

THE  
**SOUTHERN PLANTER.**

*Devoted to Agriculture, Horticulture, and the Household Arts.*

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

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

FRANK. G. RUFFIN, EDITOR.

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**ESSAY ON IRRIGATION.**

BY WELLINGTON GORDON, OF LOUISA.

[*A premium of Fifty Dollars.*]

Our agriculture has arrived to the insurpassable state of imperfection of applying its best soil to the removal of the worst farther from market.

*Arator.*

Nothing has yet been done to wipe from our agriculture the reproach of Arator.

The alluvial treasure, annually washed from our forests and badly cultivated soils, and floated down our rivers, continues to serve no other purpose but to obstruct our navigation and poison our atmosphere. Not one scientific effort has been made to arrest it, in its progress to tide-water, and none to appropriate it below.

Of the amount of agricultural wealth, thus neglected, no accurate estimate can be made;\* but if the intelligent people of Virginia would understand and practice *Irrigation*, as, for centuries, it has been understood and practiced by the ignorant peasants of China, Egypt, and of Lombardy, they would discover floating through their lands a treasure more valuable than the Chincha Islands, and requiring only a skilful use of the shovel and the spade, to be distributed

\* The Mississippi has been estimated to deposit eight millions of solid feet per hour. Estimating the deposits of all the rivers of Virginia to be one hundredth part of that of the Mississippi, and that six inches of this deposit is equivalent to a coat of stable manure, the annual loss will be found to exceed 30,000 acres of fertilizing material.

over their hungry and thirsty soils. They would also learn where Providence withhold from them the early and the latter rains, that there are summer showers in the running brooks.

In dry and arid countries, Irrigation has been coeval with the cultivation of the soil. Famine, to whom more than to science, agriculture is indebted for its discoveries, has been its schoolmaster there. It is not a necessity in Virginia, and is therefore supposed to be unsuited to our climate. It is also believed to require a skill that we do not possess, and an amount of labour, which we cannot spare. The purpose of this paper, in part, is to point out the fallacy of the two last named objections. That of climate might be disposed of, in a more summary manner, but in its consideration an opportunity is presented of portraying the marvellous results of irrigation, wherever practiced, and some tediousness will therefore be bestowed upon it. Premising that, in climate and soil, Lombardy, and especially Venetian Lombardy, very nearly resemble Eastern Virginia, the following extract from the reports of the British Board of agriculture is worthy of attention.

“The waters of the chief rivers of the north of Italy, such as the Po, the Adige, the Tagliamento and of all the minor streams, are employed in irrigation. There is no other country which possesses an extent of rich water meadows equal to that of the Lombards. The entire country from Venice to Turin, may be said to be formed into one great water meadow, yet the irrigating system is not confined to grass lands; the water is conveyed into the hollows between the ridges in corn lands, into the low lands where rice is cultivated, and around the roots of the vines. From Italy the practice extended into the South

of France, into Spain and then into Britain. In the States of Lombardy the waters of all the rivers belong to the State; in that of Venice the government extends its claims to that of the smallest springs and even to collection of rain water, so highly, for the use of the cultivator, is water of every kind valued in the north of Italy. It is necessary therefore in Lombardy, to purchase from the State the water taken from the river. This may be taken by means of a canal through any person's grounds, the government merely requiring the payment of the value of the land to the proprietor, and restraining him from carrying his channel through a garden, or within a certain distance from the mansion. The water is sold by the Government at a certain rate, which is regulated by the size of the sluice and the time of the run of water—this is either by the hour, half hour, or quarter, or by so many days at certain periods of the year. The right to these runs of water is regularly sold like other property. Arthur Young gives an account of the sale of an hour's run through a sluice near Turin which produced, in 1778, 1500 livres.

The rent of the irrigated lands in the north of Italy is, upon an average, more than one third greater than the same description of land not watered."

The climate of Great Britain, on account of its humidity, would of all others seem least suited to irrigation, but, under an improved practice, its triumphs there have been most complete. A description of some of the most perfect water-meadows of England will be found in "Coleman's European Agriculture" from which the following facts are gathered :

"The water-meadows of His Grace the Duke of Portland at Walbeck at first embraced 300 acres. The value of the land has been raised from the annual sum of \$400 (£80) to that of \$18,300\* (£3660.) The work was undertaken with no view to profit, and was executed in a Princely style of extravagance. The expenditure from the commencement to the completion has been \$200,000 (£40,000). The profits upon each acre after defraying all expenses are computed at nearly \$60 (£12) per annum, without taking into consideration the great benefit they are to the adjoining arable land. The land before the improvement was commenced, was in part, a thin, gravelly and barren soil, and in part a peat bog or swamp, and full of rushes and aquatic plants. It is now clothed with the most luxuriant verdure, and requires no manure beyond the water with which it is supplied.

Every acre of this irrigated land, in its produce consumed by cattle on the farm, supplies

\* The English pound Sterling is here estimated at \$5 instead of 4 83-100ths. The same mode of calculating will be pursued hereafter.

manure for five acres of other land. The water here is peculiarly rich in fertilizing matter."

"The water-meadows at Audly End, the residence of Lord Braybrook, are on a comparative small scale, but extremely productive.

The average produce yielded the last three years has been about thirty-one tons of grass or eight tons of hay per acre. A patch of rye grass measured three feet two inches in height on the 30th April 1844."

The high authority of Phillip Pusey, Esq., is cited in the same work for the following :

"I have known Mr. Roals' farm for many years. It stands alone on the summit of the wild Exmoor range of mountain land. If any one asserted that, for a trifling outlay, he could enable heath-covered steeps to rival in produce or value, the old grazing grounds of Northamptonshire, he would be regarded as a dreamer, but if any owners of moors will visit Somerset or North Devon, he will ascertain the literal truth of the statement, as I did five years ago. All that is required is a streamlet trickling down the mountain side, or a torrent descending rapidly along the bottom of the glen. The profits of under-draining old arable land appears trifling when compared with the profits of thus forming catch-water meadows, which, according to Mr. Roals, is more than one pound interest for two pounds invested. The two pages of this report, which state no more than Mr. Roals has himself done, contain a talisman by which a mantle of luxuriant verdure might be spread over the mountain moors of Wales and Scotland, of Kerry and Cannemara."

In the third volume of Ruffin's Farmer's Register will be found a re-print of George Stevens' practical treatise on irrigation, from which, out of many instances, are cited at random the following evidences of the beneficial effects of irrigation in Scotland and Sweden :

"Kirkhouse meadow, in the parish of Traquair, contains nine Scotch acres, and was the first scientifically formed irrigated meadow in Scotland. The land, in its original state, was valued at 5 shillings per acre of yearly rent. The formation cost £4 (\$20) per acre; but the hay crop for the last twenty years has averaged two hundred and sixty stone (5720 pounds) per acre,\* and the after-grass 12 shillings (\$3) per acre, making upwards of £7 (\$35) per acre grass produce. About the same time an irrigated meadow

\* A Stone weight of hay is 22 pounds, and ranges in price from 12 cents to 24 cents, or from 55 cents to \$1.00 per hundred (very much the same in Virginia.)



dow was made at Kirkhope on the Ettrick, and another at Mount Bengier Burn, on the Yarrow, which, according to the tenant's own account, pays them better than any piece of land of the same extent on their farms, although the land in its natural state was worth little or nothing."

"The late Sir George Montgomery, Bart of Magleiehill, in Peeblephire, commenced irrigating in 1798 by forming about one acre into water-meadows. This little experimental meadow turned out so productive that the baronet continued operations on a larger scale, by collecting the small streams that ran through his property to aid him in procuring as much natural hay as possible by irrigation. He, therefore, in the year 1815 converted the low-lands at the Plev lands into irrigated meadows. They contain 9 acres, and consist partly of boggy and partly of dry soil, worth £2 (\$10 per acre in their original state. The effect of this improvement, for several years past, has been 300 Stone (6600 pounds) of very superior hay per acre, averaging 8 pence per Stone, and the after-grass 20 shillings per acre, which makes the gross produce of the land worth £11 (\$55). These meadows have been sometimes cut twice a year, but, owing to the high climate, he found it more advantageous only to cut them once, and commence feeding off the after-grass earlier in the Autumn. The expense of making those meadows was £5 per acre. By this simple method of improvement, fifteen acres of common sheep pasture-land has given the proprietor from three thousand five hundred (77,000 pounds) to four thousand Stone (88,000 pounds) of hay per annum, averaging 6 pence per Stone."

"In the year 1808, I was employed, to survey, with regard to draining, a large tract of boggy land, belonging to Mrs. Grill of Soderfors Iron Manufactory, in the province of Upland in Sweden. After having taken a general view of upwards of three hundred acres, I found about 80, lying nearest the large River Dal, well situated for irrigation; and although there was nothing of the kind in the country previously to that time, the proprietress determined to have, at any expense, an Irrigated meadow formed complete in all its parts, for she was confident, that connected with thorough drainage, it would form one of the greatest improvements to a country where the Summers are so generally dry, and hay very scarce. In 1810 the hay crop on 40 acres was 4000 Stone (88,000 pounds.) Within that year the other 40 acres were formed into water-meadow, and in 1811, the hay crop on the whole was 11250 Stone (247,500 pounds.) In 1812 the crop was damaged by the frost and reduced to 4550 Stone. In 1813 the crop was 11250 Stone, and but for heavy frosts on the 21st, 22d and 23d of June would have been one third more. The hay, since the commencement of the Irrigation is twice as good in quality. The expense of forming this meadow was nearly £4 (\$20) per acre, by which it appears that, although the climate of

Northern countries is so very much against the practice, yet the improvement is one of the greatest that has been introduced in a district, where it is impossible to procure manure for making improvements in any other way, and that wherever water can be brought to run over grass land, the benefit will richly reimburse any person for the money laid out. Since the formation of this meadow, several others have been made in different parts of Sweden with greater success, they being made on better land."

Although the instances cited are not particularly remarkable in their results, it is nevertheless proper to state, that Irrigation has not always succeeded in increasing the crops, but has sometimes resulted in disappointment and loss. The exceptions are rare, and have been generally ascribed to want of skill or attention, or the presence of some mineral in the water injurious to vegetation. They nevertheless inculcate a lesson of prudence and deliberation. The quantity of water, furnished by the stream, should be measured, and its fertilizing qualities ascertained, by observing its effect on inundated spots before the commencement of any extensive enterprise.

Irrigation has long been practised in certain localities of the Valley of Virginia. The plan, pursued, is represented to be rude and primitive, and yet, on reliable authority the writer is assured that the results have been very satisfactory, that the crop of hay is generally doubled by it, and that the value of a farm is much enhanced by the consideration of having upon it, a water-meadow; or land capable of being irrigated. A minute description of the practice, there pursued, and results obtained, would do much in attracting to the subject the attention, and awakening in its behalf the interest of the Agricultural community.

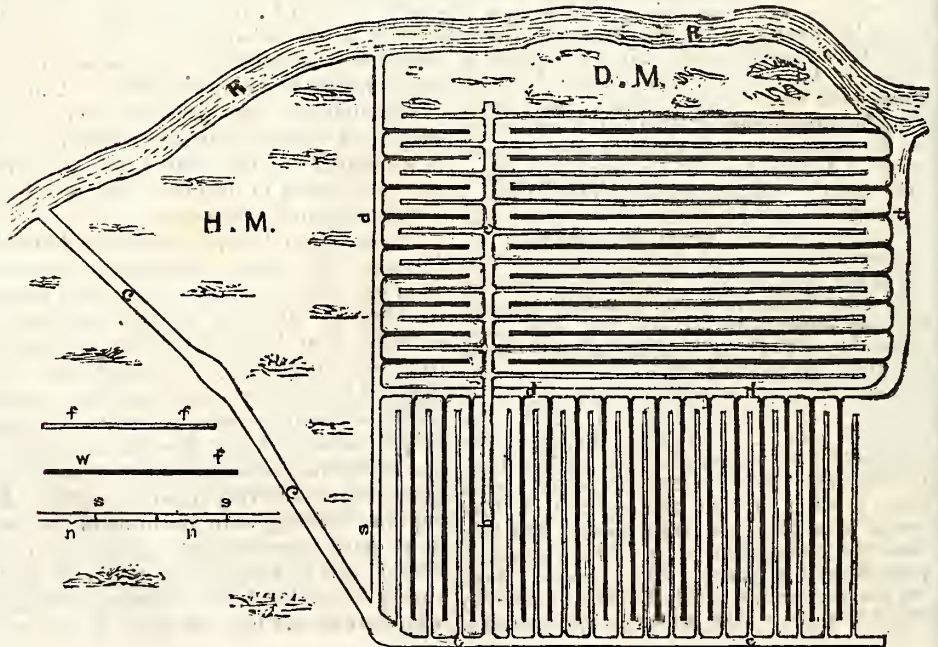
In the fall of 1852, on a farm in Fauquier County, the writer constructed a water-meadow of 14 acres in the manner recommended by Stevens, and in accordance with the best English practice. Attached to it are four acres of dry meadow formed of rich red clay, subject to inundation, and capable, without manure, of yielding a good crop of timothy hay. The 14 acres, previous to the improvement, yielded only herds grass hay, and in very scant quantities. Except in watering, both portions of the meadow have received the same treatment. About seven acres were watered in the spring of 1854. In the opinion of the men who mowed the hay, the crop on the irriga-

ted land doubled per acre that of the dry meadow. It exceeded two tons per acre. The difference in color and growth was observable at a distance of 300 yards. The whole 14 acres were irrigated in the Spring of 1855, though, on account of a drought extending through the previous winter, with an insufficient supply of water. On the first of June, when all the other meadows of the neighborhood seemed parched and withered up, this meadow presented a coat of luxuriant verdure beautiful to behold, and promised a most abundant crop, which however was reduced more than one half by a violent hail-storm on the 20th of the same month. The watered portion, nevertheless, doubled in product the dry portion of the meadow, and yielded over one ton of timothy hay per acre. The result of the experiment is so satisfactory, that 18 acres additional are now being pre-

pared for irrigation, and the improvement will be extended to every piece of land on the farm accessible to water. In its construction, forty dollars have been expended for hired labour. The remainder of the work was performed by the farm force, at idle periods, which, if charged at its full value, would have increased the expenditure some \$80 or \$90. The whole cost of construction has certainly not exceeded \$150. It should however be stated that the position of the land was unusually favourable for irrigation. The improvement is believed to have added \$75 per acre to the value of the meadow. The crop of hay of 1854 could have been sold on the farm for \$300. A sketch of this meadow is annexed. If referred to, it will serve to explain any obscurity in the practical part of this paper.

References.

- D. M. drymeadow subject to inundation,
- H. M. high meadow too high for irrigation,
- B. R. Brown's Run,
- m. c. main conductor,
- b. c. branch conductor,
- s. d. slice ditch,
- d. d. d. discharging ditch,
- a. c. feeder,
- w. f. water furrow,
- s. s. stops,
- n. n. notches.





Irrigation benefits vegetation in three ways. It supplies in dry seasons the deficient moisture. It warms the soil in winter. The Dutch farmers of the valley have a proverb that a sheet of ice on a meadow is a coat of manure. The earliest vegetation will always be found on spots which during the winter have been irrigated by an adjacent spring or stream. It wrests from our streams their mineral and alluvial treasure, and for that consideration, more than for any other, will prove of the utmost service to our Agriculture. A limpid spring will warm the soil and supply the deficient moisture, but if it hold no fertilizing mineral in solution will require the aid of guano, or other manure, or at least a good soil to be acted upon. A stream, which in its course has received the washings of the forest or of cultivated lands, will perform all the conditions of Irrigation, and should be suffered to pass through no farm without leaving some of its plunder behind.

