting up and bringing these fertilizers here.

But, as we have said to some of them personally, we think they are guided by an incorrect theory in regard to the wants of our soils and crops; and our present opinion is, that, after a year or two, these purely phosphatic guanos will have had their day, and cease to be in demand by farmers, at least where they have been tried. That some portions of the material brought from the Pacific Islands may prove moderately useful, is probable, for we have seen specimens which contained sufficient ammonia and other organic constituents to warrant the belief that they would be beneficial to crops. And this will, in part, account for the fact that some persons have been pleased with their first trial of American guano. We have examined a dozen different specimens of the material, in its unground, unmixed state, and found them of various composition, running all the way from a nearly pure phosphate, up to one containing a valuable admixture of organic matter including a considerable percentage of ammonia. Now any person chancing to obtain a sample of the last named quality would doubtless see sufficiently good results to lead him to try it further, and to commend it to others. We have seen certificates from such persons. But how many are there in the country who have reaped no benefit? We have heard of many such, yet no one is interested in collecting and setting forth the cases of failure, and farmers, as a class, seldom write out their experiences, unless it is drawn from them, and so we seldom get the dark side.\*

\*An illustration may be given of the fact referred to above. A few years since, one of the special



We have hesitated to discourage the introduction of the American guano, because we have hoped, that in the progress of the enterprise, there would be found deposits containing *organic* material enough to verify at least a portion of the expectations indulged on the part of the importers, and the public. This may yet turn out to be the case, and we advise those enlisted in the enterprise to turn their attention specifically to the discovery and introduction of organic deposits; for we are firm in the conviction that the purely mineral or phosphatic guanos, such as are now mainly brought here, will not prove profitable or satisfactory. We are aware that the sellers take a different view, and have on their side many scientific men; but we are quite willing to put our opinions on record to be tested by time and experience. In the meanwhile, we must caution not only farmers but the importers themselves, not to invest too largely in a material which is at best of doubtful utility. In our last article on manures (No. 4) we stated, perhaps fully enough, our reasons for calling in question the supposed value of mineral manures generally, including the phosphates.

But whatever may be the character of some of the American guanos already introduced, or of those yet to be found and brought here, we will now only consider the general character of those offered, remarking that the chief excellence claimed for them by those interested, is that they abound in phosphates. We have been furnished with the following recent analyses of several cargoes, and the remarks thereon by Prof. S. W. Johnson, who conducted the experiments.

pleaders for super-phosphate visited a New-England town, and lectured so strongly in favor of the use of this material, that the cultivators at once made up orders for some 80 tons, at a cost to them of nearly \$4,000. It proved a failure, and we believe not a pound of it has since been sold there. But the buyers quietly pocketed the loss, acknowledged themselves sold, and discarded all scientific teachings in regard to agriculture. But no one of them ever took the trouble to collect and publish the facts. On the other hand, in another town, one man obtained, or thought he obtained, good results, (perhaps he had an extra good sample,) and on application he gave his certificate in its favor. That certificate, and a few others of similar character, were published all over the land by interested parties, and very many persons bought super-phosphate or the strength of them. We only mention this as an illustration of how one-sided statements may sometimes go forth, and further to invite those who try any new fertilizers to report their *failures* in all cases. Let us have both sides.

YALE ANALYTICAL LABORATORY, }  
NEW-HAVEN, Conn., March 16, 1860. }

JOHN B. SARDY, Esq.—Dear Sir: This may certify that I have inspected the discharged guano cargoes of the ships Gosport, Rambler, and Polynesia, late from Jarvis Island, have had average samples taken in my presence, and have submitted the same to chemical analyses, with the following results. The table also includes analyses of a sample of the Victory's cargo, Jarvis Island, and of a specimen from Baker's Island.

| Ship.....           | Moisture..... | Organic matter and combined water..... | Lime..... | Phosphoric Acid..... | Sulphuric acid (free-estimated)..... | Water and loss..... | Undecomposed matter..... | Bone Phosphate of Lime equivalent—average, per cent..... |
|---------------------|---------------|--|-----------|----------------------|--------------------------------------|---------------------|--------------------------|--|
| Gosport.....        | 9.33          | 13.37                                  | 33.88     | 21.81                | 20.33                                | 1.28                | 1.28                     | 47.47  |
| do.....             | 9.24          | 13.22                                  | 33.59     | 22.01                | 20.33                                | 1.61                | 1.61                     | 47.47  |
| Rambler.....        | 13.22         | 8.39                                   | 34.17     | 19.10                | 25.07                                | .05                 | .05                      | 55.01  |
| do.....             | 12.69         | 8.97                                   | 33.68     | 19.18                | 25.07                                | .41                 | .41                      | 59.17  |
| Victory.....        | 7.08          | 7.75                                   | 36.31     | 25.67                | 21.75                                | 1.54                | 1.54                     | 59.17  |
| do.....             | 8.85          | 6.65                                   | 36.39     | 25.19                | 21.75                                | 1.60                | 1.60                     | 59.17  |
| Polynesia.....      | 12.00         | 7.70                                   | 34.83     | 26.47                | 15.85                                | 3.15                | 3.15                     | 59.17  |
| do.....             | 12.41         | 7.34                                   | 34.67     | 25.15                | 15.85                                | 1.58                | 1.58                     | 59.17  |
| Baker's Island..... | 3.57          | 8.25                                   | 41.54     | 39.24                | 2.16                                 | 5.24                | 5.24                     | 83.93  |
| do.....             | 3.53          | 9.02                                   | 41.09     | 38.24                | 2.16                                 | 5.91                | 5.91                     | 83.93  |

These cargoes together show an average of Phosphoric Acid equal to 50 per cent. of Bone Phosphate of Lime, which is sufficient to constitute a valuable fertilizer, especially since the material is, on the one hand, very finely divided, and on the other, contains considerable organic matter, and Sulphate of Lime, which, being themselves easily decomposable or soluble, must leave the Phosphate of Lime exposing a great surface to the solvent action of the soil water. Simple calculation shows also that in the Jarvis Island Guano, by far the largest share of the Phosphoric Acid exists in the form of what is commonly called *neutral Phosphate of Lime*, which is characterized by a much greater solubility than is possessed by the Bone Phosphate. For these reasons this guano must manifest greater activity than other guanos which are more compact, and consist mainly of Bone Phosphate of Lime.

SAM'L W. JOHNSON, Prof. of  
Analytical and Agricultural  
Chemistry, Yale College.

Probably Prof. Johnson designed the above simply as a professional private business letter; he should have stated the results differently, if for the general reader. The second column, "Organic matter and

combined water," gives no valuable information. We are left entirely in doubt as to *how much* of it is "combined water," and *how much* is "organic matter." So also, we have no indication whether the organic matter is simply useless or nearly useless carbonaceous material, or whether it contains an appreciable amount of useful nitrogenous compounds.

We have confidence in Prof. Johnson's skill and integrity as an analytical chemist, but we must differ with him in regard to the value he attaches to these guanos, and to phosphoric acid generally. He estimates *soluble* phosphoric acid as worth  $12\frac{1}{2}$  cents per lb., and the *insoluble*, at  $4\frac{1}{2}$  cents per lb. Upon this basis the "Sombrero guano" imported into southeastern Connecticut quite largely, was estimated to be worth over \$30 per ton. Many of the farmers who bought it upon this estimate, and have tried it, would not now buy it at any price,

Prof. Johnson, very guardedly says above: "*Simple calculation shows, etc.*" But we think these calculated values of phosphoric acid are not to be depended upon in estimating its real value as a fertilizer. If the phosphoric acid in Peruvian guano really constitutes the *estimated* part of the value of that material, then we admit the calculated value of phosphoric acid in other fertilizers; but *we* attribute the beneficial effects of Peruvian guano, bones, etc., mainly to the organic matters, and especially to the ammonia they contain.

The above analyses show the elements of a notable amount of sulphate of lime (plaster of Paris) in the first four specimens. This is highly valuable upon some soils and crops, while on others it is nearly or quite useless. We have seen surprising results from the use of only 200 lbs. of plaster to the acre. And here is another mode of accounting for the occasional good results obtained last season from the American guano. The use of 300 to 600 lbs. of this to the acre would furnish plaster enough to alone give good results in some cases. But farmers cannot afford to buy plaster in the form of American guano at \$30 to \$40 per ton, when the simple, unmixed plaster is abundant at \$6 to \$10 per ton.

To sum up: the American guano is recommended and sold mainly as a fertilizer abounding in phosphoric acid, and this in our opinion is of only moderate value at

best\*—not enough so, to at all warrant its importation from the Pacific Ocean. Good results have sometimes been obtained by the use of the American guano, especially where it has chanced to contain abundant organic matter, and also where it has been used freely enough to supply plaster to the soil. But the results have not been uniformly good by any means, and the present importations do not contain organic matter enough to be taken largely into account in estimating their value. Therefore, basing our opinions in part upon the considerations stated above, and in part upon the reports of the results of its use thus far, we are reluctantly forced to answer those asking our opinion, that we cannot advise farmers to purchase the American guano in quantity, until something is offered of different general character and composition from that now sold. Limited quantities of it may be tried by the side of other fertilizers.

#### "What Manures Shall I Buy?"

"If you do not advise to use the manufactured super-phosphates, or the manipulated guanos, or the Sombrero, in short, any of these mineral fertilizers, pray tell us what manure we shall buy?"

Perhaps you need not buy any. If on the better class of prairie, or on other lands where there is plenty of vegetable mold upon the surface, then a good plow and a good harrow, to break up and pulverize the surface well, so that the air may have free access to decompose the organic matter, may be the best "manuring" you can give this year. An application of Alkali, in the form of ashes or lime, mingled with the soil, is frequently good to remove sourness and hasten the decomposition of the organic materials, and prepare them to feed the plants. Alkalies are good on all cold, wet, or sour lands, wherever located.

On the poorer lands, especially in the older sections of the country, get the best *organic* manures that are accessible. Good stable manure is always the best, and usually

\* There is one view of the value of soluble phosphoric acid which we have not seen stated, viz.: that like other acids it may act as an absorber or retainer of ammonia, and so far it may be valuable to soils; and this may account for the good results obtained from the use of the soluble phosphates. But in any form in which phosphoric acid is accessible, it costs vastly more than sulphuric acid, which is a notable "fixer" or retainer of ammonia.



the cheapest, where it is to be had. Next to this we esteem finely ground *unburned* bones—not so much for the phosphoric acid they contain, as for their organic matter. We have this Spring bought of Messrs. A. Lister & Co., of Tarrytown, N. Y.,  $1\frac{1}{2}$  tons of dry bone saw-dust, for  $1\frac{1}{2}$  acres of ground which we wish to cultivate very highly.—(We mention this to show that we “practice what we preach.”)

Next to unburned bones we esteem pure Peruvian guano, the kind that costs \$60 per ton—not the “manipulated,” nor the “No. 2,” which is sold at a less price, after going through some process of reduction. This sown in the drill at the rate of 100 to 500 pounds per acre, and well harrowed into the surface, or scattered as a top-dressing, is usually a paying application. The amount per acre depends upon the poorness of soil. For high culture, as in gardens, 600 lbs. or more per acre will not be amiss.

Next to Peruvian guano, try—well, we hardly know what to recommend, for there is little else in market always worth buying at the price asked, and the transportation. There are several varieties of animal compounds, made in limited quantities, which are sometimes cheap at the prices asked for them, and sometimes not. We hardly dare recommend them for general use. Among them are: the blood and wool manure, when purely blood and wool, and not mixed up with sand; the poudrettes, when not too liberally compounded with muck, and when the excrements, from which they are made, have not been taken from cess-pools where a constant flow of water has washed out the most valuable portions. A fuller description of the fertilizers above alluded to, and others, will be given in the regular chapters upon manure.

#### A List of Wonders.

Among the thousands of marvelous inventions which American genius has produced, within the last few years, are the following, compiled in an abstract from the Patent Office Report. Read them over, and then say, if you can, that there is nothing new under the sun:

The report explains the principle of the celebrated Hobb lock. Its “unpickability” depends upon a secondary or false set of tumblers, which prevent instruments used

in picking from reaching the real ones. Moreover, the lock is powder proof, and may be loaded through the key hole and fired off till the burglar is tired of his fruitless work, or fear that the explosions will bring to view his experiments more witness than he desires.

Doors and shutters have been patented that cannot be broken through with either pick or sledge-hammer. The burglar’s “occupation’s gone.”

A harpoon is described which makes the whale kill himself. The more he pulls the line, the deeper goes the harpoon.