A farmer intending to construct a water-meadow, should provide himself with a spirit level and levelling rod and learn to use them. The rude instruments, sometimes recommended as substitutes, will entail confusion and loss. The art of levelling may be learned, in one-half hour, from any one familiar with the use of the instrument.

It will be more convenient here to define the meaning of certain terms hereafter to be used.

The *Meadow* is the land intended to be irrigated.

The *Discharging Ditches* are deep ditches which serve the purpose of *thoroughly* draining the land and rapidly discharging the irrigating water. They should never be less than three feet deep.

The *Main Conductor* is a small mill race, which receives the water from the stream and conducts it to a position from whence it may be delivered on the whole or a part of the meadow.

*Branch Conductors* receive the water from the main conductor and place it in a position to be delivered on parts of the meadow not convenient to the main conductor, they should never be constructed until the meadow has been graded and well set in grass.

*Beds* are subdivisions of the meadow, generally 30 feet wide. They always start from a conductor and terminate at a point convenient for the delivery of the water into a discharging ditch or stream.

*Feeders* are narrow channels cut through the combs or highest points of the beds. They serve the purpose of supplying the beds with water and of equally distributing it.

*Notches* are small openings in the banks of the conductors, through which the feeders are supplied with water. Notches are also sometimes cut through the sides of feeders to distribute the water over the beds.

*Sluices* are large notches in the banks of the main conductors, through which the branch conductors are supplied with water.

*Puatale* or Puddling, is any kind of pure earth moistened and worked to a stiff batter.

There are three kinds of Irrigation. 1st. Irrigation by passing a current of water over the meadow termed *Current Irrigation*. 2nd. Irrigation by wetting the land, termed *Irrigation by Absorption*. 3rd. *Irrigation by Flooding*.

#### *Current Irrigation*

Is the most profitable in its results of all kinds of Irrigation. It also requires more skill and care in its execution. A knowledge of Current Irrigation embraces every thing necessary to be learned, to enable the farmer to practice either of the other branches, and will therefore be more particularly the subject matter of this paper.

#### *Precautions.*

Having ascertained, with a spirit-level, that the water may be drawn from the stream, at an elevation of at least one foot above the highest point of the meadow, and having traced off the conductors and ditches, the farmer should prepare a careful estimate of the probable cost of the enterprise before he incurs any other expenditure. If, after much reflection, he is satisfied that the outlay will not exceed 50 dollars per acre, he may safely make the adventure. The ditching follows next in order.

#### *Ditching.*

The discharging ditches should be located upon the lowest points of the meadow. They should be 2 feet wide at bottom, at least 3 feet deep and have a fall sufficient to discharge the water with rapidity. All springs or wet places must be drained by secret ditches, terminating in the discharging ditch or stream. Broken stone, or cedar branches, or pine poles, are the best materials for secret drains in Virginia. Pipe or tile require a nicety of foundation seldom attainable under our slovenly system of agriculture. In filling up the secret drains,

six inches of straw should be placed over the drain, then pure earth, worked fine with the spade, to within 18 inches of the surface, then *one foot of puddle*, well worked in with the spade, and the remainder of rich soil. If puddle be not used, as above directed, the water of Irrigation will sink through the secret drains and destroy them.

Water meadows require the most *thorough* drainage. Without it, the grasses become sour and coarse. It is important that the water be not only rapidly delivered on the meadow, but also that it be rapidly discharged from it.

#### *The Main Conductor.*

To find its connecting point with the stream, proceed as follows. Start from the highest part of the meadow, and continue the level up stream until a point, in its bed, is reached one foot higher than the point of departure. Run this level at least twice, for an error here may be incurable. The water should be drawn from the bottom or bed of the stream, because it can in no other manner be effectually husbanded.

If a sufficient head of water cannot be had without a drain, it will be advisable in most instances to abandon the undertaking.

If the large area to be watered will justify the expense of a dam, it should be located and constructed under the supervision of a canal engineer.

Start the main conductor from the point above designated and continue it on the same level until it reaches a position from which it may readily deliver the water upon the whole or a part of the meadow. It should, if possible, be laid parallel with the meadow and on ground one foot above it. (*See p. 164 ante.*)

Though a fall of one foot in every 200 yards is usually recommended, it will nevertheless be found better economy to increase the width of the conductor, and thus avoid the necessity of a current, and of waste viers, and sluice gates. In England much expense is incurred in sluice gates and masonry, which, by keeping the conductor on a level and observing the following precautions may be all avoided:—The bottom of the conductor should be one foot lower than the bottom of the stream, and at least two feet lower than its surface. It should also be not less than two feet wide at bottom and six feet wide at the surface level of the water. If of the above dimensions, it will pass a sufficient supply of water for 15 acres of flat bed meadow, but the

conductor cannot well be made too large, for, during a freshet, too much water cannot be delivered on the land.

It should, when practicable, be located, for its whole length, through cutting, that is to say, its sides should be formed of natural earth, and not of embankment, which is liable to leakage and injury by muskrats and freshets. Locate the conductor in such a manner that on its lower side the natural earth will be at least one foot higher than the usual level of the water, and be diverted from this purpose, neither by the temptation of straightness, economy, or any other consideration. Shovel back, as far as convenient, all loose earth from that part of the conductor not adjacent to the meadow. The lower side of the conductor will then, during freshets, act as a waste and effectually guard the embankments from injury.

Where embankment is unavoidable, use the following precautions.

The width of its base should be four times its height. If, for instance, the embankment be two feet high, its width at base should be 8 feet. Scrape from the base every particle of vegetable matter, and spade up the soil to a depth of one foot, then build on the foundation; thus prepared, the embankment, which must be made of pure earth, well worked with the spade and moistened, if water be convenient. The sides to have a very gentle slope, and the top to be *at least* 2 feet higher than the surface level of the water. The main conductor serves a similar purpose, and resembles, in every particular, a canal or mill race, and requires the same care in its construction. The precautions above stated cannot therefore be safely neglected. On account of its small dimensions, its cost rarely exceeds that of a large ditch, for the particular care demanded in its construction, involves no great expenditure of money. A small wooden guard gate is sometimes placed at the head of a conductor: but, except there be a dam, it will seldom be needed. A good substitute for a waste, or sluice gate, will be found in a ditch starting from a conductor at the point of its connection with the meadow and terminating in the discharging ditch or stream. (*See p. 164, ante.*) The opening from the conductor into the ditch (termed a sluice ditch,) is closed with earth, except where the meadow is laid dry or during high freshets.

#### *Branch Conductors.*

Are intended to furnish a supply of water to parts of the meadow not adjacent or



convenient to the main conductor. If there be a ravine or ditch between the main conductor and any portion of the meadow, a branch conductor will be thrown across them. Wooden trunks are placed in them and embankment over the trunk. The conductor is thus guided over without obstruction to the drainage. Embankment is unavoidable in the construction of branch conductors, and requires the care and precautions before stated. Branch conductors should be constructed after the meadow has been graded and seeded with grass, for their proper position cannot sooner be ascertained.

The connection between the main conductor and the branch conductors, is closed by embankment and opened with the spade, according as it is intended to let on or shut off the water — (*See sketch, p. 164 ante.*)

#### *Beds.*

No meadow is ever, by the hand of nature, shaped and graded for current irrigation. In the most favored cases there are elevations to be shaved off and depressions to be elevated. The land is laid off in sections about 30 feet wide, and as long as the position of the surface will permit.

Each of those sections, termed *Beds*, is a perfect water meadow in itself, and except in having a common conductor and a water furrow in common with its adjacent bed, has no connection with the other beds. It is provided with its conductor notch, its feeder stops, and feeder notches may be watered when the rest of the meadow is laid dry and laid dry when the rest of the meadow is watered. It may be on the same, or on a different plan, from the other beds and also of larger or smaller dimensions. They must all start from a conductor, have a continuous, though not necessarily an uniform inclination, in the line of their direction and terminate in a discharging ditch, or a depression leading to a discharging ditch or stream. The plan of shaping and grading them, as recommended by Stevens, and generally adopted in England, will be first described. An important modification, the merit of which has been tested by careful experiments, will then be proposed.

The following extract from "Steven's will explain his plan.

"The earth excavated from the drains and conductors is used for filling up low places. The next part of the process is to divide the portion of land of the meadow, which is assigned to each conductor, into regular beds. Where the soil

is naturally dry and the supply of water plentiful, they might be made 40 feet wide, but when the subsoil is cold and impervious, their breadth should never exceed 30 feet, and be even less in deep mossy soils. The feeders are made in the middle of the beds, (always branching out at right angles from the conductors,) except in cases where the ground falls two ways, when it will be necessary to make the feeders a few feet nearer the one side of the bed than the other. The feeder should always be placed on the highest on the highest part of the bed. A bed 200 yards long will require a feeder, where it leaves a conductor, twenty inches wide, gradually decreasing in width to 12 inches at the farthest extremity, for the quantity of water becomes less and less by overflowing over its sides. The earth taken out in forming the feeders is to be placed on each side, in such a regular manner, as to form small banks with a gradual descent towards the drains. In forming the feeders, care should be taken to leave stops or small portions of solid earth in them, about 6 inches wide, at regular distances from each other, or, according to the fall of the ground, to obstruct and keep up the water to a proper height, so that the whole length of the bed may be regularly watered without the assistance of notches; as recommended by Wright and others. Indeed, the contraction in the width of the feeders serves to raise the water over their sides, but this is not sufficient when the descent is considerable.

Stops and notches have been thought indispensably necessary in the formation of water meadows, therefore several writers on the subject have recommended stakes to be driven into the conductors and feeders, to retard the velocity of the water, but, if a water meadow is properly laid out, few stops will be necessary, and, in situations where they cannot be avoided, the last method is to put in a few stones or sods. Wherever notches are found in a water meadow, it is a sure sign of an imperfect formation. Having completed all the feeders which are necessary to introduce and spread the water, a drain or water furrow must be made between every two beds parallel to the feeders. The drains are made in an order the reverse of the feeder, being narrowest at the upper parts of the meadow and gradually increasing in width until they descend into the main drain.

The depth of these water furrows in all soils should be so regulated, that they free the surface from the stagnated water, but in moist soils, with retentive subsoils, the depth at the upper end should be never less than 6 inches and increasing to nearly the depth of the main drain, when they discharge their waters, and the width exactly the reverse of the feeders. Having thus completed the formation of the various conductors, drains and feeders, let in the water and after giving each part its due quantity and regulated the stops in the feeders, (beginning with the one next the head or upper part of the meadow and continuing the same way over the whole until the water runs an equal depth over the sides or banks of the feeders),

it would very soon show such places as are too high or hollows necessary to fill up. The stuff taken out in forming the water furrows, drains and conductors with what is gained by reducing high places, is generally enough for levelling the beds to keep the water in constant motion, but the nearer the beds are brought to an inclined plain, the better for the purpose of irrigation. When the land is very unlevel with a thin sward on it, I would recommend every proprietor to plough the whole and take a crop of oats before forming it into water meadow. If the sward or grass is strong enough to be lifted, to lift the turf, and form the subsoil with the plough or spade and lay the turf down again. *In either of these cases the beds should be raised 12 inches in the centre.* Whenever the whole surface of a piece of the ground is broken to be constructed into an irrigated meadow, the formation should be done with the greatest nicety, for the greater the pains that are taken at the first forming, the easier the management will be ever after."

The directions given by Stevens for shaping and grading the beds have been verbatim, that, if they should seem better than the substitute about to be proposed, they may be adopted by the farmer. The beds, recommended by him, and here termed for distinction "Elevated beds" (being one foot higher at their centre than sides) are in many respects objectionable. They are very difficult to water if over 200 feet long and of rapid descent. They consume an immense quantity of water, (of which at certain seasons there is a scarcity) and, consequently, require an expensive conductor. They must pursue a straight line, (whatever be the shape of the ground) for a crook in the feeder will prevent a sufficiently free passage of water through. They require feeders, stops and feeder notches, which are but imperfect devices to remedy an imperfect plan. They will not work on a side hill at all, and will prove next to useless where the descent exceeds one foot in ten feet.

These objections to elevated bed irrigation in England are of much less importance than with us. The streams there are but little affected by drought, and consequently a scarcity of water is seldom experienced. Feeders and stops are defective not because they cannot distribute the water, but because they require constant supervision. For side hills or steep descents, a substitute is found in a plan termed "*catch-water Irrigation*" hereafter to be described. It

is not claimed for flat bed irrigation, that it will accomplish more than elevated bed Irrigation, but that it will perform as much with less water, less labour and less superintendence.

If an elevated bed be 30 feet wide, the fall from the feeder to the water furrow will be one foot in fifteen feet. There is therefore a strong tendency of the water to escape at once into the furrow, where it is lost for the purpose of Irrigation. If the longitudinal inclination of the bed be considerable, this tendency is much diminished, but the same object may be attained, by diminishing the lateral inclination. If a bed be elevated at the centre 6 instead of 12 inches, the lateral inclination will be reduced one half, and if it be not elevated at the centre at all, or in other words, if it be reduced to a perfect level laterally, the whole tendency of the water will be in the line of the length of the bed. A drop of water delivered upon the upper extremity of the bed will pass to its lower extremity without the aid of a feeder or any other device. This is the purpose of flat bed Irrigation.

#### *Flat Beds*

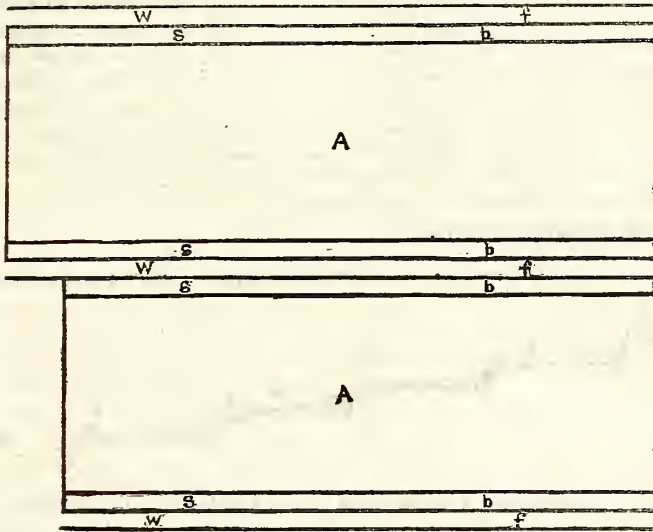
are designed to prevent any waste of water into the furrows. They must therefore be perfectly flat or level laterally or in the line across them. In the line of their length, or longitudinally, they must, like elevated beds, have a continuous inclination. They must also have, on either side, *deep* water-furrows to receive the water absorbed by them and to dry them when the water of Irrigation is cut off. In theory they must be made *perfectly* flat laterally, but in practise a perfect level would be made difficult to obtain, and more difficult to maintain. It may be disturbed by the slightest settlement in the land, or by the hoof of cattle, and when once lost, the water will further increase the irregularity. A remedy for this inconvenience will be found in a small bank 6 inches high raised on both sides of the bed and adjoining the water-furrow. The earth from the water furrow will be sufficient to build the bank, which should be sodded at the time of its construction, though the precaution is not absolutely necessary. This bank, running on either side of the beds for their whole length, confines all water received from the conductor, and compels it to follow the course of the bed. It also serves to correct all inequalities in



the beds not exceeding six inches, and therefore dispenses with the necessity of a perfectly flat bed. Nevertheless the beds should be laterally as nearly flat as they can

be made, by the eye, and constructed as if no side-banks were contemplated. The banks should then be attached, as if grading had been performed in a slovenly manner.