An ice making machine has been patented which is worked by a steam engine. In an experimental trial, it froze several bottles of sherry, and produced blocks of ice the size of a cubic foot when the thermometer was up to eighty degrees. It is calculated that for every ton of coal put into the furnace, it will make a ton of ice.

From Dr. Dale’s examiner’s report we gather some idea of the value of patents. A man who had made a slight improvement in straw cutters, took a model of his machine through the Western States, and after a tour of eight months, returned with forty thousand dollars. Another man had a machine to thrash and clean grain, which in fifteen months he sold for sixty thousand dollars. These are ordinary cases—while such inventions as the telegraph, the planing machine, the India rubber patents, are worth millions each.

Examiner Lane’s report describes new electrical inventions. Among these is an electrical whaling apparatus, by which the whale is literally “shocked to death.” Another is an electro-magnetic alarm, which rings bells and displays signals in case of fire and burglars. Another is an electric clock, which wakes you up, tells you what time it is, and lights a lamp for you at any hour you please.

There is a “sound gatherer,” a sort of huge ear-trumpet, to be placed in front of a locomotive, bringing to the engineer’s ears all the noise ahead; perfectly distinct, notwithstanding the noise of the train.

There is an invention that picks up pins from a confused heap, turns them around with their heads up, and sticks them in papers in regular rows.

Another goes through the whole process

of cigar making, taking in leaves and turning out finished cigars.

One machine cuts cheese; another scours knives and forks; another rocks the cradle; and seven or eight take in washing and ironing.

There is a parlor chair patented that cannot be tipped back upon two legs, and a railway chair that can be tipped back in any position, without any legs at all.

Another patent is for a machine that counts passengers in an omnibus and takes their fares. When a very fat gentleman gets in, it counts two and charges double.

There are a variety of guns patented that load themselves; a fishing line that adjusts its own bait, and a rat trap that throws away the rat, and then baits itself and stands in the corner for another.

There is a machine, also, by which a man prints, instead of writes, his thoughts. It is played like a piano forte. And speaking of pianos, it is estimated that nine thousand are made every year in the United States, giving constant employment to one thousand nine hundred persons, and costing over two millions of dollars.—*Baltimore Exchange*.

*From the Country Gentleman and Cultivator.*

#### Value of Corn Cobs.

MESSRS. EDITORS.—In the COUNTRY GENTLEMAN for Feb. 16. p. 113, I find an inquiry by A. W. Parsons, on the subject of corn-cobs for feed. As my mind has been somewhat exercised on that subject, I propose to give you briefly my conclusion, and the process by which I arrived at it. I had been in the habit of getting my corn and cobs ground together, as was the case with the most of my neighbors; but I was not exactly satisfied that it was a paying business, for, to look at a basket of cobs, it seemed to me that there could be but little nutriment contained therein—not much more than in a nice basket of chips. I concluded that the analysis of the cob must settle the question, and on consulting authorities, I found that according to the analysis of Chas. T. Jackson of Boston, Mass., the cob contained three and one-fourth per cent. of nutritive matter. According to the analysis of Sir Humphrey Davy, the corn contained seventy-seven per cent. of nutritive matter. Here then was a basis for calculation. If one hundred pounds of corn gives seventy-seven per cent., and one hundred pounds of

cobs gains three and one-fourth per cent., then one hundred pounds of corn is worth as much as *twenty-three hundred and sixty-nine pounds of cobs*. Well, now, thinks I to myself, that would make a pretty good sized pile of cobs. Now suppose a cow, or an ox, or a horse, to be a thinking reasoning being, and then place the two piles before them—the one hundred pounds of corn, and the twenty-three hundred and sixty-nine pounds of cobs, and tell them there is just as much nutriment in one as the other, which do you suppose they would choose? Would they not revolt, and justly too, at the idea of eating all of that monstrous pile for what little it contained. And then the wear and tear, for it seems to me it would take a cast iron stomach, or something as strong, to digest the cob.

I believe the millers generally charge more for grinding when they grind the cob, so that in reality, we pay them all, or more than all the cob is worth for their work.

I shell my corn, and use the cobs for fuel, and I think they will nearly pay for the shelling of the corn if used in that way, for they not only make a good fire, but they make a large quantity of first rate ashes, and and then the convenience of handling the corn after it is shelled is no inconsiderable item.

JOHN F. OVENSHERE.

*Bradford Co., Pa.*

#### Following the Copy.

The Printers' rule is to follow the copy if it goes out of the window. It seems that the manufacturers of England are equally rigid in their regulations and in both cases the responsibility of mistakes which sometimes occur rests with those who furnish "the pattern."

*Axes without Handles*—The Railway Review reports that the managers of the Grand Trunk Railway sent a pattern to England of the axes needed to cut wood for their road in Canada, and ordered 2500 of the articles made. The house receiving the order went immediately to work to fill it, and a few months ago shipped to the managers of the road at Montreal the axes as ordered. Upon receiving their property, however, the scientific men found that not one axe out of the 2500 had a hole in it to receive the handle. They were made according to the order—"exactly like the pattern." They have these axes for sale now in Montreal.—*New York Observer*.





## The Southern Planter.

RICHMOND, VIRGINIA.

### Editors.

It is a very general impression among "the public"—who of course are uninitiated in the mysteries of the "Sanctum"—that the post occupied by the class whose name heads our page, is one of great pleasure, profit and idleness. *The place* of all others, where a man may secure for himself position, influence and wealth—together with a perfect exemption from the *little* vexations, labors and cares which beset other people, by a sacrifice of—nothing: Honors and profits are yours without the trouble of asking for them! Oh, ye Knights of the Pen, the Scissors and the Press! *the public* must know your condition, your character, and the minutæ of your "daily walk;" the "secret springs of action" which vibrate in so many bosoms, and which are only *unknown* to yourselves: your gross receipts, and your net profits; that being, editors, you are of course rich, idle and "sassy," for the "public" has had many dealings with you, and can bring up "many witnesses," out of whose mouths must be established "a proper conclusion."

But we know that you "are not like other men," and have concluded "to bring you up to condign." In short, to give you a trial, and to "show you up" fairly.

Accordingly we abandon the Chair, and count ourselves out, to avoid personality and to secure impartiality. We claim the privilege of an outsider, and as such, proceed to help you "see ourselves as others see us."

Stand up like men, and answer to the "public's" charge—if you can.

You are, in feeling, hard and callous, for "like the old woman's eels," you are used to being "touched upon the raw."

You utter so much "copy" every day, or month, as the case may be, with no higher ambitious motive than to gain for yourself "rest

for a troubled mind," and to appease the restless inquietude of "the devil," who can subsist on no other food.

In consequence of these, your professional idiosyncrasies, you are not sufficiently alive to the censure, the praise, the utter indifference, the sympathy and kindly regards of your fellow men—*subscribers especially*.

Speak now, ye gentlemen of the craft, for we will question you, and tell us if there be a man among you who has not felt his bosom swell, his breathing grow short, and a strong desire pervade his right arm to grasp the hand of some honest, manly fellow—one of Nature's noblemen, who has given you evidence of his capacity "to feel another's woes," by making you the recipient of an unsolicited and unselfish kindness? Wipe the ink from your faces, that when you answer we may see whether truth is patent as your mouth opens. We have an *interest* in you—no matter what your condition is, and will give you the suggestions appropriate to your case, kindly volunteered by Mr. "Worldly-Wise," for the present occasion.

As you do not conceal the fact that you are often "seeking rest, and finding none," we cannot help wondering whether such men be "sinners above all these," whose "lines are cast in pleasant places."

What right have you to lead a life of self-denial or industry; to work for the "common good," and the benefit of every class in the community? Can't you attend to your own concerns, and let other people's business alone? 'Twould better suit the spirit of this progressive age not to be so "old foggyish," and to "take it easy."

You do feel *anxious*, do you, about your "Table of Contents," and the "opinion of the world?" How can you be so *nervous*? You should preserve a "stiff upper lip" and a more independent equanimity.

You feel *irritated* and *mortified*, too, whenever you catch a gratuitous "fling," or get an undeserved kick. Why don't you *always* cherish a more *Christian spirit*? Your flesh is weak; then in these times of *muscle* try to be more *manly*.

You do not fill your columns up with a sufficiency of *original matter now*, and *sometimes* you talk too much.

Because you are inclined to the opinion that "there's nothing new under the sun," is that any reason why any one man, in this "free country," shouldn't think the other way, or both ways, if he chooses?

Again, who wants a paper filled with your thoughts and egotism, when you can present a sheet filled with the very best thoughts of "others," which you can arrange by labor and good sense, artistically, to suit every body? You have only to *select* the matter, that is all.

Why should you, (who are only an Editor—one of that class who should *feel* nothing, *know* every thing, and *want* little.) feel concerned about your list of *non-paying subscribers* to whom you have sent your paper regularly for years perhaps? Don't you know that they have only "*taken it*" to "*encourage you*?" Why be concerned at all about the state of your *family*? Are they not participants of your fortunate lot; can't you blot out from your remembrance the fact, that your exchequer is empty, that printers will want pay for sending your papers to those who "*encourage*" you, that "*bills payable*" must be "*met*," if they can't be conquered; and that you must "*renew*" when you can't "*take up*;" that "*the devil*" will creep close to your elbow again, crying "*copy*," while an echo from a "*delinquent subscriber*" replies, "*copy if you dare!*" Can't you, I say, very easily dispose of all these little troubles by—going to sleep. Go on, then, and we will give you a *murmuring lullaby*.

We suppose we know something of you now, since we have questioned and examined you closely; and we think you are a "*hard set*," entitled to a "*hard lot*" by "*force of position*"—but time fails and we must draw our labors to a close. We have given you "*a patient and impartial hearing*;" and having mingled with that great world outside of the "*sanctum*," while we were not overburdened by the weight of our "*working clothes*," we have taken upon us that broad mantle of Charity, which she ever keeps to lend—the folds of which we spread over you. Having thus covered up your multitude of sins, our heart softens and goes out toward you, and from its inmost depth arises a warm aspiration for your happiness here and hereafter: since we are inclined to believe it is possible that you may be "*more sinned against than sinning*," and that sometimes you may offer excuses for, and explanations of imperfections which are human: that your lot will be much improved when "*the wicked cease from troubling*," and your "*form*" is "*set up*" in a better "*case*" on high.

We leave the *end* to turn to the *first cause* of all complaint against you. As a skilful physician could not expect to cure the disease while the

cause remains, so we have little hope of beneficial results from the kindly suggestions herein offered, unless we remove that "*stumbling block*" which causes our "*brother to offend*." Therefore, we say to all *unreasonable, non-paying subscribers*,

*"Delinquents on the Printer's books  
Can never enter heaven."*

### Attention Farmers.

You would confer a great favor on the editor of this paper, and we verily believe would do much good to one another, if you would write regularly your experience in your farming operations.

Men who have never written a line for us, or any body else, so far as we know, complain that we do not have "*communications enough from Virginia farmers*." Whose fault is it, we would ask, if we do not? We have begged you to write—we have printed what is written, and like "*Oliver Twist*," we have always politely asked "*for more*."

Gentlemen, it lays with you to provide the proper remedy, and to take away a reproach that criminales every one of you who can gain access to paper, pen and ink. Again we say unto you, *write! WRITE! WRITE!*

### The Virginia Farm Journal.

Mr. Crockett has announced already the discontinuance of this paper, and the arrangement made with us to supply those, whose subscriptions to it are unexpired, with a copy of the Southern Planter in its stead.

It remains for us to express our sincere regret, that the *Journal* should be discontinued for the want of sufficient support; it was well edited, published weekly, and offered at the low price of \$2 per annum.

It is mortifying to know, that while *Virginia* furnishes subscribers enough to papers published out of the State to support half a dozen good ones at home, she has ever dealt with a close band with those of her own sons. We do not find fault with the support extended by our own State to several papers we could name, which are published beyond her borders—they are worthy of it, and so highly do we esteem them, that we would to-day subscribe for them, did we not enjoy the pleasure of reading them regularly, through the courtesy of their editors, offered through the customary exchange. But, in all candor, we are sorry that there is so much truth



in the proverb, "A prophet is not without honor save in his own country."

We shall mail the present number of the "Southern Planter" to the address of each subscriber furnished us by Mr. Crockett—except those who are already subscribers to our paper. If these gentlemen should wish to have two copies of the Planter sent them, they will give us notice, and we will cheerfully furnish them.

We request the favor of those who do not like the arrangement, to notify us at once to discontinue it.

### Super-phosphate of Lime.

As it has been a matter of controversy lately, among some of our agricultural brethren, as to the merits of super-phosphates as manures, and the quantity of water which they may or should contain, without being subjected to a charge of adulteration, on account of their per centage of water, we publish the following article from the Charleston (S. C.) *Mercury*.

Messrs. Rhett & Robson are the agents for "Rhodes' Super-phosphate," and have published in the *Mercury* the analysis of an average sample of this manure, made by G. A. Liebig, of Baltimore.

For ourselves, we must candidly say, that we have had a very limited experience with super-phosphates of any kind; but as we are entirely convinced of the necessity for supplying the soil with this ingredient, so important to most of our crops, in some available form, we expect to become "better posted" by-and-by.

We are glad to say we follow farming for a livelihood, and *because we love it as a profession*—therefore, we say to all farmers, we are proud to be ranked "as one of them;" and we shall advise no man to follow where we would be afraid to lead. Perhaps we spoke too fast in saying "to all farmers"—we acknowledged "equality and fraternity"—for we are sorry to say, that in this time-honored profession, may be found specimens of the idle, lazy, and "old foggy" class of men; some who "don't take the papers," and who by neither any force of example, precept, or sympathy, extend aid to the zealous supporters of agricultural improvement. We believe that "farming will pay," and that the judicious expenditure of money upon the lands, for reasons based upon common sense and the experience of prudent, sensible men, and the scientific developments of the present age, will as surely lead to increased profits to the farmer, as

any other class can reap from capital employed in other callings.

If we are wrong, we shall have the penalty to pay, as we don't expect to abandon this idea, or a farm, as long as we may continue in possession of "one red cent."

While we strongly urge upon all farmers the propriety of using all manures which may increase their crops or benefit their land, at the same time we commend caution, and prudent experiment on a small scale, with concentrated fertilizers, until they ascertain whether they are adapted to their particular soil, since there can be no doubt that the same article produces different results in different soils.

We are well aware of the fact that there is an incidental benefit to B. M. Rhodes & Co. in copying the article referred to, and we do not wish to be understood, in any sense, as the partizan of their super-phosphate, or the partizan of any concentrated fertilizer whatever. On this subject every man must form his own opinions; but as Dr. Liebig, from his position as an analytic chemist, must be considered as competent authority, we publish his letter as instructive on the subject of super-phosphates generally.

*Mr. Editor.*—We hand for publication a report from Professor Liebig, of Baltimore, on Rhodes' Super-phosphate Lime, which will be found of interest to those who have used it—as correcting some erroneous impressions, and also giving some suggestions as to its mode of application.

The extensive use of guano and artificial fertilizers, and the worthlessness of many, render it necessary that the planting interest should be protected against imposition, and secured in getting them of the uniform quality and standard they are represented to be. This can only be done by subjecting samples, taken indiscriminately from parcels, after arrival here, to analyze by chemists of established reputation here and elsewhere. This report fully confirms that of Professor Sheppard, published some time since, from samples taken from the same lot of 1,500 barrels in our warehouse.

Respectfully,

RHETT & ROBSON.

Baltimore, 67 South Gay Street, }  
April 13th, 1860. }

REPORT OF ANALYSIS OF RHODES' SUPER-PHOSPHATE,  
FOR MESSRS. RHETT & ROBSON, CHARLESTON, S. C.

A sample of the above, averaged from a lot of 1,500 barrels, was sent at my office, and found, upon analysis, to be composed as follows:

|   |        |
|---|--------|
| Sulphuric acid.....                         | 26.58  |
| Lime .....                                  | 22.12  |
| Phosphoric acid.....                        | 20.33  |
| Phosphate of iron and alumina. ....         | 0.61   |
| Chloride of sodium.....                     | 0.41   |
| Water chemically combined.....              | 18.59  |
| Water as moisture.....                      | 5.76   |
| Sand and carbon.....                        | 5.60   |
|   | 100.00 |
| Which constituents are combined as follows: |        |
| Biphosphate of Lime.....                    | 14.70  |
| Containing of Phosphoric Acid..             | 8.92   |
| Containing of Lime.....                     | 3.52   |
| Containing of Water...                      | 2.26   |
| Free Phosphoric Acid.....                   | 15.79  |
| Containing of Phosphoric Acid..             | 11.41  |
| Containing of Water.....                    | 4.38   |
| Sulphate of Lime hydrated.....              | 57.13  |
| Containing of Sulphuric Acid..              | 26.58  |
| Containing of Lime.....                     | 18.60  |
| Containing of Water.....                    | 11.95  |
| Phosphate of Iron and Alumina.....          | 0.31   |
| Chloride of Sodium.....                     | 0.41   |
| Sand and Animal carbon.....                 | 5.60   |
| Moisture.....                               | 5.76   |
|   | 100.00 |

The free Phosphoric Acid in this article, amounting to 11.41 per cent., is equal to 18.80 per cent. of Super-phosphate of Lime, rendering the whole amount to thirty-three and a half per cent. of Super-phosphate of Lime.

These numerals speak for themselves, and show that this article represents the most concentrated Super-phosphate manufactured from Bones, which is the most reliable and uniform source for Phosphoric Acid.

The well-deserved name, "Standard," which this Super-phosphate has attained, since its first introduction to its present position, is owing to its great uniformity.

The results which I have obtained by analyzing many samples, either sent to me from different sources or drawn by myself from the different agencies, and indeed from the factory itself, correspond so nearly, or are within such limits, as only can be maintained by the greatest possible care and attention in the management of so large an establishment.

In a sample which I took warm and smoking from the workmen of the establishment, not waiting for the usual drying process, I found the amount of Super-phosphate to be 26 per cent. (26.) This is the lowest of all samples which I have analyzed.

The large increase in the consumption of this article, and, consequently, the increasing demand, has made necessary the building of a second mammoth series of oil vitriol apparatus, which is indeed the best proof of the value of this fertilizer.

I have observed in a Southern paper that the water determination has given rise to attack and suspicion of adulteration. One who is not acquainted with chemical formulas, might well be surprised by the apparently high per centage

of water. We will only remark that they must make a distinction between chemically combined and mechanically mixed water.

The super-phosphate of lime belongs to that class of salts whose very existence is dependant on a certain per centage of water chemically combined. It is impossible to produce this salt with less than 15.38 per cent. of water in chemically pure state.

The driving of the water, which is only possible by calcining at a high heat, would totally alter the nature of the salt by forming a glass, consequently cease to be a soluble super-phosphate of lime, therefore the advantage gained by treating bones with sulphuric acid would be entirely lost. (See Berzelius' Chemistry, p. 407, vol. 3.)

All finely powdered substances are hygroscopic, that is, they draw with avidity moisture from the air; therefore every finely powdered biphosphate of lime, coming dry from the factory, will absorb water from the air, and cannot be found with less than four per cent. of hygroscopic water.

I do not think it inappropriate here to say to you a few words in regard to the application of these manures.

The English and Belgians sow but one-third the quantity of super-phosphate intended for a field, and spread the other two-thirds when the plants are beginning to sprout, or when they have appeared above the surface.

The advantage to be derived from this method is two-fold: 1st. The exposed super-phosphate being in contact with the atmospheric air, will have much greater opportunity of absorbing ammonia from it. 2d. Rain and dew dissolving the super-phosphate, it descends below the surface, and none of this valuable fertilizer will be lost, as the fine fibres are ready to absorb it by this time.

I feel convinced that no farmer desirous of improving his land and increasing his crops, ought to be afraid of the trouble, or to make at least a trial in this method of applying this invaluable manure.

G. A. LIEBIG, Ph. Dr.  
Successor to Dr. Charles Bickel.

*The Southern Field and Fireside* is an able and interesting family paper, filled with matter beneficial, amusing and instructive to both the old and young members of the family circle. Published at Augusta, Georgia, weekly, at *Two Dollars a year in advance*.

Our schoolmate, Jno. R. Thompson, Esq., the talented and well-known editor of the *Southern Literary Messenger* for many years, has gone into the Editorial Corps of "The Field and Fireside," and we do most cordially recommend this paper to all our Southern friends, "and to the rest of mankind."



### Z. Drummond, of Amherst.

The venerable agriculturist whose name heads this article is no more. He has been a subscriber to the Southern Planter probably from its commencement, and there is scarcely a volume, until within the last two years, when probably prevented from writing by advanced age and increasing infirmities, which does not contain one or more sound, practical and instructive articles, on some well-chosen subject in agricultural economy, from his facile pen. For many years he was a constant contributor to the agricultural department of the Lynchburg Virginian, and his valuable communications did not fail to invest that always well-conducted paper with additional interest for the country reader, even when in its palmyest days, it could well boast as its editor the gifted and lamented Toler!

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*Our Farm of Four Acres, and the Money we made by it.* New York: C. M. Saxton, Barker & Co. From James Woodhouse, Esq.

The peculiarity of this book is the plain common sense shown in it.

Two ladies leave London for the country, and manage by skill, attention and economy to obtain a larger share of health and comfort from a little farm of four acres than could have been believed possible. Their experience is pleasantly recorded. In well-written English they narrate how they learned with difficulty to make butter, to keep cows, pigs and poultry; they give valuable recipes for making bread, curing bacon and managing a kitchen, garden, and wind up the book by showing how cheaply a pony can be kept in the country, and how much comfort there is in having one.

We commend the book to our readers; if they do not require the instruction, it will at least amuse and interest them. One lesson all may learn from it, for it is the central idea of the book—if you wish business well done, do it yourself.

### Flint's Milch Cows and Dairy Farming.

We tender our thanks to Chas. L. Flint, Esq., the Secretary of the State Board of Agriculture, Massachusetts, for a copy of the last edition of this very valuable book. We think every cattle breeder should have it, as it is sold at a moderate price, (\$1.25,) and contains a great deal of useful information on every subject connected with the dairy, breeds and management of cattle, making and preserving butter, &c., &c.

*For the Southern Planter.*

KING & QUEEN CO., VA.

Mr. Editor: I have a nursery of young fruit trees which have looked well and flourishing until recently. They are infected with small bugs or lice, similar to those on cabbage in fall of the year. They must, from appearances at present, kill all, or at least, nearly so, and thus end my crop of trees for one year. I have closely examined and watched them, but failed to discover their origin. I observe very many small redish bugs, called, I think, the "lady bug," also a long, ugly fly. Will you, or some other friend of the farmer, tell us the name and description of bug or insect that propagates these vermin?—we may thus destroy them by a strike at their origin—and oblige,

A FRIEND.

We hope some of our friends engaged in the nursery business will reply to this query, and oblige us—Ed.

### Erratum.

In Mr. Hill Carter's address, published in our May number, an important typographical error occurs, which the reader will please correct. Page 274, 3rd line from the top, for pure white "lands" read sands.

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We return our sincere thanks to H. I. Smith, Esq., for a present of asparagus, which was very acceptable, and which we disposed of as he intended, by filling up the gaps in our ribs. *Thirty stalks of this asparagus weighed only half an ounce less than five pounds.*

### Substitute for Guano.

The late Professor Johnston of Edinburgh proposed the following recipe as a substitute for Guano:

|   |          |
|---|----------|
| Seven bushels of bone dust, . . .           | 315 lbs. |
| Sulphate of ammonia, . . .                  | 100 "    |
| Pearl ash (or 80 lbs. of wood ashes,) . . . | 30 "     |
| Common salt, . . .                          | 80 "     |
| Dry sulphate of soda, . . .                 | 20 "     |
| Nitrate of soda, . . .                      | 25 "     |
| Crude sulphate of magnesia, . . .           | 50 "     |
|   | 610 "    |

### The News,

Published at Independence, Va., by Thomas Pugh and Lundy, a weekly journal, neutral in politics. Price, 1.50 in advance.

We place on our exchange list and tender our cordial greetings, and best wishes to the publishers.

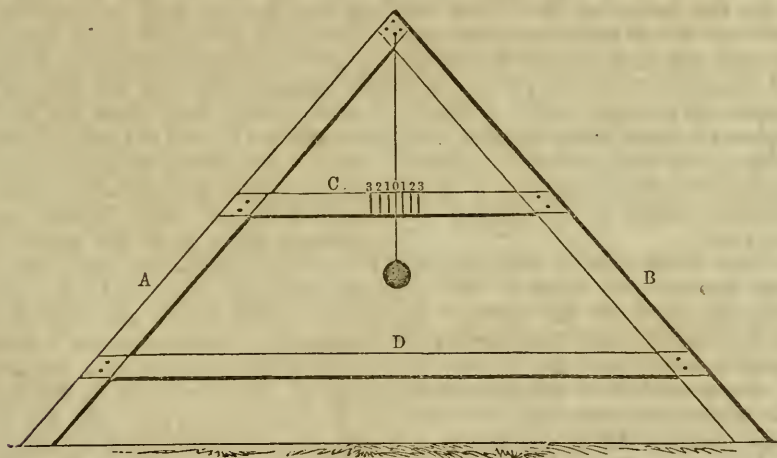
### Horizontal Culture.