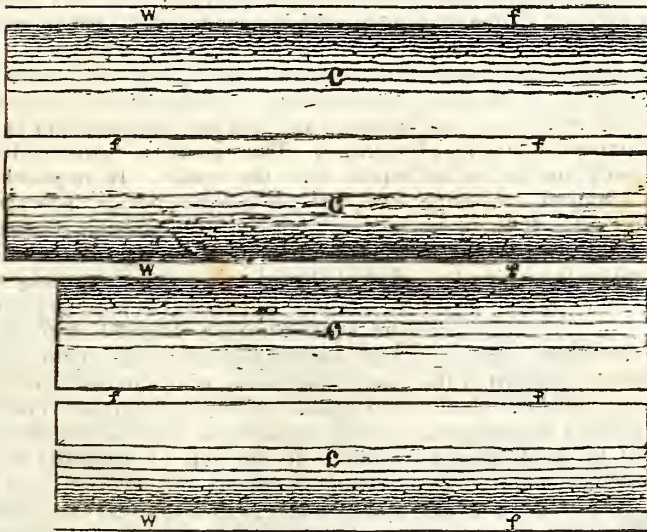
PLAN OF THE FLAT BEDS.



SECTION OF TWO FLAT BEDS.

- a. a. flat beds,
- w. f. water furrows,
- s. b. side banks,
- d. d. end section of flat beds.

PLAN OF TWO ELEVATED BEDS.



SECTION OF TWO ELEVATED BEDS.

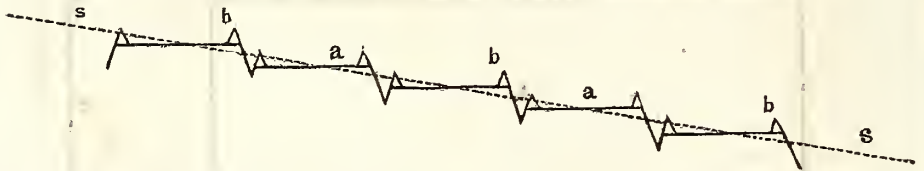
- c. c. c. two elevated beds,
- f. f. feeder,
- w. f. water furrows,
- h. h. end section of elevated beds

It has been before remarked, that elevated beds must pursue a straight course, because a bend in the feeders would prevent a free passage of water through them. Flat beds, for obvious reasons, are cramped by no such necessity. They may be either straight, zig-zag or circular. The advantage, of thus twisting the bed to fit the irregularities of the surface, will in practise be found of the utmost importance.

If the meadow have an inclination only one way, flat beds are easily constructed, for all that is necessary is to run them in the direction of the fall, but if there be an inclination two ways, the grading becomes

a nice and sometimes a laborious operation. Much may be accomplished by giving a proper direction to the bed. It must take the course by which the lateral inclination will be most reduced. If, for instance, the slope of the ground from North to South be one in fifteen and the slope from East to West be the same, the course of the bed should be exactly South-West. The same rule applied in other cases will determine the course of the bed. The width of flat beds is not a matter of choice, but is determined by the lateral inclination of the the surface.\*

SECTION OF FIVE FLAT BEDS ON A SURFACE HAVING A LATERAL INCLINATION OF 6 INCHES 10 FEET.



s. s. natural surface of meadow, a. a. flat beds, b. b. side banks, f. f. feeders.

The rule (from which it is never safe to depart) is, to lay off at least one bed for every six inches of lateral fall; and the reason is obvious enough. One half of the bed must be reduced and the other half elevated. The upper half must be skimmed of its soil to elevate the lower half. If the rule be observed, the upper half will loose only an average of one and a half inches of soil, which in most cases can be borne; but, if in an effort to widen the bed, the skimming process be more deeply pursued, the result will be a very thin sod or no sod at all or one of its sides of the bed. Even where only one and a half inches of soil has been removed a dressing of manure should be applied. If there be no lateral inclination, flat beds may be made 30 feet wide except in the case of retentive sub-soils, when they should be reduced to 20 feet.

#### Preparation for Grass.

The discharging ditches and the part of the conductor adjacent to the meadow, should be excavated before the land is ploughed, and the earth, furnished by them, used to remove or reduce longitudinal irregularities. The land must then be *flushed* (not bedded) and drained by as few furrows as practicable. This work is supposed to be comple-

ted by the middle of March. Seed it then with  $2\frac{1}{2}$  bushels of Oats per acre, and make a liberal application of guano whether the soil be rich or poor. The crop of Oats is intended to smother up and destroy the natural grasses. It must therefore be as thick and luxuriant as it can be made. As soon as the crop is gathered, the land should be deeply flushed, sub-soiled, rolled and harrowed, and reduced to the finest tilth. The finer the tilth, the lighter will be the subsequent labour. On the first of August, the shaping and grading the beds will be commenced. This work is done with the shovel and the spade. It requires great care, but no greater labour, provided the eye and head of the master is employed upon it. As soon as any one bed is graded, it should be seeded in timothy at the rate of one-half bushel of seed per acre and the seed carefully covered with a rake. Two hundred pounds of guano per acre should be covered in the July ploughing, and all stable or farm yard manure that can be spared, applied on the surface during the winter. If the soil be naturally rich, the quantity of guano and manure may be reduced, but it is all important that the sod of the following year should be strong and thick, and no expense must be avoided to

\* Where a meadow has a lateral inclination, each bed will be on a different plan, (See plan above.)



obtain it. Guano acts on timothy as favourably as on wheat. Of course no small grain should be seeded with the timothy. Irrigation will not create a sod, for water can only be applied to a sod already formed, but will strengthen, thicken, and preserve it. As soon as a good sod is formed, and by the above directions, it can be obtained in 12 months, the water may be applied to the meadow.

*Application of Water.*

From the 1st of Junè to stacking time, every water meadow should be laid dry. From the middle of July to the 15th of October, an application of water may be made once a week, and oftener if the stream be muddy or swollen by a rain. From October to March the meadow may be almost constantly under water. It will be sufficient if it be laid dry two days in every fourteen, but this always in mild and never in freezing weather. A sheet of ice is as warm a covering as a bed of snow. If the soil be cold or retentive of moisture, the water should be applied only one day in fourteen from March to June. If it be sandy, the application during that period may be once a week.

*Soils suited to Irrigation.*

The best are porous soils based on porous sub-soils. Such is the character of the lands in Lombardy and of some of the best water meadows in England. The more water a soil will absorb and digest, the better for irrigation. It is doubtful whether a thin glady soil based on a tenacious sub-soil will be much benefitted by irrigation, except so far as it deposits alluvial matter upon the surface. All other soils will be more or

less benefitted according to their capacity of absorbing and filtrating water.

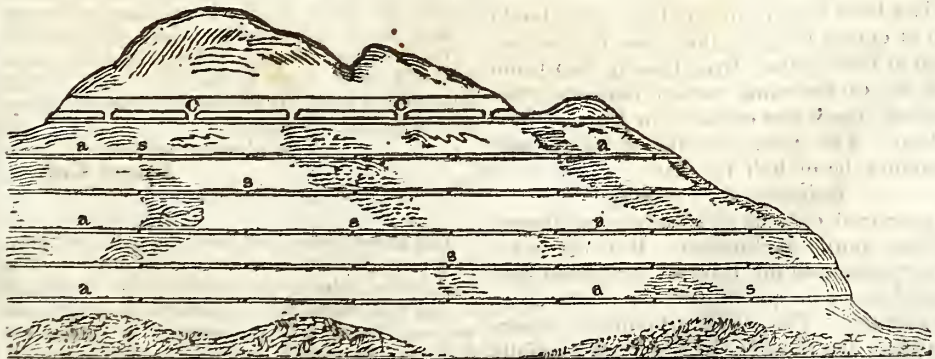
*Value of meadow and grass lands.*

A meadow on tide water yielding, without manure, 2 tons per acre would nett \$26, and should rent for \$20 per acre. So also at any other point accessible to market. From no other crop can the like annual profit be realized. The highest priced lands in Virginia are the grass lands, and this without regard to their distance from market. The best arable lands in England seldom rent for more than \$25 per acre. The best dry meadows for \$40, and the best water meadows often range over \$65 per acre. The meadows near Edingburg (irrigated with sewer water,) yield an average rent of \$150 per acre, and in years of scarcity have risen to the high figure of \$285 per acre per annum.

*Catch-Water Irrigation*

Is substituted for elevated bed Irrigation, where the meadow is located on a side hill, or on a plane of a greater inclination than one foot in ten. The conductor here is planted immediately above the meadow, and in a position to command every part of it. The water furrows are the feeders. They are wound around the hill and graded to a perfect level from one extremity to the other, or where they are divided into sections, from one stop to another. They are generally separated by a bed 40 feet wide. The water is first delivered from the conductor into a water furrow or feeder, over the sides of which it flows and is equally distributed over a bed, from which it is again received into a feeder, again distributed over a bed, and so on to the bottom of the hill.

PLAN OF A SIDE HILL OR CATCH-WATER MEADOW.



c. c. conductor.

a. a. a. a. feeders.

s. s. s. stops.

Catch-water Irrigation, though easy of construction, requires constant supervision, for if the water find for itself the smallest channel, it will soon convert it into a gully or ravine. Flat bed Irrigation is as applicable on a side hill as on a plane of moderate inclination. Care, however, must be taken to bend and wind the bed to as moderate a lateral inclination as the surface will permit, to execute the lateral grading and side banks with much nicety, and to apply the water in very limited quantities. No sod on a steep side hill can long withstand a strong current of water.

#### *Irrigation by Absorption*

Is designed to supply the soil with the deficient moisture. It is seldom practiced except on land under cultivation and recently pulverized. It is very much followed in Italy in the cultivation of rice and grain crops and could no doubt be advantageously introduced in the cultivation of corn upon the sandy flats of tide water. In Egypt it is of more ancient date than the Pyramids and is still there of common usage, as also in Persia and India. From a passage in Isaiah, the Jews seem to have regarded "a garden that hath no water" as a picture of desolation.\* If introduced in our garden culture, vegetable famines like that of 1854 might be avoided. The practice is very simple. The conductor, (which in garden culture need be not much larger than a water furrow,) is constructed as before directed. The land is laid off in beds 5 or 10 feet wide, the water furrows graded to a continuous but gentle inclination and stops placed in them 10 or 20 feet apart, according to their rapid or gentle descent. The water is passed from the conductor into the water furrows, and absorption and capillary attraction do the rest.

The beds require no grading, but should not at centre be more than one foot higher than at their sides. Irrigation by absorption will not on the same surface consume one-tenth of the water required in Current Irrigation. The main conductor need not, therefore, be of half the size.

#### *Irrigation by Flooding*

Is practiced only on dead levels, or planes, of very gentle inclination. It is an inferior substitute for Current Irrigation and should never be performed when that may be adopted. The whole art consists in surrounding the meadow by tight and carefully

built embankments, and providing sluice gates through which the water may be delivered on or discharged from it, according as it is intended to flood or lay it dry. It may at some future day be found useful in the cultivation of rice, or grass, on our tide water swamps if the problem of reclaiming them, or of appropriating our alluvial wealth below tide water, shall ever be solved.

#### *Legislation needed.*

Irrigation can never be extensively practiced in Virginia, until the privileges, now enjoyed by parties proposing to drain their lands, shall be extended to those intending to construct a water meadow. The head of a conductor, like the tail of a ditch, must be often located in the land of a neighboring proprietor, whose voluntary assent to the entry and appropriation will rarely be obtained. The privileges conferred by chapter 124, page 528, Code of Virginia, would seem as necessary in the one case as in the other. The writer would, therefore, in conclusion, respectfully call to this branch of the subject, the attention of the Agricultural Society of Virginia.

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#### GAPES IN CHICKENS.

My experience in raising chickens teaches me to keep the hen house clean and regularly swept; to visit the yard and keep that swept out also for the space of five or six yards around the house, taking care that neither grass or weeds grow there during the year, and to smoke the hen house repeatedly during the summer. As soon as my chickens are hatched in the spring of the year, say March, I begin to smoke my young chickens every morning with strong tobacco smoke until they are almost large enough to fry. My mode of smoking is to have hovels large enough for one or two hens and their broods, not more; I have a trap door at one end of each hovel, and make the smoke close enough to the door just so as not to burn the hovel, then you will have room in the other part of the hovel not to burn the chickens. So treated, they will never have the gapes.

Your obedient servant,

ROBERT KENT.

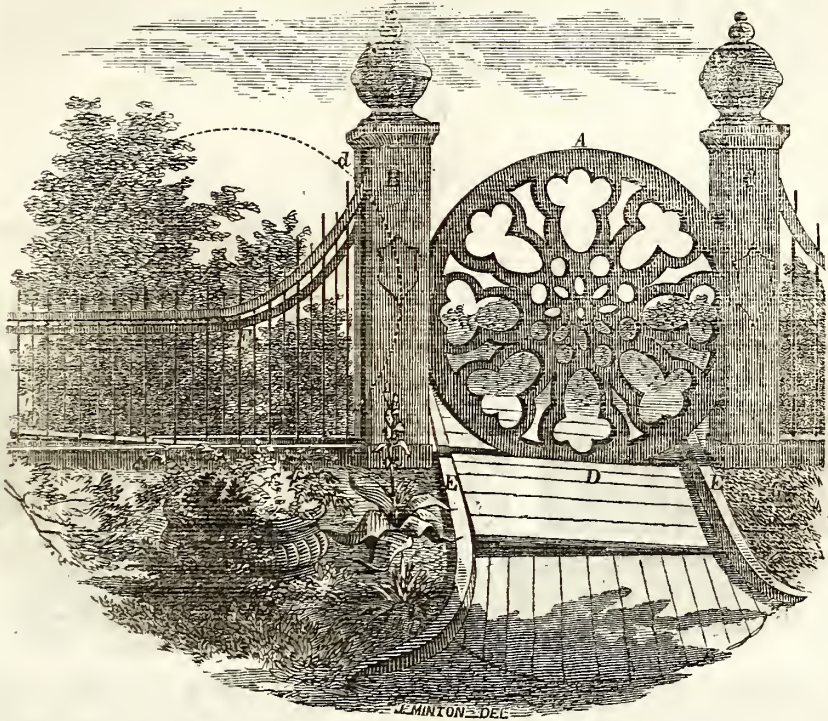
Fluvanna Co. April 2, 1856.

The above remedy of our correspondent may be a very good one; we have never tried it. We have recently heard of another which is said by a lady who raises more chickens than any one we ever heard of to be completely efficacious. It is simply to mix onions or garlick, or wild onions, if the other cannot be had, copiously with their feed. The onions to be finely chopped up.

\* In the book of Genesis we read, "A river went out of Eden to water the garden."



FIG. 1.



CIRCULAR SELF-ACTING GATE.

PATENTED TO WILLIAM THOMPSON, OF NASHVILLE, TENN., JUNE 19, 1855.

THE above engraving is a perspective view of the gate. The invention relates to gates for farms, parks, and enclosures of any kind. A is the gate closed. It is perfectly circular in form, and may be made of any proper material, and of any size desired. B and C are the gate-posts, secured firmly in the ground, or to any proper supports. The left-hand post, B, has a channel, d, entirely through it, from the cap-piece to the bottom. The right-hand post, C, has a channel in it, but not entirely through it, to receive a part of one side of the gate, and retain it when the gate is closed. The gate A rests upon a rail, D, sunk in a platform, a little below the road-way, in the middle of the track, but elevated on one side and extending some distance to the left. The platform rests upon a lever, and extends both in front and back of the gate. On the rail, D, which is firmly fastened to the platform, the gate operates: the fulcrum on which the platform rests is next to the short end of the rail upon which the gate rolls, and the platform has a weight, G, at its edge, sufficiently heavy to keep the short end of the rail upon the ground, and consequently the long end, D, in an inclined position, as shown in the above engraving. When a person or carriage shall be on the platform, approaching the gate, the

weight will depress the left edge of the platform and the now elevated end of the rail, D, fastened to it, and the gate will roll into the position shown in the dotted lines, A', giving way for the person or carriage to pass; and when the carriage or person shall have passed off the platform on the other side, the weight, G, at the edge of the platform, next to the short end of the rail, causes that end to be depressed, and the gate rolls back and shuts itself. It is seen that the gate, when rolling out of the way, passes between the double fence, F. E is a railing on the side of the platform, which can be used or dispensed with at pleasure.