DR. CLOUD —*Dear Sir*:—There are many things to be taken into consideration theoretically and practically applied to lands that are waving, or, in other words, that are hilly, and need bringing to a level, in order to retain the soil.

The first thing to be done is branch-ditches, conductors, to be cut as straight as possible with the spade, and large enough to hold all the water that the hill-side ditches may empty into them, this done, the next thing is the hill-side ditches, these will require some skill, patience and knowledge; but before you can commence, you must have some kind of an instrument to measure the grade for the ditch, for this I have found nothing to surpass the rafter-level.

The first thing then is the construction and description of an instrument absolutely necessary to lay off the work correctly—the opinion of many that they can lay off as good a ditch or run as level a row by the eye, to the contrary notwithstanding. Take

two strips of plank 1 inch thick, 3 inches wide, and 8 feet long, put them together at one end by letting into each other at such angle as that the other ends will be just 12 feet apart from outside to outside, and take 2 other strips of the same width and thickness and of sufficient length, and let the end of one into the piece, one-third from the top, or crown, and the other end one-third from the foot of the opposite or other side piece. The other piece must be let in the same way from the opposite side piece which will cause them to cross each other, where they must be let into each other, the whole put together with inch screws firmly. Then draw a line from the outer corner of one foot to the outer corner of the other, mark and saw off, this will make the instrument flat on its feet, when raised upon them. It should have two good coats of paint to protect the wood from the influence of the weather. You can either attach a spirit-level to it, or you may use plumb and line; (I use the plumb,) fasten the line at the



crown of the instrument, and on a strip attached to the underside of the two braces straight across from one to the other, get your level marked by placing the instrument on some level surface; to get the grade marks, place a block one inch thick under one of the feet, then mark the inch under your plumb line, and so on until you get as many inches either way as you desire. Now the instrument is ready for operating with.

The next thing is to lay off the hill-side ditches—examine the hill or slope that you wish to operate on, consider where the ditch

ought to commence, where it should run and where it should empty, so as to have the ditch where it ought to be, but at no time give your ditch less or more fall in order to get it empty at a certain place, always commence the ditch some distance above all the washes in the land so as to stop all the water that collects and carries off the soil. But if there are any gullies in the field you wish to hill side ditch, first fill them up so as you can more readily cross them with your ditch.

You can commence your ditch either at the emptying place, or at the top or upper



end of the ditch. With new beginners, they had better begin at the top and carry the grade down. First select your place to begin, all ready on the spot, a good plowman with a good strong mule and good turn-plow. Now commence laying off your ditch and let the plow follow after you. The first three strides of your level give three inches fall to a stride, (without there should be a large quantity of water caught at the start,) then give one and a half inches every strike for the first 200 yards, if your ditch is longer, (though it should not be if it possibly could be avoided,) the first 100 yards give one inch, and the next 100 yards half inch. If your land should be very sandy, give less fall, and make the ditch wide with a high bank. Now your ditch is laid off, it has but one furrow, have another good plowman with a good and large turn-plow and strong mule; have this plow, or as many more as are necessary, plowing out the ditch. Run three furrows close and deep as mule can well pull the plow, above the first furrow or the furrow that the ditch was laid off with, which will make four furrows, and in the fourth furrow run another furrow in order to get the ditch the deepest on the upper side. Always in plowing out the ditch, throw the dirt to the lower side; to do this, you will always have to drag back the plow, without you should be fortunate enough to be supplied with hill-side plows.

For every hundred yards, after the first hundred, increase your ditch in size one furrow in the width for the bottom. Say for the first hundred yards four furrows, for the second hundred yards five furrows, and so on. The great fault of many in making hill-side ditches, they make them too small, they soon become filled up, break and do much harm to the land in the way of making gullies, carrying off the virgin soil, &c.

In laying off hill-side ditches, there are many things to be kept in consideration, the quantity and force of the water, that will fall into the ditch that you are about making, you will have land that has but little descent; then in a few strides it will be steep and full of gullies that you have previously filled up, here give your ditch more fall, especially when you cross the old gully, in order to run off more readily, for at all such places the water comes quicker and with more force into the ditch. Con-

sider the quantity of water that will flow into your ditch at the heaviest rains that may fall on your fields, and make your ditches accordingly. Now your ditch is laid off and plowed out the first time, and the hoes should follow and drag the plowed up dirt out of the ditch, bringing it all to the lower side of the ditch, this done, cause the plows to follow after the hoes and plow out the ditch again close and deep with one furrow less; but be certain to run the extra furrow in the last furrow on the upper side in the bottom of the ditch—this will cause the ditch to be deeper at the upper side than the lower side, which is a very necessary thing, so as to cause the water not to bear too heavily on the fresh bank below. Now cause the hoes to draw the dirt out of the ditch the second time. At this time you may, and generally can, complete the ditch, have the loose dirt, and all bumps that may be in the bottom of the ditch dragged out clean, roots and grubs cut out smooth, large stumps and trees you can shun by observing them in time, and grade and make the ditch so as not to wash or break over at them, or by the alteration that you will have to make. Leave nothing close about the ditch that may fall into it, such as brush, old grass and weeds. Be certain to make your ditch large enough to carry off all the water that may fall into it. Make it wider and with a stronger bank at all the gullied places, for at these places the water will always come with some force, and here the ditch is more apt to break, and when broken it becomes very troublesome, for it washes out the old gully that you have laboured hard to fill up, then your work in this line is all to do over, and you have less dirt to do it with, also your ditch bank at this place is to make up again. Always recollect hill-side ditching is worth doing; and "what is worth doing, is worth doing well."

Your ditch is now completed. Now you must consider where the next ditch will be necessary. Here you must exercise some judgment; first consider the quantity of water that falls at the heaviest rains, and the distance below the ditch that you first laid off that the water will commence carrying off the soil, (*i. e.*, the surplus water that your runs will not retain,) here, as near as possible, make your next ditch, and so on until you make all the ditches necessary on this slope or hill-side, and also

wherever a ditch is needed in the field, or in any field that you have, until you have every spot of ground in your plantation that washes the least, or is likely to wash, protected by a hill-side ditch. Here I would remark, the proper time to hill-side ditch your land is when it is just cleared; whenever you have your new ground ready for the plow you should first lay off and make all the hill-side ditches that shall ever be needed—this done, the next thing is to run off your land in rows to a perfect level, and ever afterwards keep them so.

Having your field or fields hill-side ditched, the next thing in consideration is the level or horizontal culture, or the means by which to arrive at it. Take your instrument where you wish to commence laying off your rows, have a bull-tongue plow this time to run off with. It is best to commence near the top of the hill; be certain to commence so as to catch all the rolling water. Start with your level, carry it to a perfect level, cause the bull-tongue plow to follow after you, run on until you come to a ditch, do not cross it with your rows, for if you do the plows will soon fill it up; but when you get to the ditch your first guide row is done, then go twenty, thirty, or forty yards according to the slope, the steeper the closer the guide rows must be. So, at the proper distance commence your second guide row, run as the first, and so on until the field or the whole of your plantation is levelled. You may start plows to laying off as soon as you get two guide rows run; but it is best to run all your guide rows first, so that when you commence laying off you can be there with your plows to detect any errors, and be ready to run in new guide rows that may be needed in filling up between the first ones.

In laying off the rows, give each hand (plowman) a rod just as long as you wish the width of your rows, so they may have a guide; they will soon learn the proper width by the eye. Cause one plowman to commence laying off rows on the lower side of the guide row, and one on the upper side of the guide row next below—so as between every two guide rows, the laying off will meet in the middle. This they will do first at places where there is more slope in the land, and at more level places there will be corners that must be run off; these will be mostly short rows. If by this time the level is lost, you must run in more level or guide

rows, and lay off from them so as to have all your rows from one end to the other on a perfect level; and in this way continue taking up the guide rows until your field is completed, or the whole of your plantation is put in rows to a perfect level. There is an opinion among many that this cannot be done, it is impossible, they think, to get every row from one end to the other to a perfect level. It can be done, and should be done by every farmer that cultivates hilly land; but to do it requires a great deal of patience, and a strong determination that there shall not be the least wash in his plantation. Keep land, in this portion of the country, from washing and it increases in the ingredients that give food to plants, for the soil has a self-sustaining principle, and cannot be *worn out*, if well hill-side ditched and cultivated on a level with a proper rotation of crops, and those crops cultivated in accordance to the laws, that naturally govern each and every plant that we cultivate. For an example take a poor hill side, that is almost murdered, ghost-like staring you in the face, put it under a proper system of horizontal culture—when you plow, plow deep and on a level; how soon it is reclaimed. Nature will do her part, and soon, instead of a gullied and galled hill-side, you have one that will produce good crops. The great object in view is to retain the rain water where it falls out, so as to have food in store for the plants during drought.

To keep your level or guide rows, in laying off the rows, the one next to to the row that you run with the level, make a little wider than the usual width of your rows, and when you sow the land in small grain, or break it up, lap two furrows on your guide row. This ridge will remain distinct; so when you wish to run off the land in rows again, you will not have to run off guide rows. Always plow to a level, and never plow across the hill-side ditches. Empty all your hill-side ditches into your conductors; by no means ever let them empty under the fence into the road. This makes a hog hole, and soon ruins the road. If you should have a ditch running the same course of the other ditches that cannot reach the conductors, let it empty into a hill-side ditch that does empty into a conductor.

I have, in a hurried manner, written out the plan (by which I have been operating for the last seven or eight years, on the plantation where I have been doing busi-



ness,) of Horizontal Culture. Land that I could make produce but two to three hundred pounds of cotton per acre, now produces over one thousand pounds per acre without one speck of manure.

DANIEL WOFFARD.

REMARKS BY THE EDITOR.

The foregoing excellent, because practical article, though not written in that *bellettre* style, that may please the fancy of some readers, is eminently worthy of the study and adoption of every man in this country who cultivates but ten acres of land. Mr. Woffard understands the philosophy and true principle of properly placing land under the *level culture system*. Every position is distinctly taken and clearly described, so that no practical man need err in its application on the field. All of our old subscribers will distinctly trace through all this article the teachings of the "Cotton Planter." Years ago, (in 1844) when we put the level on our rows at LaPlace, but one writer, (Mr. Hardwick; of Georgia,) that we now recollect, stood firm with our position. Why did we take that (then extreme) position?—The answer is found in this sentence from our correspondent, viz:—"The great object in view is to retain the *rain water, where it falls out*, so as to have food in store for the plants during drought." Mr. Woffard is a manager or overseer, and has, by this system, on the land of his employer, in the short space of seven or eight years, so improved it, that on land which produced but 300 pounds of seed cotton when he commenced operating on it, now produces, under this level culture system, *that retains rain water where it falls*, one thousand pounds of seed cotton. It is not surprising that such an overseer should have remained thus long in the management of the same plantation. Every plantation in the cotton States can be treated in the same manner and to the same advantage. The comparatively level not less than the hilly. So level your culture and deepen your plowing whether on level or hilly land, as to retain the rain water where it falls!—*From American Cotton Planter and Soil of the South.*

Common sense can accomplish much without talents; but all the talents in the world can accomplish very little without common sense.

*For the Southern Planter*

To the Vine Growers of the United States.

At a late meeting of the "Aiken Horticultural and Vine Growing Association," it was resolved: That a committee of five be appointed to open a correspondence with the various Vine Growing Associations in the United States, and to ascertain the practicability of holding a Vine Growing Convention in Aiken some time next summer; and if found practicable and expedient, that the committee take such measures to secure this object as they may think proper, and that they report the result of their proceedings to this Society at its meeting in May next.

The following gentlemen were appointed the committee: Messrs. A. DeCaradeuc, Chairman; McDonald, Ravenel, Redmond, and Wood.

It is perhaps proper to state the object of the Association in proposing such a Convention, and to point out a few of the advantages to be derived from it. In the first place, it is necessary to come to some understanding about the names of the Grapes now under cultivation, as it is evident that great confusion exists in that respect. Most of the vines being known in different places by different names; the Black July, for instance, having five synonyms. Thus it often happens that a Vine Grower reads or hears great praises of a Grape whose name is unknown to him, and a description of which tallies with none that he has; he procures it at great expense, cultivates it with care for two or three years, and ultimately discovers it is identical with some other he has had a long time. This is discouraging, and has deterred many from procuring new and valuable varieties, which it would have been advantageous to have cultivated more or less extensively. This difficulty can only be obviated by a Convention such as is proposed—the best written description never being so lucid as to convey an exact idea of a fruit.