The inside corners of the posts, at the ground, may be extended as close to the gate as possible, so as to fill up the space between the gate and the posts, to prevent hogs, etc., from passing through. These spaces can be readily and neatly filled up.

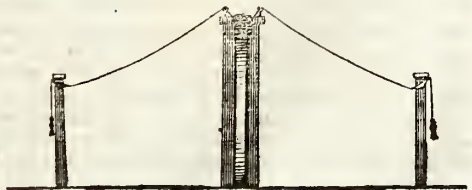


FIG. 2.

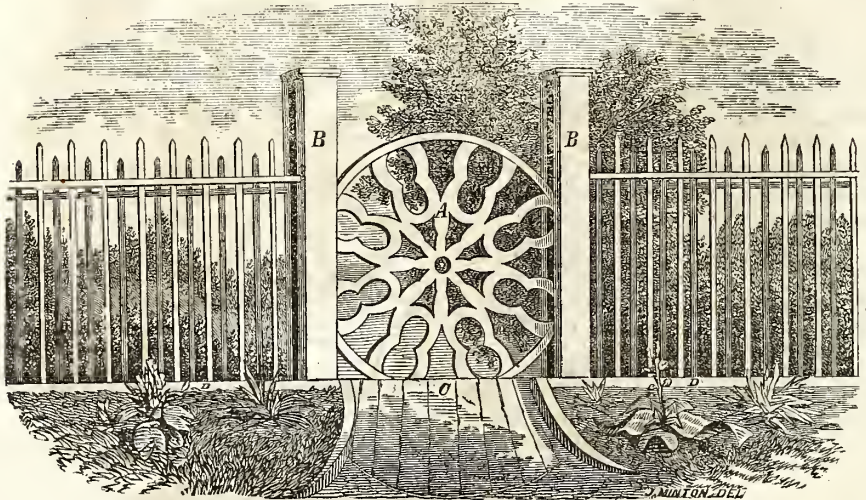
Figure 2 is a catch, or fastening, placed on



top, or near the top, of the gate-posts, to be used in case stock casually open the gate. The string would have only to be pulled by the carriage driver, or any one else passing, which could easily be done; and the catch being raised, as soon as the weight pressed upon the platform the

gate would roll out of the way; and after the gate shall have passed off the platform, in rolling back to its position it will lift the catch, which falling in its place as the gate is closed, keeps it shut, till a passing weight and pull of the string shall again cause it to open.

Fig. 3.



The operation of the gate, as illustrated in Figure 2. will be at once understood on inspection. It operates in a groove in the beam or platform, D, which is deepest in the centre, C, where the gate rests when it is shut, and rises to both the right and left. It is rolled out of the way by hand, and, when let loose, returns to its position, and shuts itself. It rolls between the

double fence, to keep it in place. Instead of the difficulty of keeping a yard-gate shut, this gate, with fair play, would never remain open.

To let the rail and platform be made firm and immovable, the gate, as represented in Figure 1, may be made to operate, when opened by the hand, as does Figure 3.

#### PREPARING FOOD FOR FARM STOCK.

In the January number of the *Valley Farmer* we gave an article under this head, in which we incidentally alluded to one of the most improved mills for grinding corn and cob meal that we have seen; this has called forth in reply several articles on the subject, from the advocates of, and dealers in other mills. In these articles, opinions upon the subject of digestion are advanced at variance with science and the natural laws of animal physiology.

Mr. L. Bollman, editor of the agricultural department of the *Indiana Journal*, takes the subject up, and in proof of his own opinions quotes Mr. Youatt, and says: "Our authority is best," &c. If our friend of the *Journal* quotes Youatt correctly, he (Youatt) is certainly in error, as we shall attempt to show; nor is this the only error Mr. Y., has published in his various works on domestic animals. In proof of our argument we will give authority which the scientific world will admit is still better—Dr. Carpenter and Flourens.

As the preparation of food for economical feeding of farm animals is becoming a matter of great importance to our Western farmers, we will give

Mr. Bollman's article in full, and in order to dispose of the question in controversy, we shall answer at length, although it will occupy more space in our columns than we should feel willing to devote to a subject of less importance. The following is what Mr. B. says on the subject:

"The idea here advanced is that corn and meal when eaten by ruminants pass directly to the fourth stomach, unless mixed with coarser food. Will the *Farmer* give us its authority for this opinion? But conceding its correctness, we ask whether the gastric juice of the fourth stomach is not a sufficient solvent to digest the coarse meal of the crushers. We know it cannot act upon the whole grain, because it has no power over the silicious coating of the unbroken grain.

If the corn is ground into "*fine meal*," can it be chewed any finer? If not, why the necessity of mixing it with cut and moistened hay?

The process of digestion in ruminating animals as stated in these extracts, did not accord with our recollection, but having killed a beef a short time since, to which we had fed *corn in the ear*, we examined the paunch or first stomach, and found the corn, both the broken and unbroken grains,



and the cob, both in pieces and finely chewed, everywhere mixed with the hay and grass which the animal had eaten. If, then, the corn and cob, after being crushed by the jaws and teeth pass into the first stomach, why will it not after being crushed by the iron teeth of a mill?

We proceed to state what is the true digestive process of ruminants, as the ox, sheep, &c., and our authority is the best, Mr. Youatt.

The throat or gullet, or as it is technically called, the *esophagus*, forms a canal from the mouth to the entrance of the fourth stomach. Along the base of this canal are openings into the first and second stomachs. Immediately under the first opening, is the *rumen* or first stomach. "All the food," says Mr. Youatt, "when first swallowed, goes there to be preserved for the act of rumination, and a portion, and occasionally the greatest portion, of the fluids that pass down the gullet, enter the rumen." In the calf, this opening "instinctively closes by an act of organic life," when it swallows the milk; and it is not the *form* of the aliment or food, or the force with which it descends the gullet, that causes it to pass into the rumen of the older animals.

After being received into the first stomach, the food traverses every portion of it, without being changed; except softened and covered with some mucous, and as it approaches the opening through which it passed into it, it is forced through another opening into the *reticulum* or second stomach. The *Valley Farmer* says that it does not enter this stomach until it is chewed the second time, upon what authority we do not know. The office of the second stomach is to force the food back through the opening into it, into the gullet, which carries it back to the mouth, to undergo the second chewing, or as it is called, chewing the cud. In the process, it is thoroughly masticated, and being again swallowed, it passes into the *manipulus* or third stomach. The business of this stomach is to reduce the food to a pulp, in which form it passes into the *abomasum* or fourth stomach. This last one secretes the gastric juice, which digests the food by its chemical action, and converts it into *chyme*. The gastric juice, as we have observed, does not act on the thin outer covering of the grain of corn. Hence if it reaches the fourth stomach whole, it will not be digested, but must be evacuated whole. If it is broken, it will be digested, unless taken in such large quantities that there is not enough of gastric juice to dissolve it. Every feeder knows that many grains are not broken in process; hence the use of mills to aid mastication. If these mills leave the meal with "sharp and flinty corners," so does the crushing operation of the teeth. This we know from what we observed in the paunch we examined. But these sharp corners are softened, they are covered with mucous and are dissolved by the gastric juice, and cannot, therefore produce that intestinal derangement spoken of by the *Valley Farmer*. Improper feeding, colds, or other causes, produce them—if not, then long since would

the feeders, who used crushers, have seen the deleterious effect of the sharp cornered meal.

The only grinder which the Editors of the *Farmer* have seen, that will grind corn and cob meal fine enough, is that of Mr. Straub of Cincinnati. They qualify this expression with the phrase "*at one operation*," but what it means we cannot tell—whether at one handling or but one grinding. Have they seen *Felton's Portable Mill*? It grinds superfine flour, and superfine meal too; so fine that a dozen mastications could not make it finer. So we challenge you, *Mr. Farmer*, with a *Felton* against your *Straub*; the contest to come off at our next State Fair, which as it has thrown open the premiums to be contested by every body, will be an inducement for Mr. Straub "to be and appear."

The writer after conceding our first proposition, asks: "whether the gastric issue of the fourth stomach is not a sufficient solvent to digest the coarse meal of the crusher." To this question we would first reply, that experience and observation around the baryard where this meal has been fed, emphatically answers No. But a more conclusive answer is found in the wisdom displayed by the Divine artist in providing the animal with that complicated and beautifully arranged digestive apparatus, no part of which has been formed in vain. Gross food when given to a ruminant in a form that prevents it from passing through all the various processes of digestion cannot be fully prepared for perfect assimilation. The changes which the fluid secreted by the various departments of the digestive apparatus produce on alimentary matter, is by solution and chemical action. Now digestion cannot be perfect unless the food is given in such a form as to force it to take that course in its downward passage as will cause it to pass through all the various forms of digestion, each of which contribute their proper fluids to prepare it for the perfect action of the next.

The first process towards digestion, is mastication; this is not merely to crush the food and reduce it to a pulpy state, but also to imbue it intimately with saliva. Saliva, so abundantly secreted by ruminants while chewing the cud, performs an essential part in the process of digestion, being in fact the chief agent in the conversion of starch into sugar, or in other words, its digestion. Modern researches have shown, as fully set forth by Dr. Carpenter in his *Human Physiology*, that it is by this fluid, and not the gastric juice, that the amylaceous elements of food are prepared for assimilation. The change which commences in the mouth, is in a great degree suspended in the stomach, to be renewed when the food passes into the *duodenum*, (or first bowel) where it is mingled with the pancreatic juice, a fluid closely resembling saliva in its properties. Hence the necessity for thorough mastication; hence the advantage of mixing the meal with the hay or straw, which secures its passage into the paunch, or first stomach, and its consequent rumination. When the corn and cob is merely crushed in the iron mills, referred to

by us in our former article, it is too coarse and heavy to adhere to the wet hay or straw to be swallowed with it. And when fed unmixed in this form, or when ground into fine meal and fed either dry or in water in the form of slop, it is not of the *mechanical consistence* which will cause it to open the passage into the first stomach, but passes directly along to the fourth or true stomach unprepared for the final act of digestion and assimilation, just as the milk does in the case of the calf, which comes from the mother already prepared for the final action of the stomach. What are the circumstances which determine the direction of the food? Dr. Carpenter, (Princip. Physiol. Gen. and Comp.) thus describes them: "When the food is first swallowed, it has undergone but very little mastication, it is consequently firm in its consistence, and is brought down to the termination of the esophagus in dry, bulky masses. These separate the lips of the groove or demi-canal and pass into the first or second stomachs. After they have been macerated in the fluids of these cavities, they are returned to the mouth by a reverse peristaltic action, the food being shaped into globular pellets by compression within a sort of mould formed by the ends of the demi-canal, drawn together. After its second mastication, it is again swallowed in a pulpy semi-fluid state; and it now passes along the groove which forms the continuation of the esophagus, without opening its lips, and is thus conveyed into the third stomach, whence it passes into the fourth. Now that *the condition of the food, as to bulk and solidity, is the circumstance, which determines the opening or closure of the lips of the groove, and which consequently regulates its passage into the first and second stomachs, or into the third and fourth*, appears from the experiments of Flourens, who found that *when the food, the first time of being swallowed, was artificially reduced to a soft and pulpy condition, it passed for the most part along the demi-canal into the third stomach, as if it had been ruminated—only a small portion finding its way into the first and second stomachs.*"

Now, as we have before intimated, if the amyloseous food passes without mastication into the true stomach, it lacks, not only the condition, but an important element necessary to its digestion, the saliva, and consequently the digestive process cannot be so perfect. In all probability, the fluids secreted by the paunch, which permeate the alimentary mass, also takes some part in the changes requisite to its assimilation. That there is a necessity in the case of the cow and other ruminants, for the food being temporarily lodged in this great receptacle, is sufficiently proved by the fact that the provision for it exists. The calf requires no such provision, because its food being of a different character, is digested by the gastric juice, and not by the saliva.

Our friend further asks: "If the corn is ground into fine meal can it be chewed any finer? If not, why the necessity of mixing it with cut and moistened hay?" We think in what we have already said, these questions are, or should be very satisfactorily answered. But we will give a

further reason: The finer the grain is ground the greater surface is presented to the immediate action of the fluids of the digestive apparatus. Any soluble substance is more readily acted on when finely pulverized, than when in a solid mass. We have now given our authority for the statements made in our former article, and have answered, we think, satisfactorily, the question why it is necessary to mix "fine meal with cut and moistened hay." No doubt some portion of the corn when fed in the ear will pass into the first stomach for the same reason that other coarse food does. An error of our friend of the *Journal* has led us to detect an inadvertence in our account of the digestive organs of the ruminants. The office of the "second stomach," is not, as he states, to force the food back "into the gullet," but to hold the water necessary to macerate the food. "The liquid swallowed," says Dr. Carpenter, "seems to be specially directed into the second cavity, the *reticulum*. It is here that the peculiar provision of 'water cells' is found, for which the camel has long been so celebrated, but which exists in a greater or less degree in all ruminants. These cells are bounded by muscular fasciuli, by the contraction of one set of which their orifices may be closed and their contents retained; whilst by that of another set, the fluid they contain may be expelled into the general cavity of the stomach."

It is said that "necessity is the mother of invention." We happen to know that Mr. Straub run for a long time, a corn and cob crusher by the steam power used in his establishment, the meal was fed to cattle and horses, but it was ascertained that the irritation and disease to which we referred, became quite common among the animals fed upon it. He then run the crushed corn and cob through the burr mill, and reduced it to "fine meal," but this required extra labor, to save which, Mr. Straub directed his inventive powers and produced the mill which does the work at *one operation*; and as our friend of the *Journal* desires light on this subject, we will briefly state that there are two heavy circular plates of steel, encased within an iron covering, around the spindle; one plate is stationary and the other revolves with the spindle; they are so adjusted that they act like a pair of shears and cut and break the cob into short pieces as the ears are passed into an opening like that of an ordinary corn sheller, these pieces fall directly between the stones and are ground fine.

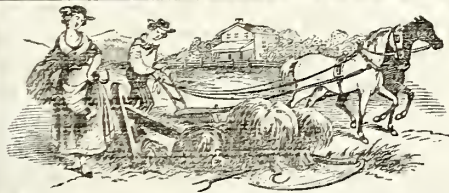
In the May number of the *Michigan Farmer* for 1855, we learn that one of the editors of that paper, after feeding corn and cob meal for two months to his cattle and horses, discovered the irritating effects of the food upon one of his horses, and writes to Dr. Dadd, and alludes to the case as follows:

"For the purpose of testing by *actual trial*, the value of corn and cob meal, after removing upon our farm, we procured a supply at once. Commenced with a full feeding the first of January last, and continued two months, giving to horses and cattle. After a month's feeding, febrile symptoms were occasionally observed in one



of the horses, such as short and quick breathing, full pulse, inflamed feet, fatigue from light exertion and sweating at the breast. At the end of two months, nearly, these symptoms were greatly aggravated; the appetite failed, and the animal lost flesh. Though well satisfied as to the irritating cause, a note was dispatched, containing a short account of things, to our very obliging friend, Dr. Dadd, of Boston, and requesting his opinion on the feeding qualities of corn and cob meal."

In conclusion we will state that we have no pecuniary interest in the manufacture or sale of Mr. Straub's or any mill, but we deem it not only our province, but our duty, to recommend to the farmers the best machines and implements that are offered to the public, as well as to give the best modes of cultivation, &c. This we shall aim to do independently, candidly and honestly, and at the same time, when we deem it proper, expose humbuggery and fraud wherever it exists. We must therefore decline the challenge of our Indianapolis friend to take part in the contest "with a Felton against a Straub." If we have seen the Felton mill, it was but for a moment, and we know nothing of its construction or its merits. If its grinding surfaces are of metal, when new it may grind as fast as the burr or Straub mill, but we are quite sure it is not as durable, nor can it be as readily sharpened by an ordinary farm hand as the burr stones can. But we are for *improvement*, whether in a Straub or a Felton, and we shall be ever ready to chronicle it wherever it is found. **IMPROVEMENT** is our motto.



## THE SOUTHERN PLANTER.

RICHMOND, JUNE, 1856.

### TERMS.

ONE DOLLAR and TWENTY-FIVE CENTS per annum or ONE DOLLAR *only* if paid *in advance*. Six copies for FIVE DOLLARS; Thirteen copies for TEN DOLLARS— to be paid invariably *in advance*.

No subscription received for a less time than one year.

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

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

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

Subscribers are requested to remit the amount of their Subscription as soon as the same shall become due.

If Subscribers neglect or refuse to take their papers from the Office or place to which they are sent, they will be held responsible until they settle their account and give notice to discontinue.

If Subscribers remove, change their offices, or perhit their paper to be sent to an office that has been discontinued, without directing a change of their paper, and the paper is sent to the former direction, they will be held responsible.

All Payments to the Southern Planter will be acknowledged in the first paper issued after the same shall have been received.

All money remitted to us will be considered at our risk *only* when the letter containing the same shall have been registered.

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

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

RUFFIN & AUGUST, Proprietors.

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

### ADVERTISEMENTS.

Will be inserted at the following rates; For each square of ten lines, first insertion, One Dollar; each continuance Seventy-five Cents.

Advertisements out of the City must be accompanied with the money, to insure their insertion,

POSTAGE on the Southern Planter,

(when paid in advance,) to any part of the United States, one cent and a half per quarter, or six cents per annum.

### TO SUBSCRIBERS.

We earnestly request that you will read our "Terms" at least *once a year*, and *always* before writing us upon any subject connected with your paper. We frequently receive letters containing remittances, and others requesting discontinuances or directing a change to other post-offices when the office to which the paper is sent is not named. Such omissions occasion us a great deal of trouble, and it not unfrequently happens that your wishes cannot be attended to in consequence of your neglect to conform to this *standing request*.

REMEMBER *always* to name your post-office when writing about your paper.

### TO DELINQUENT SUBSCRIBERS.

There are subscribers to the Planter, who owe for some years and cannot be induced to pay.

There are some who owe for three years, and though applied to, they have neglected to pay. We feel that it is but justice to ourselves to notify such delinquents that if they do not settle by the first of July, we shall be compelled to strike their names from our lists. Though we shall continue to send their bills out periodically. We mean no offence to these delinquents, and beg that none may be taken. We doubt not there are many very excellent gentlemen in the list, and possibly some personal friends, whom we should, beyond all things, regret to displease.— We know that nearly all of them intend to pay, but the putting it off is a serious matter to us; and the rule we have determined to adopt, and hereby give notice of, is a financial measure—one intended to save our money—and not springing from any feeling of irritation against any one.

In adopting the foregoing rule it may happen that we may discontinue the paper of some of our subscribers who have made payment to agents, who have failed to make any return of their agency to us. Should this occur, we will promptly make the necessary amend when notified of the fact.

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*Sale of Dawn Cattle, South-Devon Sheep and Berkshire Hogs.*

It will be seen by reference to our advertising columns, last page, that Lewis G. Morris, Esq., of Mount Fordham, New York, intends to dispose of his whole stock of the above animals at auction and without reserve. His stock are all excellent, and he is no jockey. Gentlemen who wish to purchase may be assured that his stock are, in point of pedigree, what he represents them to be, and in point of form and style what he thinks they ought to be. He has spared no expense in his importations and selections. At least that is our opinion from what we have heard of Mr. Morris. For catalogues containing description, &c., address Mr. Morris, as per advertisement.

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THE GUANO CONVENTION.

If we do not agree with poor Edgar, that "the Prince of Darkness is a gentleman," we yet have very good authority for saying that he is not altogether so black as he is sometimes painted.

For somewhat the same reason, we suppose that Mr. Barreda, that dog with a bad name, ought not to be hung outright, nor even execrated as heartily as is the fashion just now with a good many very excellent gentlemen. His administration as agent of the Peruvian Government for the sale of the guano of which it holds the monopoly has been more and more censured

as the price has risen, until at last a convention of Guano-using farmers is called for the purpose of memorializing Congress to lay a sliding duty on that article, which shall amount to prohibition, when its price shall exceed a certain maximum—we think forty six dollars per ton.

We shall not undertake, in objecting to the proposed action of this convention, to defend Mr. Barreda from all the charges that have been brought against him; nor to hold him up as a model in manners, ethics, or commercial transactions. We doubt not he is a bear; not remarkably scrupulous in his dealings; and with as little of the true spirit of commercial liberality as any other Spaniard. But we shall try and deal him some measure of justice by way of inducing our friends to look at their own interests through a somewhat clearer medium than their present prejudices afford.

Of one ground of complaint against this agent, his alleged breach of faith with Mr. Sands of the American Farmer, we think an erroneous view has been taken. The facts of that transaction are no doubt candidly and truly stated by Mr. Sands, to whom we would by no means impute impropriety. But the policy of such bargains, and the interest of farmers in resenting a non-compliance with them, are altogether different questions. If we understand the case, Mr. Sands agreed with Mr. Barreda to take from him a certain number of tons of Guano, which he in turn was to sell to *cash* customers at less than the ruling retail rates, and on terms which would allow him less than the usual merchants' profit. Now we know that the commission merchants who deal in this article advance money to its purchase and extend credit to its sale, no great number of farmers paying cash for it. But this arrangement of Mr. Sand's assumes, against the probabilities, as the facts present them, that the merchant's profit on this venture is exorbitant, and that he can stop it by an arrangement, whose effect, so far as it goes, is to deprive the merchant of his cash customers, and of course to raise the price on time payments; or drive him from the trade, and deprive the credit dealer of his guano. From this would result a double injury: first to the productiveness of our own country, and second, to the Peruvian government through Mr. Barreda; who, if he could make such a bargain with his eyes open, would thereby prove senseless to his own interests, and faithless to the government he professes to serve. It was an inva-



sion of the regular course of trade, and if permitted to continue, which it was impossible it should have done, would not have enured even to the benefit of Mr. Sands's purchasers, who would have been supplied by Barreda with the worst guano he had.

The complainants about the high price of guano seem to lose sight of some important facts. Granting that the article is monopolized, and that every advantage will be taken of that fact that can be, it does not follow that there will be no limit to exorbitancy. Except in the case of monopoly of articles of paramount necessity—as quicksilver for instance, which was monopolized by the Rothschilds until more recent discoveries of that mineral have liberated the trade—the monopolist has to consider what is the highest price, it will be safe to charge; since if he exceed that limit, as he easily may, either from mistake or greed, he fails to sell. Here then is a motive to reduction in price; and superadded to this there was in Barreda's case an uncertain tenure of office, which rendered it his interest to sell as largely as possible. That he has not *greatly* exceeded proper limits may be inferred from the fact that the sales were large even at sixty dollars per ton; larger, in fact, than they ought to have been, as some commercial men now say the price of wheat was last fall.

But the rise in price was certainly independent to some extent of the monopoly, and of the enhanced price of wheat. Until within little more than a year past guano has been brought into the United States mainly as a return cargo in bottoms trading to California. Going out freighted, but for the opportunity that guano afforded, many of them would have had to return empty or to make a still larger circuit to obtain a back load. Hence moderate freight charges. But since California has come to produce for herself most of the articles that in her infancy she took from the Atlantic, very few ships, comparatively, trade thither, and as a consequence most of those that go for guano now go out in ballast and charge much heavier freights. Besides this special reason, guano, like every other article, must feel the fluctuations in freights; and if from any cause there is a general advance in them, such as the carrying trade experienced in the late European war, it will cost more to transport it from Peru to the United States. To this effect, then, must be attributed a good deal of the rise in price. Another cause no doubt is

the general depreciation of the precious metals, and the consequent rise in the level of prices. And a third may be a disposition to extort more from those who were thought able to pay more. But the facts in this latter attributed cause would seem to acquit Mr. Barreda of any unusual amount of extortion; for when wheat had risen from one to two dollars per bushel, guano in the same time had risen from forty five to, saysixty dollars per ton, so that he, with the above causes to justify him as far as they may be allowed to go, has only advanced 33 per cent. in the face of an advance in wheat of 100 per cent., or in the ratio of one third only. In fact it is less than that; and strictly speaking guano is not so high now as it was several years ago.

Assuming, for the sake of illustration, that a ton of guano will make 70 bushels of wheat, in a good season, then at forty five dollars per ton, and one dollar for the wheat, the profit on the outlay is 55 per cent. But at sixty dollars per ton, and two dollars for the wheat, the profit is 133 per cent. It is true that sixty dollars is too high for guano on account of the fluctuations in the price of wheat, and the uncertainty of the crop, and the price must fall.

Whether the proposed guano convention can reduce it to the desired limit by imposing restrictions, any better than individuals can by consulting their own separate interests, is very questionable; and the policy of the effort therefore debateable. So also is the propriety of Virginia's going into that convention. The use of guano, as is well known, is most profitable on the least fertile lands, the benefits diminishing in proportion to fertility. Of such infertile lands, Virginia has a larger share than any other state likely to be represented in that convention. In many sections of this State guano is the main reliance for the wheat crop; in other more circumscribed districts, and in other states, as also in Great Britain, it is used only as an adjunct to other manures, or as a means of giving the wheat a good start. The relative necessities of the sections then, are very different; and the sacrifices to be exacted are by no means equal. The region which increases to crop by four or five bushels per acre, and ensures a stand of grass perhaps in addition, cannot pay as much for guano as the region which could make little or no wheat without it, nor will it lose as much by a failure to obtain a supply. Supposing that prohibition may be the effect of the requested

legislation, one section will thus have given up much more than the other.

But it is not intended that prohibition shall be the consequence of the law, and we very much doubt if the convention would have half a dozen members in attendance if it were thought that would be the effect. But it *may* have that effect, and hoist the engineers with their own petard.

The game of restriction is always hazardous, and should never be played by gentlemen in a passion. Bluff itself is not more dangerous. Suppose Congress shall unwisely throw this tub to the whale, and grant the law. Where may we stand? British farmers use a great deal of guano, perhaps as much as we do; and they pay for it, grudgingly, to be sure, but still they pay it, more than we pay. If the effect of the prohibitory duty shall be to reduce the price of guano to \$47 per ton, to the British wheat grower when we cannot buy at less than \$46, or if Peru, in exasperation, places Great Britain on the footing of the most favored nation, and sells guano to her at \$40 per ton, but none to us at any price, can we doubt that the whole of her annual sales will be made to the English wheat grower? And how great would be the impetus thus given to our greatest competitors, who in buying all that we now get would kill two birds with one stone: increase their own product, and cripple ours. But suppose we shall bring Peru to terms. The same of course will be granted to all other nations, and thus we shall stand precisely where we were before if the price of wheat abroad depends on the relative production of the wheat zone.

But again: As Peru stands by treaty stipulation on the footing of the most favoured nation, we shall be obliged to impose the same restrictions on the guanoes of all other countries except our own, if we have them, and so strengthen their competition against ourselves all over the world.

And still again: Supposing that none of the above objections apply, as Peruvian guano is the best in the world and outsells any other, it can be taken from Peru to other countries and change hands without let or hindrance; thence it can be shipped hither, and will be, with all the charges of this roundabout transaction superadded to the price.

So that turn which way he may, the position of the restrictionist bristles with dilemmas.

We hear it contended that public opinion is

in favour of the Convention and its measure. Perhaps so; and if inconsiderate declarations be accepted, of course so. But by their *acts* ye shall know them. Persons very frequently, and very honestly too, commit themselves to one opinion where their conduct really exhibits another; for what *but* opinion steers the course of men in the daily business of life. And what is public opinion but an aggregate of private opinion. Now last fall, every body who could not get guano at less, bought it at \$60 per ton, if they thought they could afford it, and the large number who bought at that price shews that they then thought they could. Their aggregate, or public opinion was then, that though guano might be high, it was not too high, at that price. If they shall have been mistaken, as if wheat brings less than two dollars they certainly will have been, they will not buy again; and as the Peruvian Government must meet its liabilities by sales of Guano, the price will fall. If it does, the fall will have resulted from "public opinion privately expressed," so to speak; which springing from the great truth that in the ordinary transactions of life each man is a better judge for himself than Government can be for him, will be much more influential on trade, and more salutary to all parties, than a memorial to Congress, asking that body to say, in effect, by law that no man can afford to give more than 46 dollars per ton for guano, when the fact is directly the reverse.

We have heard it gravely contended that that *is* as much as could be afforded for the article. Why then do people buy it at higher rates? Are all the farmers demented? And how can a convention of mad men cure the Lunacy? What people think they can "afford" to give is the measure of price whether under the influence of competition or monopoly: and for a convention of farmers to attempt to regulate the price of any article monopolized or not on any other principle than that of individual opinion, will be about as hopeful an effort as for a man to regulate his own breathing, which whoso attempts will find himself short-winded in some ten minutes or less.

The talk that we have heard about the necessity of combining against monopoly, and claiming this legislative concession to a great interest is like that we hear too often about the necessity of having agriculture represented in the cabinet at Washington, and setting up a department for the



special benefit of the farming class. We have already extended this article too far, and must pass by a branch of the subject which has too little force to make it worthy of refutation. We may at some other time, and in some other connection, attempt to shew that this policy of class legislation finds its best development and ripest fruit among the barbarous people of India; and that wherever else it has had even a partial existence and recognition it has been the teeming mother of factions and disorders.

How desirable it may be to get Peruvian guano at lower rates, and in greater quantity than we now have it, is a complex question, and cannot yet be stated with confidence. On the whole we incline to the affirmative side of it. But the plan which we should advise to accomplish the object would be very different from angry remonstrance or petulant petition. It would be one whereby the above question would be solved by the experience of those most interested. We would ask the Government to send an able man, as minister or commissioner to Peru to make a commercial treaty with that country. As we get coffee from Rio in return for the flour we send her, so we could send to Peru the very product her guano makes. The country is barren, and means of subsistence are imported from Chili. Equally destitute is it of manufactures; and these we could supply in profusion. Here lies the foundation of a new trade, which would grow as the wants of the people expanded, and impel the government to terms of liberality. Once let the people see that their subsistence and development depended on those three little islands at Piseo, and that by the time they were exhausted, if ever that time shall be, they will have strengthened themselves again for the wrestle with Potosi, and there be no fear of a failure to get guano on fair terms.

The true policy of Peru is to sell guano until she is rich enough to resume her natural business of mining. And it should be our work, our contribution towards her recovery, to convince her of that fact; to give her government some great object for the employment of intellect which is now frittered away in intrigues, and of energies which are now wasted in Revolutions. This is an enterprize worthy of farmers, broad, generous, national, philanthropic, and far more glorious than railing at a foreign government. If we thought the convention would give

that turn to its deliberations we should hail its meeting with pleasure.

#### USE OF KELP AS MANURE.

The Boston Cultivator contains a very interesting account of the farm of Mr. Ephraim Brown of Marblehead, Massachusetts, the great fertility of which is chiefly referable to the use of Kelp. The farm contains 240 acres with over a mile of sea beach. The sales of 1854 amount to \$7000; the sales of 1855 are expected to reach \$10,000, at an outlay in production of \$3000. The leading crop is onions. But there are only about 8 acres in this vegetable, averaging about 625 bushels, and running up as high as at the rate of 1000 bushels. The manure chiefly decomposed kelp at the rate of 8-10, 12 cords per acre with a small quantity of compost manure. Five acres are in squashes, one measured acre of which produced ten tons. Besides these crops are cranberries, hay, potatoes, and some minor productions, 35 acres only are under hoe and plough. Labour ten to twelve men in summer, fewer in winter, boarded on the farm, and paid at the rate of \$90 to \$130 per annum.