The meeting will take place at a season when the fruit at the South is ripe; all who attend are invited and requested to bring samples of their Grapes, ripe if possible, and green if otherwise, with a leaf and a piece of the wood, and names and synonyms attached. Those who cannot attend are requested to forward samples as above. Thus if we are assisted by the good will of a majority of Vine Growers, most of the varie-

ties in the States will be represented; their qualities, names, synonyms, sizes, degrees of maturity, etc., will be compared, and a vast amount of invaluable information derived. Names will be agreed upon, accepted or rejected with good authority. Persons will, also, be requested to bring or send samples of the wild grapes from their neighborhood in the same manner, that the different species may be finally determined upon and each grape properly classed under its own head or type—an object of great importance to the Botany of the country and, perhaps, finally to the making of wine from them. We are daily getting additions to our list of natives, and unless a correct nomenclature and classification be at once made, we will be thrown into inextricable confusion, expensive and troublesome to the growers. Another object of the Convention is to determine upon some manner of naming the different Wines. The present way of calling them by the name of the grape is in direct contravention to the established rules of wine growing countries. It has always been customary to classify wines by the name of a State, Province or District, with the different brands attached to them, according to the name of the particular locality. Thus the general name "Wines of the Rhine" comprises many particular brands, such as Hockheimer, Johannesberg, etc., etc. Bordeaux wines include Chateaux Margaux, St Julien, La Rose, etc. The reason for this is very obvious. The same grape will make totally different wines in different places. And, again, in most wine countries, (and we will, no doubt adopt the same course) the grapes are mixed. A wine made from a mixture of Catawba, Isabella and Warren could not be called by either of those names.

At present we have a hundred different Catawba wines, no two of them alike. Hence, the propriety of rejecting the name of the fruit in favor of the time-honored custom of naming after the State, District or River, with brands of private names or localities. Purchasers will then know at once what they are buying, and will not be prejudiced against Catawba or Warren wine, because they have tasted worthless Catawba or Warren wine.

Independently of the foregoing, the amount of information exchanged by persons meeting in such a Convention as we propose, would truly be worth "Millions to the Nation," and would tend more to develop that

rich culture than all that could be written.

We call, then, upon all who cultivate the Grape, whether for the table or for wine, or who take an interest in the success of its culture, to assist the committee in securing their object—a Convention of Delegates from all the Vine Growing Associations in the United States, and of private and separate Vine Growers. Let all who can come, determine at once to meet in Aiken, S. C., on the *Third Tuesday in August next, (21st)* there to assist in the good work—to compare their fruit and exchange their views.

Aiken has been selected as being easy of access from all quarters—North, South, East and West—being, at all times, unexceptionable as to health, and a delightful summer resort for the neighboring cities, and well provided with ample accommodations.

Secretaries of the different Associations connected with the Vine Culture, would confer a favor by forwarding to this office, or to either of the gentlemen of the Committee, the names and localities of their Societies, and all other information they may think proper.

A. DE CARADEUC, Chairman, Woodward, S. C.

Dr. J. C. W. McDONNALL, Woodward, S. C.

H. W. RAVENEL, Aiken, S. C.

E. J. C. WOOD, Aiken, S. C.

D. REDMOND, Augusta, Ga.

February, 1860.

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**MUSTARD**—The word mustard is said to have originated in the French phrase, "Moult me tarde," (I wish ardently,) which was the motto of the Duke of Burgundy. He obtained 1000 men Dijon, in return for which assistance he permitted that town to bear his armorial ensigns with this motto. The device was affixed over the principal gate; in time the middle word became erased, and the other two were printed on the labels which the merchants pasted on pots with this commodity, and sent all over the world.

---

Let each man attend to his own calling; so that decision of character may be given to the mind of the public mass.

Do not cherish any feeling of revenge or animosity, in order that you may set a proper value upon human life."





### The Rights of Women.

The rights of woman, what are they?  
 The right to labor, love and pray;  
 The right to weep with those that weep,  
 The right to wake when others sleep.  
 The right to dry the falling tear;  
 The right to quell the rising fear;  
 The right to smooth the brow of care,  
 And whisper comfort in despair.  
 The right to watch the parting breath,  
 To soothe and cheer the bed of death;  
 The right, when earthly hopes all fail,  
 To point to that within the veil.  
 The right the wanderer to reclaim,  
 And win the lost from paths of shame;  
 The right to comfort and to bless  
 The widow and the fatherless.  
 The right the little ones to guide  
 In simple faith to Him who died;  
 With earnest love and gentle praise  
 To bless and cheer their youthful days.  
 The right the intellect to train,  
 And guide the soul to noble aim;  
 Teach it to rise above earth's toys,  
 And wing its flight for heavenly joys.  
 The right to live for those we love;  
 The right to die that love to prove;  
 The right to brighten earthly homes  
 With pleasant smiles and gentle tones.  
 Are these thy rights? Then use them well;  
 Thy silent influence none can tell.  
 If these are thine, why ask for more?  
 Thou hast enough to answer for.  
 Are these thy rights? Then murmur not  
 That woman's mission is thy lot:  
 Improve the talents God has given:  
 Life's duty done, thy rest is heaven.

### Life's Harvest.

Twilight had gathered in the sheaves of day,  
 Which time had scattered thickly here and there;  
 And night, pale night, had bound them, one by one,  
 With the long braids of her own raven hair.

Silent and still, an angel floated down,  
 And bore the sheaves, the gathered sheaves away;  
 Ah! some were golden with the ripest grain,  
 And some were black and blasted with decay.

Yes, day by day we sow, and twilight comes  
 And gathers in the full sheaves, one by one;  
 And, by-and-bye, will come life's evening hour,  
 And we shall see the work our hands have done.

LIZZIE G. BEEBE.

Ohio Farmer.]

From the New York "Spirit of the Times."

### The Proof Reader.

BY "SPINNING BAIT."

Ye whom the fancy causeth to indite  
 Or prose, or rhyme, in measure long or short,  
 Think of his labors, also, as you write,  
 Whose ready eye the long correction sought.  
 With feverish care he grammar scans, and spelling;  
 The writing cramped and hurried—care compelling—  
 And words omitted, where the sense obscure  
 Puzzles his brains to place another sure.  
 Within his "den," far off from sunny ray,  
 Full oft he passeth more than half his life,  
 Or searcheth on by candle's feeble ray,  
 By changing errors to support his wife.  
 Think of his brain, how busy—and his eyes  
 That read of what he pines for—gorgeous skies!  
 Fair flowers and forms. Alas! but now and then  
 Aught save "a grimy devil's face" may greet  
 his sight,  
 Who, standing at the doorway of the "den,"  
 Shouts, "Copy, sir, nor keep us here all night!"  
 Thinkest thou, writer, whose most piercing eye  
 An error typographical may sometimes spy,  
 Of all the toil and trouble, time and care,  
 That takes to make your article thus "fair?"  
 Dost never make an error in thy haste?  
 Or think beyond the word thy pen hath traced?  
 Leaving to printers, with invention quick,  
 To find the word to fill's composing stick?  
 Ponder the cobwebs, traced in pain,  
 That young apprentices have caused him too  
 Oppressing more his ever-working brain;  
 Besides the labor he still has to do.  
 Think of all this! and if some faults you scan,  
 Reflect that he is human, poor, frail man!  
 Nor pour the "vials of your wrath" all o'er,  
 Nor haunt him till his heart is wounded sore;  
 But with a laugh—or leastways with a grin—  
 Say, "here's an error, pshaw! a venial sin."  
 Grove Hill, S. C.

THE  
**SOUTHERN PLANTER,**  
ADVERTISING SHEET.

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No. 6.

RICHMOND, VA.

JUNE, 1860.

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**Old Books Wanted.**

**J. W. RANDOLPH, RICHMOND,**

Will take in exchange for other works, any kind of old books.

High prices in cash will be paid for Burke's History of Virginia, 4 vols., or odd volumes. Stith's, Smith's, Doddridge's, Keith's, or Jones' Histories of Virginia. Any work by John Taylor, of Caroline. Robinson's Forms. Davies' Criminal Law. Acts of Virginia for 1849-50, 1850-51, or 1852. Burr's Trial, 2 vols.

---

**TO MUSIC TEACHERS AND THE LADIES GENERALLY.**

**J. W. RANDOLPH, BOOKSELLER,**

**RICHMOND, VA.**

Offers for sale 31,000 pages of standard Music, and receives regularly, every week, all the popular new pieces.

 Preceptor's Books of Vocal and Instrumental Exercises, Primers. Church Music, &c.

J. W. R. has just published Everett's New Thesaurus Musicus, which is the best book for Choirs and Singing Classes. \$1. Also Everett's Elements of Vocal Music, 50 cts., sent by mail, post paid.

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**NOTICE TO BOOK-BUYERS.**

All who are forming or adding to their Libraries would do well to send to J. W. RANDOLPH for his

**CATALOGUES**

Of New and Standard Works, published by him for free circulation. They embrace

**MANY THOUSAND**

Volumes in every department of Literature, with the date of publication, size, binding, and price of each book. These six Catalogues will be mailed to all who enclose 6 cents to pay the postage.

**J. W. RANDOLPH, Bookseller and Publisher,**  
**121 Main Street, Richmond, Va.**

April 60.



The former Firm of

## GEO. WATT & CO.,

having been this, 23d day of December, 1858, dissolved, we have associated ourselves in business, under the firm of GEO. WATT & CO., for the purpose of making and selling the WATT

## CUFF-BRACE PLOW,

With the

### BREAST IMPROVEMENT

thereon, and the

## HANOVER PLOW,

And shall keep constantly on hand a large assortment of these Plows, and Castings of these and other popular kinds, with Cultivators, Harrows, Corn or Tobacco Weeders, Hillside and Subsoil Plows, new ground Coalers, &c.

*All of which are made in our own Factory.*

Also, Straw Cutters, Grain Cradles, Corn Shellers, Corn Planters, (Caldwell's make,) and a variety of other useful implements in our line, which we warrant to give satisfaction, or be returned. We solicit a call from the Agricultural Community, assuring them that our best efforts shall be used to give them superior articles.

GEO. WATT,  
HUGH A. WATT.

Richmond, December 23, 1858.

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

GEO. WATT, PATENTEER.

Richmond, January 1859.

## City Savings Bank of Richmond CHARTERED IN 1839.

Continues to receive deposits, on which interest is paid at the rate of 6 per cent. per annum, if remaining on deposit six months, and 5 per cent. for shorter periods.

HORACE L. KENT, Pres't.

ALEX. DUVAL, Sec'y.

N. AUGUST, Cashier.

### DIRECTORS:

John N. Gordon, Samuel Putney, H. Baldwin, I. Davenport, Jr., Charles T. Wortham, Hugh W. Fry and Wellington Goddin.

Jan 1859.—ly

## R. O. HASKINS, Ship Chandler, Grocer and Commission Merchant,

In his large new building, in front of the Steamboat Wharf, ROCKETS, RICHMOND, VA.  
Sept 1859.—ly

## MITCHELL & TYLER,

DEALERS IN

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

RICHMOND, VA.

## SOUTH DOWN LAMBS FOR SALE.

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

FRANK. G. RUFFIN.

April 60—tf

## THOROUGH-BRED NORTH DEVONS AT PUBLIC AUCTION.

The subscriber intends holding his Second Public Sale of Devon Cattle, on *Wednesday, the 13th of June next*—when he will offer between 20 and 30 head, males and females, all of his own breeding, Herd-book animals, and of superior excellence. As at his previous sale, each lot will be started at a very low upset price, and sold without reserve to the highest bidder over that amount.

Catalogues containing pedigrees of the animals to be sold, and full particulars as to terms, &c., will be ready by the 15th of April, and will be sent to all desiring it.

C. S. WAINWRIGHT,

Ap 60—3t The Meadows, Rhinebeck, N. Y.

## 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 59—lv 101 Broad St., Richmond, Va.

## SHORT HORN BULLS FOR SALE.

One twenty-four months, one fourteen months, and another two months old, by different sires; the two first ready for service this year, the latter deliverable at six months old. Also calves of each sex, nearly thoroughbred, deliverable as the last. Early application is best.

S. W. FICKLIN, Belmont.

June 60—3t Near Charlottesville, Va.