Have none of our sea-shore farmers availed themselves of sea weed? We should be pleased to hear from some of our subscribers in Accomac and North Hampton on this matter.

#### THE NEW ESCULENT ROOT.

THE CHINESE OR JAPAN POTATOES.

Sometime ago one of our friends sent us a long article in praise of the above root, which was published in the New York Tribune by Wm. R. Prince of Flushing, Long Island.

Before publishing it, we applied to our friend Dr. D. S. Green, of Culpeper; now stationed at Portsmouth, who was surgeon in the Japan expedition, to know the value of the thing. He is an enthusiastic farmer, and we were sure would not let anything of Agricultural value escape him. It is unnecessary to publish his letter in reply: its substance was condemnatory of the value of the root to the extent stated by Mr. Prince. He thought it *might* prove valuable as a root for stock, but if it supplanted the Irish Potato, it would do more here than it had done in China, where he had seen two measures of it offered to purchasers in lieu of one of potatoes, and refused.

Other and independent testimony of competent

judges who have known the root in China satisfy us that it is of but little value, and does not promise to prove profitable to any body but Mr. Prince, who is a well known nurseryman and speculator in "garden truck."

#### PRINCESS ALICE MAUD STRAWBER- RIES.

Mr. James Guest, Hollywood Nursery, has sent us a specimen of these mammoth strawberries. They are the largest and finest variety now in cultivation, and are remarkably fine for the season.

Mr. G. will have plants of this variety for sale in the fall, and his advertisement will be found in our columns at the proper season.

#### GUANO ATTACHMENT TO THE WHEAT DRILL.

We publish below an extract in regard to the disputed claim of Mr. T. F. Nelson of Clarke as the inventor of what is known as the guano attachment. So far as our belief goes we freely give the benefit of it to Mr. Nelson. We know him well and respect him highly; he is an honourable gentleman, and for him to assert a positive claim to anything is *prima facie* evidence with us that he is right. In this particular matter of the guano attachment we are perfectly certain that he is the inventor of it. Not only are we assured of it by himself, but gentlemen from his neighbourhood cognizant of all the facts, and worthy of utmost credit assure, us that there is no doubt of the genuineness of his claim.

As there are conflicting claims to the honor of *inventing* and introducing into Virginia, this valuable addition to the catalogue of Agricultural machinery, we render but an act of simple justice to a citizen of Virginia, by setting before the Virginia public, the following extract from the report of a committee of the Virginia State Agricultural Society, ascribing to him the honor of having originated this important and valuable implement.

The State Agricultural Society in its schedule of premiums for 1855, proposed to award "*honorary testimonials*, to each individual of Virginia, who, previous to 1854, has discovered, or introduced, or brought into use any principle, process or facility, or generally any improvement, by which important value has been gained for the agricultural interests of Virginia."

The chairman of the committee of award under the 8th branch of the society's schedule, N. Francis Cabell, Esq., of Nelson county, Va., reported, 1st: That the Rev. Jesse S. Armistead, of Cumberland, is entitled to such honorary distinction for having "originally prepared" a

"specific manure for tobacco, &c," an account of which is detailed in the report and will appear in the transactions of the society. Reference is also made to a further account of it in the Southern Planter for April and June, 1853. The report then proceeds to award a similar distinction to Mr. Thomas F. Nelson, of Clarke, for his guano attachment, as the following extract will show:

"2. On the first introduction of guano, and for some time afterwards, it was the general impression that this manure was so highly stimulating in its properties, as to destroy the germ of any seed-grain with which it might come in contact, when both were deposited in the earth. Mr. Thomas F. Nelson, a citizen of Clarke county, by experiment, so early as 1849—and which was continued in subsequent years—satisfied himself that this was a vulgar error. As guano was also highly volatile, a further deduction was, that in the usual mode of its application there was a great loss of useful effect, much of it escaping without having contributed any thing to the growth of the plant; and that a less amount than was commonly used could be made to answer the end if placed in immediate proximity to the seed. With this view, he set about devising an implement which should effect this purpose. He invented what he calls a guano attachment, which in conjunction with any one of several drills that are now used for seeding wheat, may be made to deposit both guano and seed in regulated quantities and at the required depth—being the same which he has heretofore exhibited on the Fair Ground of this society. Whatever claims others may have to the invention of a similar implement, the undersigned has had evidence laid before him abundantly sufficient to convince him, that Mr. Nelson was the first in that region, and perhaps in the whole State, to prove and expound the principle above mentioned, and that he was the independent inventor of an implement, such as we have described; and that its employment for the purpose suggested, has resulted in the more economical use of that costly article and with equal effect."

#### GARDENING FOR THE SOUTH.

We have received the above book, by Saxton. New York, from Mr. Woodhouse, Bookseller, Richmond.

It treats of the kitchen and fruit garden, with hints on landscape and flower gardening.

Not having time to read this book, we submitted it to a lady friend of ours, who is one of the best judges of such things that we know. She says it is the best Gardening Book for our region she ever saw. And we feel no hesitation in endorsing her opinion, and recommending the work to every one who has a garden.

Price, \$1 25.



**MR. WILLIAM G. CRENSHAW'S LAND FOR SALE.**

We rarely "call attention" to advertisements, and never without a very good reason. We are impelled to do so in the case of Mr. Crenshaw's advertisement, because his farm presents a case in point to the argument and exhortations we have so frequently employed in favour of fine woolled sheep. As he is going out of the business, we have applied to him for his experience and now give it, premising that he is a merchant and speaks from his books.

He began with 325 sheep in October, 1851, in February, 1852, he purchased in New York, 120 more. He has ever since been steadily increasing his flock by retaining all his lambs, and has not sold off any of his old ewes. Last summer at shearing time his whole number reached about 1000 head. A good many of his lambs died during the fall, and the past winter, which was an extraordinary one, killed a considerable number. After selling off one hundred and fifty this spring, many of them mutton, at \$5,00, his flock contains about 800 head.

His actual sales to this time amount to,	\$4 500
His clip this spring will certainly reach,	1 500
<hr/>	
Gross sales,	6 000
Deduct cost of purchases and expenses from New York,	1 700
<hr/>	
Nett	\$4 300
Add estimated value of 900 sheep at average cost of his purchases, \$4,	3 600
<hr/>	
Nett profits,	\$7 900

Every thing fed to them has been raised at home. This shews an average profit of \$2 000 per annum from an average number of 600 head of sheep, including old sheep yielding but little wool, and allowing for variation in value of wool, and depressed prices at one time. With 600 picked sheep, it is not unreasonable to say that the profit can be pushed up to \$4 per head. This certainly compares well with the profits of wheat for an average of five years. But Mr. Crenshaw also raises wheat, and now has seeded a large crop, which we are told is very fine.

We think a statement of this sort, based on actual sales for four years, shews that wool growing is profitable in Virginia. Several of our friends who have seen the farm, (we never have,)

say it has improved very rapidly, and it is now beautifully grassed.

Those who think wool growing will net pay, may here see that it will; those who have been discouraged by failures, may go and see where the fault was.

We wish all could see it, for sooner or later the farmers of Middle Virginia must go into fine wool. It may not be for a generation, but sooner or later it must be. Guano can never take the place of animal manures.

Why sell so fine a farm? Because the owner is a merchant, residing in Richmond, and up to his chin in business!

**THE WHEAT CROP.**

From what we learn, the wheat crop in Virginia is not as good as the crop of last year.— We have seen or heard from a great many farms in various parts of the State, and whilst in particular localities, as Orange and Albemarle for example, the crop is better than they have had for several years, and whilst in particular neighbourhoods there are prospects of good returns, yet on the whole, the fly, the joint worm, and chinch bug, one or more, and the hard winter, have made sad havoc with the wheat. The drought, too, which at this time prevails in some considerable districts, makes the prospect critical. But we should not forget that all the wheat last year was made after the first of June. Nor should we forget in our speculations that nothing is more uncertain than the yield of wheat, except the price of it.

**HARVEST DRINK, DIET AND MEDICINE.**

We cannot do better at this approaching season of hard work, than republish the following, with slight additions, which we first published in the Planter for June, 1854.

"Mr. Blair Burwell, of Powhatan, called at our office this morning, and gave us the following recipe for a harvest drink:

Water,	33 gallons
Sharp Vinegar,	1 "
Molasses,	1½ "
Ground Ginger,	¼ lb.

"This will last thirty hands until dinner time, when as much more may be mixed up to serve until night. It is carried to the field daily in a cart and moved about after the hands, each one of whom is limited to a cocoa-nut full at a time, always without ice—(they drink nothing else).

He says that the Yankees fought on this mixture at Bunker's Hill, and he agrees if it kills a man to be indicted for murder.

"For our part we see no harm in ice. We have used it regularly for fourteen years without any bad result, but on the contrary, we think, with benefit."

We know persons who have used it beneficially for a still longer period. A venerable friend of ours, recently deceased, assured us that he had used it for thirty years or more, and never without advantage. His plan was to carry out a barrel of ice in a cart, and keep the water tubs nearly filled with it. His theory, and we believe the true one, was that the ice acted as a tonic; and the hands could never overload their stomachs with it, because the water was kept so cold that they could never drink to distension.

Strong coffee should always be given at breakfast and at night.

No form of spirituous liquors should ever be used; and we who say it are not a "temperance man."

"Well cooked black-eye peas, fried onions and rice, the latter cooked in puddings, or in as many forms as you please, are the best vegetables."

Raw onions are also said to be an excellent food with those they agree with, and a friend recently mentioned to us a case of a negro who had never been able to stand the heat and fatigue of harvest, until he thought of supplying him liberally with raw onions, upon which he went through his work like a well trained four miler.

"Salted meats and fish, never fresh, and a plenty of red pepper, in every thing that it suits, boiled in the pod.

"For physic, the pills recommended two years ago by our friend Charles B. Williams, as follows:

Pulverised Opium,	18 grains	} made into 24 pills
" Red Pepper,	18 "	
Gum Camphor,	12 "	

To be taken when the first symptoms of cramp or diarrhoea appear—one then, and an additional one afterwards if necessary, according to the exigency of the case."

We have proved the efficacy of this repeatedly, and would as soon think of going into the harvest without a basket of tools.

See advertisement of "Board in the Country wanted."

## HAY COVERS.

We insert the following, which we solicited in lieu of an Editorial which we had intended to write to the same effect.

NORTHAMPTON, APRIL 25, 1856.

Dear Sir:—

I was much pleased to receive your note of the 21st instant enquiring about the hay covers and I now enclose two receipts which I wrote for our village papers.

The receipt for hay covers is intended for the million—to bring the cost within the means of the poorest farmers; but, for those who are able to pay a small additional price, I should advise them to use cloth that is a little wider and to cut the covers about 45 inches long. I consider 40 by 45 inches as the most desirable size.

I should suppose a small farmer would require about 50, and extensive farmers from 100 to 200, without regard to the number of acres.

My men think that they can make hay two hours sooner with the use of hay caps than without them, even if there should be no rain—they protect the hay against heavy dews.

The size of a hay cock is in this region, on the first day of raking up, when the hay is nearly green, about 5½ to 3 feet in height and about the same in diameter at the bottom—on the second day nearly double the size.

It is now questionable whether any composition is necessary, as the hay cover is not intended to hold water, but to turn it.

We know that a cotton umbrella is a very useful protection against rain, and such farmers as do not like the trouble of painting the cloth over, might supply themselves with a good brown cotton sheeting and merely sew stones into the corners, which would cost only about 8 cents each.

When it was stated that the county of Worcester in this State would have saved \$20,000 last year if the farmers had been supplied with the hay covers, it was not understood to what extent their hay crop was—they would have saved, I think, \$150,000, as in very many instances their hay was sold at half price and was only fit for bedding for their stock.

Respectfully yours,

EDWARD CLARKE.

Northampton, Mass., Apl. 25.

HAY COVERS.—Every Farmer his own Manufacturer. Take a piece or more of yard wide unbleached cotton sheeting that can be bought for 7 or 8 cents per yard and tack it up on the sunny side of the barn or board fence. Then prepare the following mixture, namely:—For one gallon of linseed oil add about two pounds of beeswax, to be simmered together and when taken from the fire add about a quart of Japan. When it is cold, it should be about the thickness of paint. If too thin add more wax, and if too thick add more oil,—then paint the cloth over, on one side only, with a common paint brush, and after drying a day or two take it down and



cut it into squares, then pick up stones of about 6 or 8 ounces each and get the females of the family to sew one into each corner and the thing is completed. It would be an improvement to enclose the stones in a small bag and suspend them a few inches, which would be thought very little more trouble in so good a cause. No hemming the selvages is necessary. Cast-iron weights of 6 ounces each would cost about one cent apiece, but it is doubtful whether they would answer a better purpose than stones. Every farmer should supply himself with these covers at once, as by and by, he will be too busy to attend to this matter. The immense losses sustained last year, by wet weather, should admonish him of its utmost importance. There is the best authority for stating that the county of Worcester alone, which produces upwards of 145,000 tons of hay annually, would have saved 20,000 dollars last year if the farmers had been supplied with these hay covers.

*Hampshire Gazette.*

HALF-BRED SOUTH DOWNS.

We have a few half-bred South-Down Buck Lambs for sale at \$12.50 each, delivered in Richmond. We advise all persons to buy thorough bred stock in preference to half breeds; and we would rather pay four times the difference.

But many persons will not do it, or think they cannot afford it. To all such we offer the above lambs, which will be delivered in Richmond, at the basin, wharf, or any of the depots.

WHAT PENNSYLVANIA FARMERS PAY ANNUALLY FOR THEIR HORSES.

MESSRS. EDITORS:—I note with much satisfaction that some of your correspondents have commenced a discussion in regard to the availability of steam for agricultural purposes; and trust it will be continued, as good only can result from its agitation. Of its availability for all the in-door operations of the farm, such as grinding and shelling corn, cutting fodder, sawing timber, threshing, &c., we have abundant evidence of the most convincing character; and it is only a few months since the agricultural world was startled by the announcement that Mr. Obed Hussey, of Baltimore, (the inventor of the first successful reaping machine,) had made an effectual application of it to plowing. How the cost of Mr. H.'s experiment compares with the same amount of labor performed by horses or oxen, we have not been informed, but the mere fact of such an experiment having been made, and having succeeded, at once demands an investigation on this important point—an investigation which it is to be hoped some of your correspondents or yourselves will proceed to make. In the meantime allow me to present some hasty estimates of the amount which Pennsylvania pays annually for the support of her horse flesh.

From some recently published statistics, I

learn that there are in Pennsylvania 352,657 horses and mules. Of this number, perhaps 52,658 are employed in cities and towns for other than agricultural purposes, leaving 300,000 for the use of the farmer. At the present price of horse provender, the average daily cost of feeding a working horse would be fully 33½ cents. Assuming this to be correct, the daily expenditure for horse feed in Pennsylvania is \$100,000, or \$36,500,000 per annum.

The average lifetime of the horse is about nine years, and the average cost of his keeping for that time \$1094.94. Shoeing, medical attendance, grooming, &c., not included.

The average first cost of the 300,000 horses used in Pennsylvania for agricultural purposes is not less than \$50 each, making an aggregate of \$15,000,000, dividing which by nine, (the average term of horse life,) and we have \$1,666,666⅔, principal and interest, as the annual outlay for horse flesh in our State, the whole of which is to be charged to the expense account of our agricultural operations. Let us now recapitulate:

Cost of feeding 300,000 horses one year,	\$36,500,000
Average annual purchases,	1,666,666
Average annual cost of shoeing, grooming, medicine, &c., \$20 each,	6,000,000

Making an aggregate of	\$44,166,666
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as the sum total of the amount which the people of this Commonwealth pay annually for horse flesh alone. At even the present high rates of produce, it is equal to more than the entire value of the wheat and oats of the State.

From the above statements we find that more than 33,000 horses die annually, the average weight of which may be set down at 500 pounds each, or 26,400,000 pounds of flesh, bones, &c., abounding in nitrogen, the phosphates, &c. It is asserted upon authority, that the body of a dead horse, cut to pieces, and mixed with ten loads of muck, becomes, in a single season, compost of the most valuable character. If this be correct, and I believe it is, we ought to have from the carcasses of the 33,000 dead horses, 330,000 loads of compost, or sufficient to manure 30,000 acres annually.

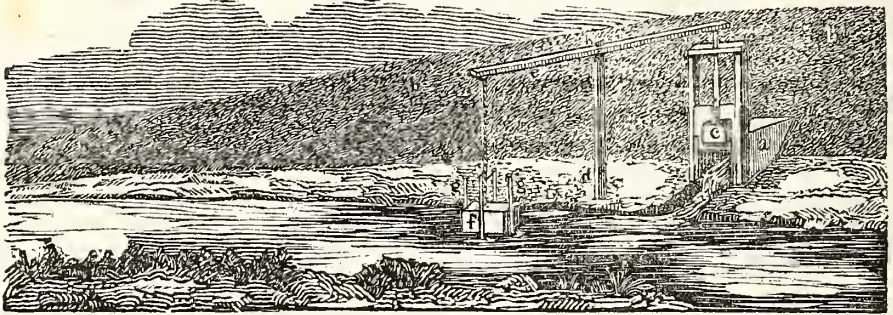
Now, if the carcasses of all the horses that die were taken care of as above suggested, what a vast addition to the fertilizing material of the State would they afford. Enough manure would be produced by them to add 600,000 bushels to the wheat yield of the State—an item certainly worth looking at. But it is more than probable, that not one carcass out of a hundred is ever cut up and mixed with muck, or even buried. Generally, they are dragged to some out of the way place to furnish a banquet for the corn-thieving crows, are more than worthless dogs.

These estimates are not presented as being accurately correct, but they are sufficiently so to render the enquiry whether steam or horse power is most economical, peculiarly interesting.—*From the Farm Journal.*

*Communication to the Virginia State Agricultural Society.*

TIDE GATE.

[The following is the description of a Tidegate, submitted to the committee of awards on that subject, at the Society's third annual exhibition, on which was awarded the premium of twenty dollars.]



DESCRIPTION OF TIDEGATE.

In the drawing, (b. b. b. b.) represents the embankment, which excludes the tide or other back-water. (a.) is the trunk, projecting several feet on the outside of the embankment, and closed by a sliding gate. (c.) is a box attached to the gate, designed to be filled with rocks, so as to regulate its weight and make it sink more readily into the water. (e.) is a horizontal beam, freely vibrating upon the top of the post (d.) by the pivot (h.), and is connected at one extremity, to the shaft of the gate, and at the other extremity, to a float (f.) of light wood. The weight of the float should be considerably greater than that of the gate, so as to overbalance the gate, and make it ascend as the float descends. The float is kept in its place by smooth stakes (g. g. g.) driven into the ground around it, with sufficient play so as to allow it to move up and down readily when moved by the tides or back water.

The "modus operandi" of the apparatus will be seen at a glance. The float being suspended at the lowest convenient point, and immediately at the edge of the stream, will rise with the tide or freshet, and the gate, thus gradually losing its counterpoise, will begin to descend by reason of its own weight, and the weight of the box of stones

attached to it. The improvement in this tidegate consists in a long smooth shaft attached to the gate, and a horizontal cross bar, just above the gate, through which bar the shaft works, thus giving steadiness to the gate and causing it to descend with precision. In the original, exhibited last year, the gate would lean to one side or the other and its lower corners would thus wedge against the sides of the trunk, thus interrupting its free descent. But the improvement entirely obviates this defect, for the cross bar and shaft will always keep the gate perpendicular, and necessarily make its motion smooth and regular.

The recommendations of this tidegate, are its cheapness, its simplicity of construction, its long lasting, and the ease with which it is kept in repair. There is only one moveable joint (h.) and this is above the reach of the salt water which would soon render useless all working joints with which it came into contact. This improved gate is believed to be much superior to the original, and to be fully adapted to all the purposes for which it was designed, and in this belief, is most respectfully submitted to the committee of award by their humble servant, the designer, JAMES T. REDD.

*Henrico County, October 25, 1855.*



## HOLLOW HORN.

*Messrs. Editors.*—The good example set me by J. W. M., in the Planter of this month, prompts me to write an article on the disease, *here* called "*Hollow-horn*," which, in my opinion, is much more appropriate than "*Horn-ail*;" for, it at once declares the condition of the horn, and all will understand what is meant when it is mentioned. It is not generally considered a disease in itself? but the *result of a disease*. Let that be as it may, animals often die for the want of attention to—and skill in the treatment of the horn *directly*.

From experience in several cases among my own stock, and particular enquiry made of my neighbors who have had experience in the matter also, I do not hesitate in endorsing J. W. M.'s theory; but must plead for the animal—to save the horns if possible, for several reasons, such, as the excruciating pain it inflicts, if a portion of the bone, or pith, of the horn remains; which, is hard to determine by having only a gimlet hole through which to examine. I have had them thrown into convulsions by sawing off horns which were partially hollow; and, as they are often poor and weak, they cannot well endure the pain, nor spare the great amount of blood that will escape after such an operation; also, the deformity; together with an open horn to receive rains, snows, and frosts the remainder of its life, are sufficient, I think, to save the horn if possible. Therefore, I recommend boring first with an ordinary shingle gimlet into the lower side of the horn about two or three inches from the head; and if it is found (by using a crooked wire) that the horn is hollow, *empty*, and dry, let there be a table spoonful or more of finely ground black pepper, and as much fine salt blown into it through a quill. But, if the horn contains matter that cannot escape through so small a hole, enlarge it, even to three fourths of an inch in diameter, so the clots can escape, after the horn is emptied of all loose matter, blow in the pepper and salt.

If after this treatment the animal does not very speedily improve, remove one horn; and, if that fails, remove the other in a day or two, or sooner if absolutely necessary.

If the blood flows very freely after sawing off the horn apply dry horse manure,

(first filling up with pepper and salt) which keep to the place by the application of several thicknesses of cotton cloth well tarred.

The horn may be warm, and yet diseased; but, if the horn be *cold*, and upon tapping it with a hard substance, it sounds hollow, be assured that boring is necessary.

I have always found accompanying the *hollow-horn*, a soft place in the tail some six inches or a foot from the lower end, a *perfect decaying of the bone*—it is called here "the wolf in the tail," it should be attended to at the same time with the horn.

It is treated in different ways; one, by cutting off the tail above the diseased portion and filling it with pepper and salt and bandaging it—the disease can be detected by squeezing the tail between the finger and thumb.

These diseases are not confined to any condition; *fat cattle* suffer from them as well as poor.

Before I close I would suggest that it is very important to raise all cattle that cannot get up themselves, as soon as possible; because, the longer they lay, the more discouraged they become, and will lose the use of their limbs. The best *simple* contrivance that I am acquainted with for the purpose is to procure a piece of strong linnen as wide as from the fore legs to the hind ones—(the length of the belly,) and twice as long as from midway on one side, to midway on the other side, measuring underneath: then, sew the ends together (as a hoop), and place it under the animal, it will be double; through each end pass a pole from twelve to fifteen feet in length; immediately in front of, and about three feet from the animal plant a strong stake about four feet high, and then raise the ends of the poles and secure them to the stake, as high, as midway the sides of the animal when standing; then plant a similar stake at the hind end of each pole; then, raise one pole at a time; or, both together, as the force may be; and secure each pole to its own stake as a proper height to elevate the invalid so it can stand. It is well to apply a leather strap around the breast from pole to pole; and, one also behind, from pitching forward or backward.

While it is all important not to let it lay too long, it is also necessary to let it down occasionally to relieve its limbs, &c.

J. M. B.

### A HERD OF HEAVY CATTLE.

For a year or two past there has been a spirited competition between some of the great stock farmers of Illinois. The object being to produce the heaviest herd of cattle of 100 head.

In the spring of 1855, B. F. Harris, of Champaign County, sold one hundred head of cattle, the average weight of which was 1,865 pounds.

Determined to improve on these weights, but in the generous and manly spirit of competition which is always productive of great results, Mr. Rufus Calef and Henry Jacoby, both neighbors of Mr. Harris, and large and opulent stock farms, joined forces, and shipped in the spring of 1855, one hundred fat cattle, the average weight of which was 2,090 pounds, thus leading Harris 125 pounds to the bullock.

This put Harris on his mettle, and about the middle of last March, Dr. Johns, the President of the Illinois State Agricultural Society, was called upon to attend the weighing of another herd of 100 head, belonging to Mr. Harris. The aggregate weight of the herd was 118 3-5 tons, or 2,372 pounds each! Twenty-five of the best and fattest averaged 2,662 pounds each. "The Baby" of the twenty-five kicked the beam at 2876 pounds. They were so fat that three days were required to drive them to the station, 14 miles distant.

The average of the 100 is less than five years. Not one has ever been hounded a day in his life; a half dozen pairs only have been yoked, and a less number worked. They have been pastured and herded on the prairies in the summer, and in the winter fed on corn in the shock and sound timothy, and yarded along the skirts of the Sangamon timber.

It is said that Mr. Harris is likely to realize from \$18,000 to \$20,000 for the lot.

[For the Southern Planter.]

#### NUMBER OF MEMBERS OF THE STATE AGRICULTURAL SOCIETY IN THE SEVERAL COUNTIES AND TOWNS IN VIRGINIA.

The Secretary has completed from the records of his office a transcript of the names of the Life and Annual members of the Virginia State Agricultural Society for each of the counties and towns in the State. These lists are necessarily imperfect, not only on account of omissions, but of the changes which are constantly occurring by

reason of deaths, removals and withdrawals. But they are to be submitted to Commissioners appointed to superintend elections to the Farmers Assembly in order to obtain and have reported by the 1st of July such corrections and additions thereto as will be at least an approximation to general accuracy and serve the purpose of a practical and equal adjustment of representation according to the scale of apportionment contained in the amended constitution. Counties or towns having fifty members, will separately constitute an electoral district and be entitled to elect one delegate—those having one hundred and fifty;—two delegates;—and an additional one for every additional hundred members listed. Other counties and towns having less than fifty members will be united as compactly as may be, so as to form other electoral districts out of two, or as many more as may be necessary to furnish collectively an aggregate of at least fifty members, to entitle such district to elect one representative. Many counties and several towns falling below the number necessary to constitute a separate district, may yet desire to augment their membership to the number required to ensure that privilege, and others having numbers sufficient for the election of one, two or more representatives with a large fractional excess, may desire to obtain the complement of another hundred, by the addition of new members, thereby entitling themselves to an additional representative. To enable all who desire to make such efforts, to do it with a correct knowledge of their numerical standing, the following abstract of numbers from the general lists, is subjoined, showing *first*, such counties and towns as constitute separately an electoral district and also the number of delegates to which each is entitled, and *secondly*, the counties and towns which fall below the number of resident members, necessary to constitute an independent district. It will be seen by reference to this abstract that a little effort only on the part of commissioners or other zealous friends of the society, will be required to secure the complement of numbers necessary to erect many counties into separate districts which must otherwise form but an integral part of one composed of two or more counties or towns. It will be also observed that other counties and towns having one or more representatives, with a large fraction still unrepresent-



sented, may by corresponding exertion increase their membership so as to gain an additional representative. *But let it be distinctly understood and remembered that these changes must be reported to the Secretary by or before the first day in July next*, because at that time he is required to conclude the arrangement of districts with reference to then existing numbers and no new members enlisted thereafter can change the basis of representation for the present year, although all such, who up to the close of the elections, shall join the Society, will have equal right with older members to vote for as many representatives to the Farmers Assembly as may be assigned to his district in the apportionment to be then fixed and determined.

*Abstract of members taken from the lists of members of the Virginia State Agricultural Society.*

Counties and Towns.	Members.		Counties and Towns.	Members.	
	Members.	Representatives.		Members.	Representatives.
Albemarle	495	5	Henrico, (exclusive of Richmond city)	466	5
Alexandria (county and town)	107	1	Jefferson	67	1
Amelia	212	2	King William	79	1
Annista	505	5	King and Queen	75	1
Bedford	117	1	Lynchburg	144	1
Botetourt	65	1	Louisa	297	3
Brunswick	100	1	Lunenburg	189	2
Buckingham	132	1	Madison	104	1
Campbell, (exclusive of Lynchburg)	77	1	Mecklenberg	146	1
Caroline	150	2	Montgomery	64	1
Charles City	55	1	New-Kent	50	1
Charlottesville	315	3	Notto way	190	2
Clarke	51	1	Norfolk city	79	1
Chesterfield	292	3	Orange	146	1
Culpeper	85	1	Petersburg	374	4
Cumberland	149	1	Pittsylvania	118	1
Dinwiddie, (exclusive of Petersburg)	66	1	Prince Edward	273	3
Fauquier	87	1	Prince George	78	1
Frederick	64	1	Powhatan	167	2
Fluvanna	84	1	Richmond City	1569	16
Greene	77	1	Roanoke	78	1
Goochland	91	1	Rockbridge	139	1
Halifax	236	2	Rockingham	106	1
Hanover	246	2	Spottsylvania, (including Fredericksburg)	102	1
			Wythe	69	1

Counties in which the members under 50 in number, and as yet too few to make separate electoral districts:

Counties.	Members.	Counties.	Members.
Accomac	3	Monroe	10
Alleghany	8	Morgan	2
Amherst	41	Nansemond	3
Appomattox	31	Nelson	45

Barbour	1	Norfolk County, exclusive of city and including Portsmouth)	4
Bath	19	Nicholas	0
Berkeley	2	Northampton	13
Boone	0	Northumberland	2
Braxton	0	Ohio, (including Wheeling)	3
Brooke	0	Patrick	4
Cabell	1	Pendlekn	0
Craig	6	Page	15
Carrall	5	Pocahontas	0
Doddridge	0	Preston	0
Elizabeth City	19	Princess Anne	16
Essex	45	Prince William	14
Fairfax	28	Pulaski	19
Fayette	0	Putnam	1
Floyd	6	Raleigh	1
Franklin	22	Randolph	0
Giles	12	Rappahannock	14
Gilmer	0	Richmond County	3
Gloucester	33	Ritchie	0
Graysnn	3	Russell	0
Greenbrier	18	Scott	0
Greensville	26	Shenandoah	-25
Hampshire	4	Smyth	9
Hancock	0	Southampton	10
Hardy	1	Surry	21
Harrison	1	Sussex	9
Henry	18	Stafford	21
Highland	18	Taylor	1
Isle of Wight	7	Tazewell	4
Jackson	7	Tyler	0
James City	17	Upshur	0
Kanawha	7	Warwick	1
King George	14	Warren	9
Lancaster	6	Wayne	0
Lee	0	Weizel	0
Lewis	0	Washington	19
Logan	0	Wood	1
Loudoun	44	Wyoming	0
Marion	0	Westmoreland	35
Marshall	0	Wirt	0
Mason	5	Williamsburg	9
Mathews	4	York	6
Middlesex	6		
Mercer	5		
Monongalia	1		

Life members.....1,465  
 Non-resident members.....224  
 Total members of society.....10,103

CHEAP OIL FOR KITCHEN LAMPS.