## FOR SALE!

A Heifer 18 months old, one half Devon, and a Bull Calf, same breed, both very handsome animals, which I will dispose of on very reasonable terms, in order to reduce the number of my stock. Address

Dr. T. J. WOOLDRIDGE,

French Hay P. O.,

June 60—1t

Hanover Co., Va.

## REAPERS

AND

### REAPERS AND MOWERS.

As agent for C. H. McCormick, I am supplied with his celebrated Reaper and Mower, with all the improvements of 1860. This reaper has been so entirely successful for the last five years that I do not hesitate to urge its superior merits upon all wishing to purchase for the coming harvest, particularly as I can give a full guarantee that it will work well, and pledge myself to take any machine back that fails to do so. When any other machine can be obtained upon the same terms, the McCormick may be worked through the harvest with such other machine—the Farmer keeping and paying for the best machine. Let the orders come early to insure no disappointment.

I am also prepared to furnish other Reapers—the Buckeye, Hussey and Atkins' Self-Raker, Ketchum's Mower, &c.

As heretofore, I am manufacturing my celebrated Horse Power for 4, 6, 8 and 10 horses, with suitable Threshers—Threshers and Cleaners, Straw Separators, Wheat Fans, &c., Bickford & Huffman's Wheat-Drill, with or without guano attachment.

H. M. SMITH, 14 Main Street.

May 60—3t

## SHORT HORNS.

### Public Sale of Improved Short Horns, (DURHAM CATTLE.)

JAMES GOWEN will sell at public sale, at Mount Airy, Philadelphia, on WEDNESDAY, 13TH JUNE, 1860, a fine herd of Improved Short Horns, consisting of Cows, Heifers, young Bulls and Calves, bred expressly to develop the combined properties of *good milking and easy feeding*.

Mr. Gowen announces to his friends and brother breeders, that this will be his last and closing sale. The annoyances of the city restrictions that environ his farm, with a railroad running through it, constrain him to forego the breeding of cattle, with him, a long cherished and pleasing branch of husbandry.

CATALOGUES will be furnished in due time. SALE to commence at 11 o'clock.

JAMES GOWEN, Mt. Airy,  
Philadelphia.

May 60—2t

### Important to every man who keeps A HORSE, COW, SHEEP or HOG.

## THORLEY'S FOOD FOR CATTLE.

Possessing as it does the bitter and medical properties contained in Spring Grass, or Tares, or other unripe herbage, is essential to herbivorous animals, as it operates in stimulating the stomach and digestive organs to healthy actions. This compound or condiment for feeding cattle or seasoning their food, is composed purely of vegetable matter, some of which is highly aromatic. For keeping horses in good condition, it is unequalled. Cowkeepers will find great advantage, in the increased quantity and improved quality of the milk, during its use. All animals are benefited by it. Sold in casks, containing 448 mixings, with measure inclosed, with Joseph Thorley's signature burnt thereon. Price \$14, and half casks, containing 224 mixings \$7.

Consignee's Depot, 21 BROADWAY, N. Y.

May 60—3t

## NEW MACHINE SHOP.

Having completed my new Factory on Franklin Street and Walnut Alley, the whole being in connection with my

**IMPLEMENT AND SEED STORE,** on Main Street, I now invite particular attention to the facilities I have for manufacturing any kind of Machinery, and for supplying Seeds and Implements of every description.

As heretofore I shall pay particular attention to my

### PORTABLE THRESHERS,

with Horse-Power, so arranged as to require no digging or delay in starting; and shall keep Machines of the best plan and workmanship, such as Straw Cutters, Corn Shellers, for hand and horse-power. Wheat Fans, Cradles, Reapers, Hay Presses, Cedar Mills, Seed Drills, Plows, Harrows, Hay-rakes, Gleaners, Cultivators, &c.

I invite special attention to my

### PATENT STRAW-CUTTER,

which is warranted to be the best Cutter made, and is sold at the low price of \$10; also to the

### VIRGINIA CORN-SHELLER.

as made by me from the original patterns, capacity 600 bushels a day.

Repairs of Threshers and Reapers attended to promptly. Agent for

BICKFORD & HUFFMAN'S WHEAT AND GUANO DRILLS, and C. H. McCORMICK'S REAPERS.

H. M. SMITH,  
14 Main St.

Mar 60—6m

## LAND AGENCY.

As Travelling Agent for the Potomac, Piedmont and Valley Agricultural Society at Alexandria, Va., I frequently meet with sellers, as well as persons who desire to purchase land. Those having farms for sale may meet with a purchaser, by furnishing me with descriptive letters, giving number of acres and price. If a sale is effected to any person whose attention has been called to the farm for sale, by me or through my agency, my charge will be one and one half per cent on amount of sales. Persons wishing to purchase land by addressing me, stating the number of acres and price, and land wanted, can obtain any information in my possession, free of charge. When answers to letters are desired, a postage stamp must be enclosed.

J. J. HITE.

June 60—6t Lovington, Nelson Co., Va.

## FOR SALE.

### A SPLENDID YOUNG STALLION,

Sired by "KOSSUTH," and out of a thorough bred mare. He is sixteen hands high, four years old—is thoroughly broken to harness, and has received *five* first premiums.

COLOR a rich bay.

Enquire at SOUTHERN PLANTER Office for full particulars.

Mar 60.



# RUFFIN'S

## PHOSPHOR-PERUVIAN GUANO, TOBACCO MANURE, AGRICULTURAL SALT AND GROUND BONE ASH.

### F. G. RUFFIN,

CORNER ELEVENTH AND CARY STREETS, ON THE BASIN,  
RICHMOND, VA.,

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

#### RUFFIN'S PHOSPHOR-PERUVIAN GUANO,

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

#### RUFFIN'S BONE ASH GUANO,

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

#### RUFFIN'S TOBACCO MANURE.

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

#### RUFFIN'S GROUND BONE ASH,

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

#### AGRICULTURAL SALT,

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

#### AGRICULTURAL SALT,

In bags, per ton of 2,000 pounds, \$13.

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

April 60—tf

# WM. P. LADD,

No. 319, head Broad Street, Shockoe Hill,

RICHMOND, VA.

Wholesale and Retail Detail Dealer in English, French  
and American

## DRUGS, MEDICINES, CHEMICALS,

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

Fine and Choice Perfumery. Fancy Goods,  
PURE LIQUORS AND WINES,

For Medicinal and Sacramental Purposes.  
Surgical Instruments, Trusses, Shoulder Braces,  
Supporters, &c.

Landreth's Celebrated Garden Seeds,

In great variety. Also,

DRS. JAYNES' AND ROSE'S

FAMILY MEDICINES,  
MEXICAN MUSTANG LINIMENT.

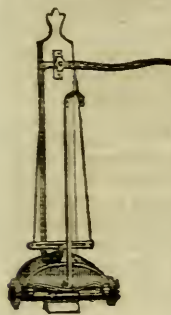
Together with all the most popular PATENT AND  
BOTANICAL MEDICINES, direct from the Propri-  
etors.

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

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

## EDNEY'S AMERICAN PUMP.

Without Packing—Without Suction.



Mar 59—tf

This Pump, patented 1859, is a  
double *acting force pump*, with-  
out chains, guide rods or pulleys,  
is the simplest, strongest, cheap-  
est Pump yet invented; can be  
put in by any one, and without  
going into the well, and raises  
from 6 to 60 gallons per minute,  
according to size; works by hand,  
water, wind or steam, and is *war-  
ranted to give satisfaction* in all  
depths, and to raise water by a  
ten year old boy 60 feet. All  
depths under 20 feet complete,  
\$18. Drawings and full particu-  
lars sent free.

Address,  
JAMES M. EDNEY,

147 Chambers St., New York.

## FOR SALE.

Six Buckshire Pigs, (from Otis E. Wood's  
Stock, N. Y.) They are thorough-bred, and  
handsome. Price \$10 each. For particulars  
apply to AUGUST & WILLIAMS.

June 60—tf

## Essex Pigs for Sale.

The subscriber has a few pure bred **Essex PIGS**  
Price \$10 each. Also some half **Essex**, out of Sows  
of "Berkshire and Grazier" stock. Price of the lat-  
ter, \$15 for two.

The best only of the litter will be sent to persons  
ordering them.

May '59.

JAMES E. WILLIAMS.



## M. I. FRANKLIN & CO.,

SCIENTIFIC AND PRACTICAL

## OPTICIANS,

OFFICE, 148 MAIN STREET,

(City Savings Bank,)

RICHMOND, VIRGINIA.

## Improved Periscopic Crystal Spectacles

Correctly fitted to the eye-sight, and warranted  
to suit.

ALSO

MICROSCOPES,

TELESCOPES, AND

OPERA-GLASSES

All with the finest achromatic lenses. MATH-  
EMATICAL INSTRUMENTS, and ELECTRICAL  
MACHINES. STEREOSCOPES AND  
STEREOSCOPIC PICTURES, in great variety,  
directly imported from England and France.

Mar 60.



No Home Without a Stereoscope!

The Wonders of the Stereoscope!

GREAT EMPORIUM FOR STEREOSCOPES  
AND STEREOSCOPIC PICTURES,

Continually supplied with novelties from Lon-  
don and Paris, at the lowest prices. Wholesale  
or Retail, at the

## STEREOSCOPIC BAZAAR,

148 MAIN STREET,

(City Savings Bank,)

RICHMOND, VIRGINIA.

M. I. FRANKLIN & CO., Opticians.



# PHOSPHATIC GUANO,

## FROM THE ISLAND OF SOMBRERO, West Indies,

### THE RICHEST DEPOSITE OF PHOSPHATE OF LIME KNOWN TO THE WORLD.

By a careful analysis of an average sample of different cargoes, the annexed eminent Chemists have found this remarkable deposit to contain of Phosphate of Lime, as follows:

|   |                         |   |                |        |           |
|---|-------------------------|---|----------------|--------|-----------|
| By PROFESSOR HAYES,                                   | Boston,                 | - | of 1st Sample, | \$9.60 | per cent. |
| "   | "                       | - | 2d             | "      | \$9.20    |
| " REESE,  | Baltimore,              | - | 1st            | "      | 85.14     |
| "   | "                       | - | 2d             | "      | 86.60     |
| "   | "                       | - | 3d             | "      | 72.04     |
| "   | "                       | - | 4th            | "      | 72.04     |
| " CHILTON,  | New York,               | - | 1st            | "      | 86.34     |
| "   | "                       | - | 2d             | "      | 84.92     |
| " PIGGOT,   | Baltimore,              | - | 1st            | "      | 76.85     |
| " HUSON, Liverpool,                                   | England,                | - |                | "      | 80.20     |
| " DECK,   | New York,               | - | 1st            | "      | 88.00     |
| "   | of a selected specimen, |   |                | "      | 98.25     |
| " MAUPIN & TUTTLE, University of Virginia,            |                         |   |                | "      | 85.16     |
| " WILLIAM GILHAM, Military Institute, Lexington, Va., |                         |   |                | "      | 83.40     |

Thus proving it to average the richest deposit of Phosphate of Lime known to the world.

Pure Bone Dust contains but 55 or 56 per cent. of this important Phosphate; hence a comparison of the relative value of the two, will at once show which is the most desirable for Agricultural purposes.

Guanos are of two distinct species—those in which the Phosphates of Lime predominate, as in Sombrero, and others; and those in which Ammonia predominates, as in the Peruvian. Experience and theory establish the fact, that Ammonia and Phosphate of Lime are essential ingredients for a general fertilizer, and, consequently, for general purposes, a proper mixture of the two is recommended: whilst the Peruvian and other Ammoniated Guanos, are mere *stimulants* or *quickeners* of the soil, the Sombrero and other Phosphatic Guanos, are permanent fertilizers, but of slower action and less perceptible effect the first year, unless aided by some stimulants. Hence the great importance of combining the two in proper proportions, which, if done, makes the best, most convenient, and economical fertilizer known. Assuming the cost of Peruvian Guano at \$62, and Sombrero at \$34 per ton—and with one-quarter of the former, mix three-quarters of the latter, (*which proportions are recommended by experienced Farmers*), it gives, at a cost of about \$41 per ton, a fertilizer far more valuable and permanent than the Peruvian alone. The agriculturist need only be reminded of the nature of the two predominating ingredients, in the different species of Guano, to enable him to understand the proper mode of its application. Whilst Ammonia (in the Peruvian) is liable to evaporate or rise, Phosphate of Lime (in the Sombrero) is heavy, and liable to sink below the reach of the roots of plants. Therefore it should be either deposited in the hill, or drill with the crop, or used as a top dressing, in the proportion of from 200 to 400 lbs. to the acre, according to the wants of the soil. If used as a top dressing, the Spring is the best time, when the crop is assuming its strength and sustenance, as, at that time, the benefit of the Ammonia is less likely to be lost than if used in the Fall or early Winter.