WE find the following, says the *New England Farmer*, in an old almanac, and think that if it will operate as stated, it would be of some consequence in our domestic economy. To keep a good light at the present high price of oil is quite an item of expense, any suggestion that will put us in the way of reducing that expense, and of obtaining a good light at the same time, is worthy of consideration. Oil that could be purchased five years ago for \$1-25 per gallon, now sells at \$5, and the dirty whale oil that was then considered unfit for the most common use, is selling now at eighty or ninety cents, and even one dollar a gallon:

"Let all scraps of fat (including even whatever bits are on the dinner plates) and all drippings, be set in a cold place. When the crock is full, transfer the fat to an iron pot filling it half way up with fat, and pour in sufficient cold water to reach the top. Set it over the fire, and boil and skim, till the impurities are removed. Next pour the melted fat into a large broad pan of cold water, and set it away to cool. It will harden into a cake. Then take out the cake, and

put it away in a cool place. When wanted for use, cut off a sufficient quantity, melt by the fire till it becomes liquid, and then fill the lamp with it, as with lard. It will give a clear bright light, quite equal to that of lard, and better than whale oil, and it costs nothing but the trouble of preparing the fat. We highly recommend this piece of economy."

#### PEA WEVILS.

Few persons (says Dr. Harris,) while indulging in early green peas, are aware how many of these insects they swallow. When these pods are examined, small discolored spots may be seen within each corresponding with a similar spot on the opposite pea. If this spot on the pea be opened, a minute whitish grub, without feet, will be found therein. It is the wevil in its *larva* form lives upon the marrow of the pea, and arrives at its full size by the time the pea is dry. The *larva* then bores a round hole, from the hollow in the centre of the pea, quite to the hull, but leaves the germ of the future sprout untouched. This insect is limited to a certain period for depositing its eggs. Late sown peas escape its attacks. Those sown after the 10th of June are generally safe.

#### WOOL—CLEANING AND CARDING.

The manufacturing of rolls is a very different business now, from what it was in the days of our grandmothers. Then every farmer made his own cloth, and carding-machines were as plenty as grist-mills. Now they are scarce and every day diminishes the number. Then, *clean* wool was an object, now, heft and fineness of fleece is sought. A machine could then card from two to three pounds of rolls per day—now from 40 to 60 is the extent of the capacity of even larger and better machines.

The difference is in the fineness and gum of the wool. No Merino wool can be carded into good rolls without cleansing. It is idle to expect it, and be it known that ninety nine cases in every one hundred, had carding is the result of improperly preparing the wool. Wool is not always clean when it is washed white. *Cleansing* wool, is, *by far*, a more difficult operation than carding. Those who have wool to card had better take it to the machine to be cleaned and carded, when they have conveniences for doing it properly. The charge for cleaning will not exceed a penny per pound. Never *grease* wool till the day it is *carded*. Carry the grease to the machine with the wool. Grease on wool soon becomes rancid and then it is as bad as the gum and dirt on the fleece.

As some will cleanse, or *attempt* to cleanse their own wool, it may not be amiss to give some directions upon the subject. Ten years experience qualify me to say, that the following recipe will work well, with proper care. To four pails water, add four quarts of salt; heat the solution as hot as you can bear the hand in it;

put in the wool loosely, say 2 lbs at once; in ten minutes it will be cleansed; squeeze out the liquid, (which is better than before for the second use,) and while the wool is warm rinse in plenty of water.

Many use soap, pound the wool, or rub it on a wash-board; this is all wrong, as such a course fells the wool like a felt hat, and fails to remove the gum. It is difficult to convince such a practitioner that cleansing wool is a chemical process not mechanical. Soap renders wool sticky. No one need fear having his wool "dropped" if it be well cleansed. *Clean wool* is perfectly white and free from gum. Again, wool must not be left in a pile while wet, till it musters or mildews, if so, no machine I ever saw will card it well. I say again, pick out all burs, sort your wool as you want it, and take it together with the grease to the machine, and say to the carder *a cleanse and card.*" If you do so, the chances "are you will have good rolls. Perhaps others may know of a better recipe than the above.

G. T

HAMPTON, April 29, 1856.

*Mr. Editor*,—As the time is at hand for bugs to make their attack on Melon, Pumpkin, and Cymbin vines, permit me to make known, through your valuable paper, a remedy, a single application of which, put an immediate stop to the ravages, a host of them were committing on my vines, last Spring. The vines were sprinkled with water, well impregnated with the odor of coal tar. The bugs instantly rose from them, like a flock of black birds, and never returned. I had my Rutobaga plants, as soon as they came up, treated in like manner, and no insect attacked them.

Very Respectfully, Yrs. &c.

G. W. SEMPLE.

#### Three Tracts of Land for Sale.

**I WILL SELL AT PRIVATE SALE THREE TRACTS OF LAND**, in the county of Buckingham; in the lower end of the county, and immediately in the neighborhood of the Female Institute, containing Five Hundred Acres, two hundred of which is in original forest growth, lies well, well watered, and in an agreeable neighborhood; one Tract in the upper end of the county containing Three Hundred Acres, about fifty acres of creek low grounds upon the same, nearly all in original forest growth, and well timbered, and uncommonly well watered and abounding in springs of the very best order; one other Tract, containing Seven Hundred and Fifty Acres, heavily timbered, well watered, and nearly all in original forest growth.

Presuming that no person would like to purchase without first viewing the land, I decline giving a detailed description of the same—inviting all persons wishing to purchase to call upon me and judge for themselves, as I am determined to sell, and will sell a great bargain in the above lands.

June 1—4t

ROBERT MOORE.



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

LIST OF PAYMENTS.  
 From 22nd April to 23th of May '57.  
 Jno G Carr, Jan 1860  
 J T Redd, Jan 1857  
 H M Baker, March, 1857  
 Jno A Payne, Nov. 1856  
 A W Robbins, Jan 1857  
 W. L. Pannell, Jan 1857  
 Jas M Adams, Jan 1857  
 Jas Spindle, Jan 1857  
 Jno Tarrant, Jan 1857  
 Thos B Payne, Jan 1857  
 V Bargamin, Jan 1857  
 J G Cabell, May 1857  
 Jno E Jones, Jan 1857  
 Lem Turner, Jan 1857  
 Jos T Heuley, Jan 1857  
 E C Wingfield, July 1857  
 R D Simms, July 1856  
 D B Harris, Jan 1857  
 F Burns, Aug 1857  
 T C Law, Jan 1857  
 Geo Taylor, Jan 1857  
 E Wortham, Jan 1857  
 H C France, Jan 1857  
 Jno Keen, Jan 1857  
 R W Tunstall, March 1857  
 Thos Cook Jan 1856  
 J M Stout, July 1857  
 W Sandidge, Jan 1857  
 Jas W Conway, Jan 1856  
 W J Barrow, Jan 1857  
 Jas C Roy, Jan 1857  
 G Depp, Jan 1857  
 W H Goodwin, Jan 1857  
 T C Foster, Jan 1857  
 J R Fleet, May 1856  
 Wm M Shepherd, Jan 1857  
 Thomas S Martin, Oct 1856  
 Bolling Jones, Jan 1856  
 J N Faulcon, Jan 1856  
 Lem. Martin, Jan 1857  
 S B Finley, Jan 1857  
 W A Scott, Jan 1857  
 Jas L Mills, Jan 1857  
 H J B Clarke, May 1856  
 M T Campbell, Jan 1857  
 R T Jones, May 1857  
 R Harrison, Jan 1853  
 Jno W Watkins, Jan 1857  
 Jno H Watkins, Jan 1857  
 W Gibson, Jan 1857  
 W Murray, Jan 1857  
 Mrs R J Washington, July '56  
 T J Sorsby, Jan 1857  
 T H Walthall, Jan 1857  
 Jno Ruff, June 1857  
 F L Taylor, Jan 1861  
 J D Turpin, Jan 1856  
 H Harrison, July 1856  
 W P Braxton, Jan 1857  
 Dr. G. P. Holeman, Jan 1857  
 C P Moncure, "  
 W H Cosby, June 1856  
 Dr E A Solmond, Jan 1857  
 T J Anrum, Jan 1857  
 W A Anrum, Jan 1857  
 T E Graves, Jan 1857  
 J H Steger, Jan 1857  
 N Burnley, July 1856  
 T J McClintock, May 1857  
 Jno H Winston, April 1859  
 T T Pettus, Jan 1857  
 W S Peachy, March 1857

J P Wilcox, Sept 1856  
 F W L Faunteroy, Jan 1857  
 Byrd Rogers, May 1857  
 Jas Woodfin, Jan 1857  
 W A Winfree, Jan 1857  
 E Bowden, Jan 1857  
 T G Peachy, Jan 1859  
 W D Leake, Jan 1858  
 C W Farmer, Jan 1857  
 Jno W Wilson, Jan 1857  
 Jno L Lipscomb, Jan 1857  
 A F Randolph, June 1856  
 Ro M Whaley, Jan 1857  
 C Breckenridge, Jan 1857  
 W Smith, Jan 1857  
 Dr W Selden, Jan 1857  
 Geo Hocker, Jan 1857  
 Jacob Baylor, Jan 1858  
 Dr J H Parrish, Jan 1857  
 J Overby, Nov 1856  
 J W Allen, Jan 1858  
 Thos Patterson, Sept 1857  
 Wm M Miller, Jan 1856  
 Geo W Kyle, Jan 1857  
 Dr J Michaux, Jan 1857  
 E F Baugh, Jan 1857  
 W B Blanton, Jan 1857  
 M Clarke, Jan 1857  
 A P Strange, July 1857  
 W J Robertson, Sept 1858  
 Wm Hall, July 1856  
 A B Davidson, Jan 1856  
 T J Massie, Jan 1857  
 R M Nimmo, Jan 1857  
 W A Sweet, Jan 1857  
 W G Harman, Jan 1856  
 J B Breckenridge, July 1856  
 J Kinney, Jan 1856  
 P Powers, April 1856  
 S B Brown, Jan 1856  
 Ro Guy, Sep 1856  
 Geo Ponge, Aug 1856  
 W B Cochran, Aug 1856  
 J A Cochran, Jan 1855  
 D Wren, Sep 1856  
 T. J. Michie, April 1856  
 W Smith, Jan 1856  
 J W Bell, July 1856  
 W B Johnson, July 1856  
 J D Brown, Jan 1856  
 R Hanger, July 1856  
 R B Brown, Aug 1856  
 B B Acord, June 1853  
 M Morson, July 1859  
 Thos Young, Jan 1857  
 B W Finney, May 1857  
 Josiah Collins, July 1859  
 J F McGeorge, Jan 1856  
 J M Nicolson, Jan 1857  
 A Leyburn, Jan 1857  
 A S Dandridge, July 1856  
 W Hayward, Jan 1856  
 L J Chappell, Jan 1857  
 A H Ferguson, Jan 1857  
 J A B Thornton, Jan 1857  
 J A Thomson, July 1856  
 J S Nicholas, Jan 1857  
 Powhatan Jones, Sept 1856  
 G C Scott, Jan 1857  
 J W Backhouse, Jan 1857  
 W C Terry, April 1856  
 R Sayers, Jan 1856  
 V O Witcher, May 1857  
 P St, Geo Cocke, Jan 1857  
 Jno W Talbott, Jan 1857  
 Saml Holeman, Jan 1857  
 Andw Maxwell, Jan 1857  
 Jos B Traylor, Jan 1857  
 B Saunders, Jan 1857  
 Jas H Buckley, Jan 1857  
 R D Powell, Jan 1857  
 J C Crutchfield, Jan 1857

W Mitchell, Jan 1857  
 Jno Jeter, Jan 1857  
 Jas D Scott, Jan 1857  
 B B Keesee, Jan 1857  
 Jas Fite, Jan 1858  
 Jas Davis, July 1856  
 Ben Hoover, " 1857  
 James Jones, Sept 1856  
 D J Hartsook, "  
 P H Steenberg, Jan 1856  
 Geo R Goldsborough, " 1857  
 G W Semples, "  
 T B Davis, "  
 M P Sledge, "  
 P B Sledge, "  
 J J Deal, "  
 Geo A Bailey, "  
 Jos W Booth, "  
 A J Bishop, "  
 Geo W Harris, July 1856  
 Henry Duerson, Jan 1856  
 H M Nelson, " 1857  
 W B Irby, "  
 W A Dearing, Nov "  
 W Old, Jan 1858  
 Jno Aldridge, July 1857  
 J T Britt, April "  
 Jas Hobson, Nov 1856  
 Is O Perkins, Jan 1857  
 Saml M Pettit, Sept 1856  
 A Branch, Jan 1857  
 W B Murray, "  
 R W Griswold, "  
 Joshua Carmon, "  
 P Harrison, "  
 J L Davis, "  
 N Walton, Sept 1856  
 Maj J Paxton, May 1857,  
 W G Maddox, Jan "  
 Thos Walker, "  
 E B Hunter, "  
 L Blanton, Dec 1856  
 D La Prade, Jan 1857  
 G J Gardner, "  
 Geo E Naff, June 1856  
 N F Cabell, Jan 1857  
 W Phillips, "  
 W C Marrow, "  
 A McPheters, "  
 C H McCormick, "  
 L W Cabell, " 1856  
 J A Robertson, "  
 P Fowlkes, " 1857  
 L Osburne, "  
 B Osburne, "  
 W D McGuire, "  
 B F Garnett, "  
 W B Bailey, "  
 Jordan Harris, Jan 1857  
 W C Johnson, May "  
 W S Jones, Jan "  
 W H Tunstall, "  
 O P Gray, "  
 Dr J Trent, "  
 N Quesenberry, "  
 E J Bates, Dec 1856  
 B L Barrow, Jan 1857  
 C Wingfield, July 1856  
 W T Blair, Jan 1857  
 W Walden, "  
 E J Harrison, "  
 Wm Henderson, "  
 T W White, "  
 T J Boyd, "  
 A K Fulton, "  
 W O Eubank, " 1858  
 M Pitzer, " 1856  
 A T M Rust, July "  
 P J Fowlkes, Jan "  
 W P Dickinson, Nov "  
 Thos Whitworth, Jan 1857  
 R N Neblett, " 1858

T L Preston, Jan 1856	2 50 Wm Kinney, June 1855,	2 50 CS Gay, Jan 1856	1 00
J R Quarles, Jan 1857	1 00 Jno B Ayres, Sep 1856	5 00 B Wiggenton, Jan 1857	2 00
J S Perkins, May "	1 00 Hill Carter, Jan 1857	3 00 T Evans, Oct 1856	1 00
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 Wm F. Perry.*

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**CONTENTS OF NO. VI.**

Essay on Irrigation, .....PAGE 161  
 Gapes in Chickens, ..... 172  
 Circular Self-Acting Gate, ..... 173  
 Preparing Food for Farm Stock, ..... 174  
 To Delinquent Subscribers, ..... 177  
 Sale of Devon Cattle, ..... 178  
 The Guano Convention, ..... 178  
 Use of Kelp as Manure, ..... 181  
 The New Esculent Root, ..... 181  
 Princess Alice Maud Strawberries, ..... 182  
 Guano Attachment to the Wheat Drill, ..... 182  
 Gardening for the South, ..... 182  
 Mr. Crenshaw's Land for Sale, ..... 183  
 The Wheat Crop, ..... 183  
 Harvest, Drink, Diet and Medicine, ..... 183  
 Hay Covers, ..... 184  
 Half-Bred South Downs, ..... 185  
 What Pennsylvania Farmers Pay Annually for their Horses, ..... 185  
 Tidegate, ..... 186  
 Hollow Horn, ..... 187  
 A Herd of Heavy Cattle, ..... 188  
 Number of Members of the Agricultural Society of Virginia, ..... 188  
 Cheap Oil for Kitchen Lamps, ..... 189  
 Pea Wevils, ..... 190  
 Wool—Cleaning and Carding, ..... 190