### EDMOND DAVENPORT & CO., Agents.

#### RICHMOND, Virginia.

It can also be obtained of A. GARRETT, E. WORTHAM & CO., DUKE & HUTCHINSON, and E. H. SKINKER, Richmond.

Feb. 1, 1858.

## CO-PARTNERSHIP NOTICE.



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

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

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

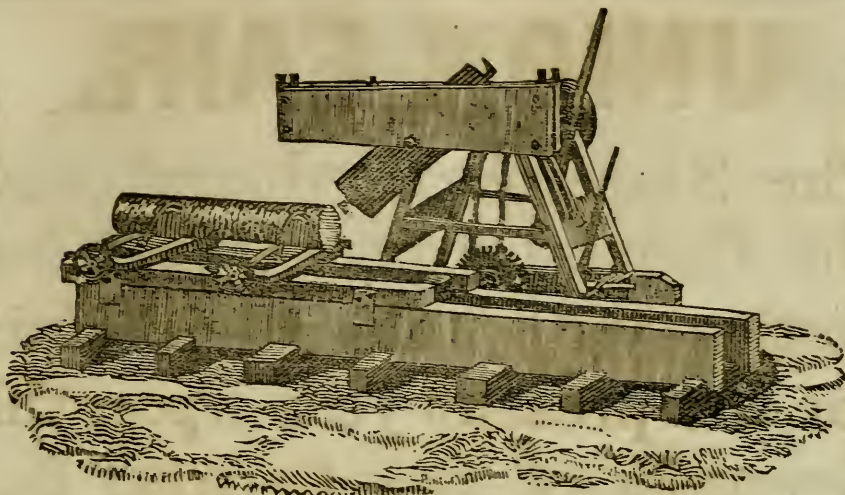
Feb 1859—1y

SAMUEL S. COTTRELL.



HAW'S IMPROVED

PECKER SAW MILL.



The above cut is a representation of J. HAW'S Pecker Saw Mill.

It is simple in its construction, very durable; and is well adapted for plantation sawing. It will saw with from 4 to 6 horse-power from 1,000 to 1,500 feet per day, if properly managed. The carriage is 24 feet long, and will cut logs that will square to 21 inches, and cuts all kinds of timber. The timber is inserted in the oblong plate, and can be renewed when worn out.

I have given the Mill a fair trial, and warrant the performance as above stated. The price of the Mill is \$265, with extra pinions, screw-wrench, cant-hooks, set-punch, and one extra set of teeth. Any good thrasher horse-power will answer to drive it. I also make Threshing Machines from 4 to 12 horse power, and Threshers to thresh and clean Wheat at the same operation, for which I can give satisfactory references the largest farmers on the Pamunkey River. Those wishing further information, will address

October 1853—tf

JOHN HAW, Old Church, Hanover Co., Va

## MANIPULATED GUANO! MANIPULATED GUANO!

We offer to the Planters of Virginia a Guano prepared by us as follows:

1000 lbs. of the best Peruvian Guano that can be procured;

800 lbs. of the best Sombrero Guano, containing full 80 per cent of the Phosphate of Lime.

200 lbs. of the best Ground Plaster, for which we pay \$2 per ton extra.

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

Price to Planters, \$48 per ton, or \$2 per ton less, where they furnish bags.

For sale by

EDMOND DAVENPORT & CO.

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

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

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

"I am now able to give you the results of analysis. They show the Mixture to be what you stated in a former letter, and I judge that you are very fortunate in the selection of materials, especially of Peruvian Guano. The per centage of Ammonia shows the pure Peruvian to contain 12.4 per cent., which is more than the average. The Analysis is as follows:

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

Hoping that your Fertilizer may meet with the success which it deserves.

I remain, very respect

yours,

D. K. TUTTLE."

Jau—tf



# UNION FAIR.

The State Agricultural and the Central Agricultural Societies will hold their Fair for the present year upon the Grounds of the Central Society, commencing on MONDAY, the 22d of October, and continuing six days.

**JOHN R. EDMUNDS,**  
Pres't Va. State Agr. Society.  
**JAMES LYONS,**  
Pres't Va. Cent'l Agr. Society.

May 60—tf.

## RHODES' SUPER-PHOSPHATE. The Standard Manure.

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

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

**B. M. RHODES & CO.,**  
Office 82 South Street, Bowly's Wharf, Baltimore, Md.

### AGENTS IN VIRGINIA.

Richmond—SCHAER, KOHLER & CO,  
Petersburg—VENABLE & MORTON.  
" THOS. BRANCH & SONS.  
Lynchburg—M. HOLLINS & CO.  
Norfolk—B. T. BOCKOVER.  
Alexandria—WM. H. MAY.

Fredericksburg—HUGH SCOTT.  
Farmville—HOWELL E. WARREN.  
Blacks & Whites—JEFFERSON & WILLIAM-  
SON.  
Clarksville—JAMES E. HASKINS.  
Jan. 60—tf



## GROVER & BAKER'S CELEBRATED FAMILY SEWING MACHINES.

**NEW STYLES**---Prices from \$50 to \$125. Extra charge of \$5 for Hemmers.

This Machine sews from two spools, as purchased from the store, requiring no re-winding on thread. It hems, fells, gathers and stitches in a superior style, finishing each seam by its own operation, without recourse to the hand needle, as is required by other machines. It will do better and cheaper sewing than a seamstress can, even if she works for one cent an hour.

Sales Room, under Mechanics' Institute, Richmond, Va., 9th Street.

*To the Grover & Baker's Sewing Machine Co.*—Gents: Perhaps you may like to know how the Grover & Baker machines are doing in Cuba. We have twenty-five of your machines in use, making government clothing for the army, and plantation sewing, which we have had in use now about eighteen months, and their performance has far exceeded our most sanguine expectations. We run the machines constantly by steam, at a high rate of speed, and we find them to require but little repair—indeed, they seem not to be worn at all. We have tried both the Singer and Wheeler & Wilson machines, but they have been long since laid aside in the race. One thing we are sure of—that the Grover & Baker machine is the only machine for our work.

JOHN J. SLOCUM,

*Sup't of the Industria, Cabona, Havana.*

Some years since I purchased a Shuttle Machine, and found so much trouble in working it, that I gave it away, and after closely examining the mechanism and working of every machine within my reach, I purchased a Grover & Baker, as best suited to do the sewing of my family. I have found it simple, easily kept in order, and in evidence of its simplicity, will state that my daughter, when about ten years old, without any particular instruction, had no difficulty in working it, and finds it very fascinating employment.

ROBERT CHILSDEN, Beaufort, S. C.

Jan 1860—6t.

## GRAIN CRADLES! GRAIN CRADLES!

COSBY'S WOOD BRACE,

SAUNDER'S WOOD BRACE,

GRANT'S WIRE BRACE,

GRANT'S WIRE BRACE, Southern Pattern,

BROWN & CO'S WIRE BRACE,

COLTON'S WIRE BRACE.

Also Clover and Grass Seythles complete, Wood and Iron Swaths, Gleaners, Rakes, Barley and Wheat Forks, Wood Tines. For Sale by

June 60—1t

WM. PALMER, SON & CO.

**CULTIVATORS, SHOVEL PLOWS, SINGLE PLOWS**, No. 21½, 18½—3 and 4  
Wiley and 1 Livingston, for Cultivating Corn. For sale by

June 60—1t

WM. PALMER, SON & CO.

**TOBACCO CULTIVATORS, Stationary and Expanding.**

For sale by

WM. PALMER, SON & CO.

June 60—1t

MACFARLANE & FERGUSON,  
BOOK, JOB, AND ORNAMENTAL PRINTERS,  
Corner Bank and 12th Streets, Richmond, Va.



---

# VIRGINIA FERTILIZER, OR, S. McGRUDER'S SONS' PHOSPHO-PERUVIAN GUANO!

---

We offer for sale PHOSPHO-PERUVIAN GUANO, Manufactured by ourselves, and warranted to contain EIGHT PER CENT OF AMMONIA, and FORTY-FIVE to FIFTY PER CENT OF PHOSPHATE OF LIME.

PRICE, \$50 CASH, PER TON, OF 2000 POUNDS.


---

Having been for many years largely engaged in the Guano trade, and carefully observed and had reported to us, by reliable practical farmers, the result of experiments with nearly every variety of Guano, enables us to furnish a Fertilizer which we with great confidence recommend, and believe to be much cheaper than the Peruvian, when used alone.

The ingredients in this preparation are the very best Peruvian and Phosphatic Guanos, selected with great care and by rigid analyses—ground to a very fine powder, and thoroughly and intimately mixed. There is no secret as to the ingredients used, or process of manufacturing, and our Mill will, at all times, be open to Farmers who desire to see for themselves.

## FOR TOBACCO, OATS, AND CORN,

We do not think this Fertilizer can be excelled; and its beneficial effects, in the improvement of the land, is unquestionable.

We shall also keep constantly on hand a supply of FINE GROUND BONE DUST and BONE ASH.  PRICE \$35 per Ton.

**S. McGRUDER'S SONS, Richmond.**

# RICHMOND FERTILIZER MANUFACTURING MILLS!

ROCKETTS, RICHMOND, VA.

S. HARTMAN, GENERAL AGENT,

OFFERS FOR SALE

## EXTRA FINE BONE DUST,

HARTMAN'S AMMONIATED SUPER PHOSPHATE OF LIME,

## HARTMAN'S IMPROVED MANIPULATED GUANO,

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

THESE MANURES ARE WARRANTED GENUINE.

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

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

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

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

April 60--tf

## GUANO.

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

Forty per cent less than Peruvian Guano,

and which we claim to be superior to any Guano or fertilizer ever imported or manufactured in this country. This Guano is imported by WM. H. WEBB, of New York, from Jarvis' and Bakers' Islands, in the "South Pacific Ocean," and is sold genuine and pure as imported. It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent and popular Agricultural Chemists, and found to contain, (as will be seen by our circulars,) a large per centage of

Bone Phosphate of Lime and Phosphoric Acid,

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

Free of Insects.

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

**JOHN B. SARDY, Agent,**

Oct—1y

No. 58 South St., corner of Wall St., New York City.

## IMPROVED HOGS.

The subscriber has for sale two very fine Essex BOARS, rather more than a year old. Also, one Suffolk—one Chester County, and several Essex Sows, Price \$30 each, delivered on the cars, or other public freight lines.

Nov. 1st, 1859.

JAMES E. WILLIAMS.



# FOWLE & CO.'S

## SOLUBLE PHOSPHATED

# PERUVIAN GUANO.

MADE OF GUANOS OF

## DIRECT IMPORTATION,

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

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

## NO. 1 PERUVIAN AND SOMBRERO GUANOS

OF OUR OWN

## DIRECT IMPORTATION,

FROM THE

## CHINCHA AND SOMBRERO ISLANDS,

WE WARRANT IT IN EVERY RESPECT.

## THE SOMBRERO GUANO

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

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

Price, \$50 per Ton of 2,000 lbs.

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

## FOWLE & CO.,

ALEXANDRIA, VA.

## VALUABLE LOUISA LAND FOR SALE.

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

### SUNNING HILL.

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

This Farm contains 1,040 acres, of which 209 are wood land, more than three-fourths of which are heavily timbered with oak, pine and hickory of original growth. The arable land is fertile and in a high state of improvement—well adapted to the growth of wheat, corn and tobacco. There is a comfortable DWELLING, with eight rooms, a good barn, tobacco houses, and all necessary out buildings. The locality is healthy and the neighborhood pleasant. Presuming that any one wishing to purchase will visit the Farm and see for themselves, I deem it unnecessary to speak farther. The Farm is capable of being divided into three tracts, if desired. Being very desirous of selling, terms will be made to accommodate purchasers.

My manager, Mr. Groom, will take pleasure in showing the premises to any one who wishes to purchase.

JULIA A. HOLLADAY.

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

Feb 10—11

### THE GREAT SOUTHERN

Hat and Cap Manufactory and Depot.

### JOHN DOOLEY,

No. 81, Main Street, Richmond Va.

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

July 1853—1y

## BARKSDALE & BROS., COMMISSION MERCHANTS,

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

CLAIBORNE BARKSDALE,  
C. R. BARKSDALE.  
CHAS. H. BARKSDALE,

RICHMOND, VA

Feb 60—1y

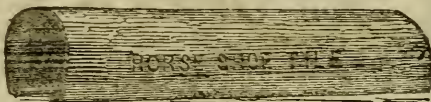
## ALBANY DRAIN TILE WORKS,

Corner Clinton Avenue and Knox Sts.,

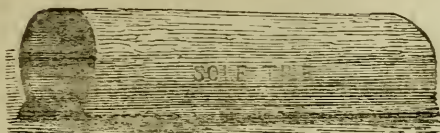
ALBANY, N. Y.



|                          |                        |
|--------------------------|------------------------|
| 1 1/4 inches Round,..... | \$ 8.00 per 1000 feet. |
| 2 1/4 " " " " " " " "    | 12.00 " " " "          |
| 3 1/2 " " " " " " " "    | 40.00 " " " "          |



|                         |                        |
|-------------------------|------------------------|
| 2 1/2 inches Rise,..... | \$10.00 per 1000 feet. |
| 3 1/2 " " " " " " " "   | 15.00 " " " "          |
| 4 1/2 " " " " " " " "   | 18.00 " " " "          |
| 5 1/2 " " " " " " " "   | 35.00 " " " "          |
| 6 1/2 " " " " " " " "   | 55.00 " " " "          |
| 7 1/2 " " " " " " " "   | 75.00 " " " "          |



|                     |                         |
|---------------------|-------------------------|
| 2 inches Rise,..... | \$ 10.00 per 1000 feet. |
| 3 " " " " " " " "   | 16.00 " " " "           |
| 4 " " " " " " " "   | 30.00 " " " "           |
| 5 " " " " " " " "   | 50.00 " " " "           |
| 6 " " " " " " " "   | 80.00 " " " "           |
| 9 " " " " " " " "   | 200.00 " " " "          |

Orders solicited. Terms Cash.

Address C. & W. McCAMMON,

April 00—1y

Albany, N. Y.

Liberal offer for 1859!

## NASH'S TRIAL PIANOS!



We will take upon ourselves the trouble and responsibility of selecting

### PIANOS

for and forwarding to such persons as may wish to purchase, and if they do not turn out to be really good, we WILL BEAR ALL THE EXPENSE.

We know what the PIANOS are, and have no hesitation in taking the risk of giving satisfaction.

E. P. NASH & CO.,

Petersburg, Va.

April 1859.

J. R. KEININGHAM,

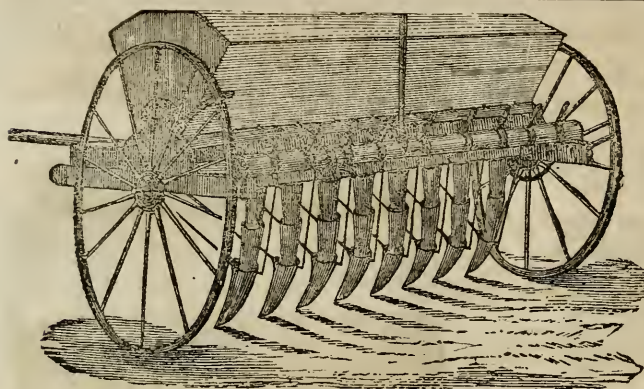
DEALER IN

BOOKS & STATIONERY,

211 Broad Street, between 4th and 5th, RICHMOND, VA.

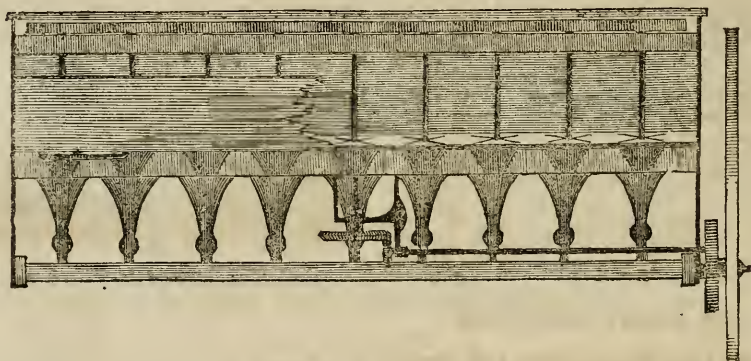
March 1859.





HEAD-QUARTERS  
FOR THE  
CELEBRATED PREMIUM  
IRON CYLINDER  
Grain Drill,

With the Improved Guano Attachment and Grass Seed Sower.



PATENTED IN 1856 AND 1858.



MANUFACTURED BY

**BICKFORD & HUFFMAN,**  
BALTIMORE, MARYLAND.

Those wishing this article, and one that is universally acknowledged by the Farmers of the South, North and West, and by all that have examined it, to be the best ever offered to the public, will bear in mind that unless they order early, may be disappointed, as hundreds were last season, by delay.

PRICES,

|               |   |   |   |         |                   |   |   |         |
|---------------|---|---|---|---------|-------------------|---|---|---------|
| 9 TUBE DRILL, | - | - | - | \$90 00 | Guano Attachment, | - | - | \$25 00 |
| 8 " "         | - | - | - | 85 00   | Grass Seed Sower, | - | - | 10 00   |
| 7 " "         | - | - | - | 80 00   |                   |   |   |         |

All Orders promptly filled and information given, by application to

**C. F. CORSER,**

General Agent for the Southern States,

Office, No. 90 S. Charles Street, between Pratt and Camden, Baltimore, Md.

For sale by H. M. SMITH, Agent, Richmond, Va.

**CAUTION.**

Notice is hereby given to all whom it may concern: That this is to forbid all persons making, vending using or infringing upon our Guano or Compost Attachment, patented April 22d, 1856, re-issued May 18th, 1858. Any person violating our rights, will be held accountable. None genuine except manufactured by us, where they can be had on application to C. F. CORSER, our General Agent, at No. 90 S. Charles Street, Baltimore, Md., or to agents appointed to sell the same by said Corser.

September 1858.—yly

**BICKFORD & HUFFMANN.**

## HIGHLY IMPROVED BREEDING STOCK.

Satisfied that stock of any kind to breed from, should be of an established breed, not an accidental result from a cross of extremes, I have selected the best males and females to be procured of Morgan Horses, Durham Cattle and Chester County Hogs for breeding purposes; the offspring of the cattle and hogs can be had now, and the services of the stallions after the 1st of April.

Black Hawk, sired by the famous Vermont Black Hawk, nine years old past, a noble animal of 2.44 gait, and perfectly gentle and docile, and his son, a bay, four years old, larger than his sire, and very promising, are both horses that will recommend themselves.

In proof of my confidence in these breeds and animals, I have expended over \$7,000 without waiting endorsement and patronage—satisfied that those who try them, will not regret it.

For particulars address  
April 60—3t

S. W. FICKLIN,  
Charlottesville, Va.

## GREAT REDUCTION in THE PRICE OF HATS AND BOOTS.

FROM 15 to 20 per cent. saved by buying from J. H. ANTHONY, Col lambian Hotel Building.

Moleskin Hats of best quality, \$3½; do. second quality, \$3; Fashionable Silk Hats, \$2 50; Fine Calfskin Sewed Boots, \$3 50; Congress Gaiter Boots, \$3 25; Fine Calfskin Sewed Shoes, \$2 25.

J. H. ANTHONY has made arrangements with one of the best makers in the city of Philadelphia to supply him with a handsome and substantial Calf-skin Sewed BOOT, which he will sell at the unprecedented low price of *Three Dollars and a Half*.  
July 59—1y



## Southern Clothing House RICHMOND, VA.



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

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

E. B. SPENCE.

No. 120, Corner of Main and 13th Sts.  
July 59—1y

## FOR SALE.

A BEAUTIFUL AND VALUABLE FARM, Within an hour and a half's ride by Rail Road of this City. Contains 600 acres, (more or less): *Neighborhood* is excellent. *Improvements* ample and neat, and the situation of the houses beautiful. THIS IS A GOOD STAND FOR A PHYSICIAN OR LAWYER, OR A FIRST CLASS SCHOOL. A smaller farm, or City property, will be taken in part pay of the purchase money. For further particulars apply to

AUGUST & WILLIAMS,  
Office of Southern Planter.

Mar 60.

## TROTTING STALLION SULTAN!

This fine bred young Trotting Stallion, who is not surpassed in blood by any horse of his age, has commenced a season at the stable of the subscriber on the Mechanicsville Turnpike, one mile from the city of Richmond. The season will expire on the 15th of July.

### TERMS:

\$15, if paid at the first serving of the mare, or \$20 payable at the close of the season. Insurance \$30. Groom fee \$1. Mares put by insurance, must be returned on their regular days, and parting with a mare will forfeit the insurance.

SULTAN was foaled in the State of New York, on the 13th of July, 1854, is a rich dark bay, fifteen hands three inches high, of extraordinary large bone and muscular power, and promises to be a valuable stallion, not only for speed, but for general purposes. He has made two seasons in the county of Orange, and has proved himself a sure foal-getter, and his colts are extra fine and large.

### PEDIGREE.

SULTAN was sired by the Trotting Stallion, Young Andrew Jackson, out of Lady Adalah, and she out of Kossuth's dam, by that noted Trotting Stallion, Old Abdalah, a grandson of Old Imported Messenger, "the Fountain Head" of all the best trotting stock in America. Young Andrew Jackson was by the celebrated stallion, Andrew Jackson, (the sire also of New York Black Hawk, and Kemble Jackson, two of the best trotting stallions that have ever been on the turf,) the fastest trotting horse of his day, having beaten Daniel D. Thompsons, Fire King, Lady Warrington, Modesty, and others—he was sired by Young Bashaw, who was by the imported Arabian horse, Grand Bashaw. The dam of Andrew Jackson was by Why Not, and Why Not by Messenger; the grand dam of Andrew Jackson also by old Messenger, all remarkable for hardy constitution and great speed. The dam of Young Andrew Jackson was by the distinguished trotting mare, Great Western, raised near Rochester, N. Y. She was a fine, large Messenger mare, full sixteen hands high, and possessing great speed. In a match at Rochester, she beat Polly Roe, trotting her mile in two minutes and thirty-four seconds; was then sold and taken to Philadelphia, where she again trotted and won; time, two minutes and thirty-seven seconds; after which, she was put to Old Andrew Jackson and produced Young Andrew Jackson. Good judges pronounced him one of the best stock horses for all purposes in this country. He was sixteen hands one inch high, and weighed 1300 pounds, and in condition could trot his mile in two minutes and forty seconds; he received the first premium at the Mechanics' Institute Fair, held in the city of New York, in the Fall of 1856, and also at the New Jersey State Fair. He was sold in the spring of 1857, and taken to La Salle, Illinois, where he stood at \$50 the season, but before the season expired, was poisoned by some malicious person.

It will be seen from the above, that SULTAN can be traced generation after generation to the best trotting stock in this country.

H. J. SMITH,

Near Fairfield Race Course.

Richmond, May, 1860.—2t



## BALTIMORE MADE AGRICULTURAL IMPLEMENTS VERSUS EASTERN.

We notice that Messrs. R. SINCLAIR, JR., & Co., of this city, received **FIRST PREMIUMS** for their deservedly famed Agricultural Implements at the recent Agricultural Exhibitions and Fairs held in Maryland, Virginia, North Carolina, and the Southwestern States, namely:

By the **MARYLAND STATE AGRICULTURAL SOCIETY**, 14 Premiums.

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By the **SEABOARD AGRICULTURAL SOCIETY**, held at Norfolk, 12 Premiums.

Also awarded to SINCLAIR & Co., by the **KENTUCKY AND TENNESSEE STATE AND COUNTY FAIRS**, **FOUR (FIRST) PREMIUMS** on SINCLAIR'S PATENT MASTICATOR, for mashing and cutting Corn Stalks, Straw, &c., making in all

### THIRTY-NINE FIRST PREMIUMS In Favor of SINCLAIR & CO.'S Wares,

And showing a decided preference by the judges in favor of Baltimore Made Implements.

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In the above estimate of Premiums, the following were not included in the different contests, all having received their quota of Premiums at Fairs previously held, viz:

**HORSE POWERS**, Spur and Bevel Geared; **CORN MILLS**, Burr and Iron; **FANNING MILLS**; **ROLLING SCREENS**; **AGRICULTURAL FURNACE**; **CHAIN PUMPS**; **LIME SPREADERS**; **GARDEN TOOLS**, &c., &c.

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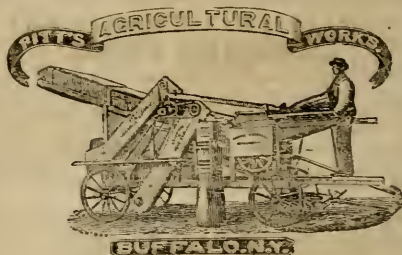
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