

THE SOUTHERN PLANTER

DEVOTED TO

AGRICULTURE, HORTICULTURE, LIVE STOCK AND THE HOUSEHOLD.

T. W. ORMOND,	-	-	-	-	-	PROPRIETOR.
W. C. KNIGHT,	-	-	-	-	-	EDITOR.
W. C. JACKSON,	-	-	-	-	-	ADVERTISING AGENT.

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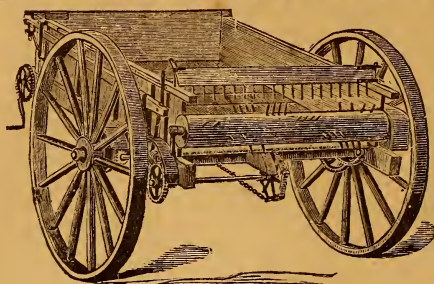
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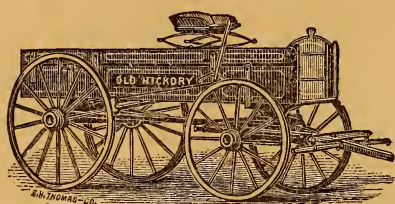
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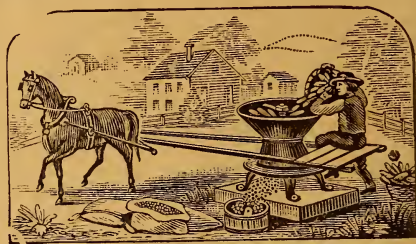
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—THE—
SOUTHERN PLANTER.

DEVOTED TO

Agriculture, Horticulture, Live Stock and the Household.

Agriculture is the nursing mother of the Arts.—XENOPHON.
Tillage and pasturage are the two breasts of the State.—SULLY.

T. W. ORMOND, - - - - - PROPRIETOR.
W. C. KNIGHT, - - - - - EDITOR.

44TH YEAR. RICHMOND, JANUARY, 1883. No. 18.

FARMERS AND FARMING IN VIRGINIA IN THE OLDEN TIME.

No. 6.

[The following articles were found among the papers of the late Joseph C. Cabell, and were sent to us by the junior relative, to whom he bequeathed the entire collection of his books and papers, and who vouches for the correctness of the copies.]

The account of the Monticello estate may be compared with that given by the Duc de Liancourt, which was reprinted in the *Farmer's Register*, Vol. 1, page 725. The routine adopted on the *Shadwell* farm, adjoining, was more nearly in accord with that of leading practical farmers in the same county.

The system then pursued at Weyanoke, as herein described, may also be advantageously compared with the same system as afterwards modified and improved by the proprietor, which is presented to us by Mr. Edmond Ruffin, whose report may be found in the same volume of the *Register*, pages 17, 324, 553. Mr. Lewis, as is generally known to our well-informed farmers, was the pioneer in the use of *lime* as distinguished from *marl*, for agricultural purposes in Tide-water Virginia, on a large scale.

Our contributor has promised to send us some further excerpts from the same papers, containing notes or memoranda on divers matters pertaining to rural economy, which, as being either curious or useful, he thinks worthy of preservation; and perhaps some account of Mr. Cabell's own efforts in behalf of agricultural improvement in Virginia.]

MONTICELLO [IN 1806 OR 1807.]

There are 900 acres of land in this little mountain, which is crowned by Mr. Jefferson's seat. Twelve springs are scattered over its surface, the nearest of which to the house is distant about 200 yards. Besides these there is a well sunk near the

house to the depth of sixty feet, most of which is solid rock. The mountain is laid off into three principal divisions—the pleasure-grounds, the farm, and the park: the first consisting of 150 acres, and occupying the summit of the mountain; the second of 200 acres, and lying below the former on the southern side; the third covering all the rest of the mountain, and stretching along its northern side, where it is beautifully terminated at its base by the meander of the North river.

The mere outlines only of this plan are at present traced. Mr. J. means to fill up the details on his retirement from public life. The pleasure-grounds will be in imitation of the English, and particularly of those of Lord Littleton [at Hagley], as far as the situation will admit, in which, however, there are some obstinate difficulties. There can be no lake, and from the steepness of the surface, the walks must be conducted in concentric circles, in order to avoid fatiguing ascents and descents. From the warmth of the Virginia climate another deviation from the general rules of [landscape] gardening will be necessary. In England, open space is the principal trait. Here it must be shade. Hence the necessity of high trees throughout nearly the whole plan. But by trimming their lower branches in certain parts, Mr. J. hopes to have sufficient prospect, and to sacrifice less in appearance than would be expected. Of the concentric walks there will be three, and a connexion between them formed by sloping ways. The last of them form the outline of the grounds. The trees will consist of the growth of the mountain—locust, poplar, walnut, sasifras, &c. In this respect the grounds will be a curiosity to Europeans, for the rich variety of American forest trees is nowhere more remarkable than on the mountain of Monticello. In several old gullies on a particular part of its surface, I remarked young trees of locust, walnut, and poplar—the usual indications of a fresh and fertile soil.

The farm will be laid into four shifts of fifty acres each, in which there will be a rotation of crops of oats, clover, and peas, for the support of the stable, and the fattening of the smaller animals. Mr. J. will procure all his corn from his farm on the adjacent plain.

The *riding* around the foot of the mountain is between five and six miles in extent, and on a level the whole way, except at the gap where the road passes between Charlottesville and Milton. The road from the mill to the house rises one foot in ten, but in five or six places it runs for some distance on a level

in order not to take too much from the farm, on the left in ascending.

The proportion of 1 to 10, or of 6° of a circle, is the right one in laying off roads on declivities. Mr. J. said he obtained it from Dr. Walker, and that in England, in some of their finest roads, the ascent was only 3° , or 4° in ascending. His instrument for laying off roads was *the rafter level*. By a barometrical calculation the elevation of Monticello above the North river is 510 feet; distance from Monticello to the Blue Ridge, 20 miles; from Monticello to the Eastern horizon, 40 miles; to the farthest visible mountain to the north, 110 miles; to Willis's mountain, 70 miles.

At one time during the drought of summer there were upwards of 500 bags in Mr. J.'s mill. His canal runs three-eighths of a mile through solid rock. The expense thence arising might be the cause of his observing that he regretted his having not purchased land with his money instead of building a mill, in which way it would not yield him 5 per cent. His manufacturing mill has five floors, and two pair buhr-stones, one of five and the other of six feet diameter. Of the latter, one of the stones weighed 5,000, and the other 4,000 pounds. He means to rent the manufacturing mill at \$1,200 per annum. He has purchased for its use a movable fire-engine, which cost \$——. In his toll mill, he means to have erected in the long entry which leads to it, a beam, with a pulley to slide thereon, for the purpose of conveying bags with ease in and out of the mill. This is an imitation of the manner of conveying boats across rivers in France and Italy. The dam across the North river consists of wooden pens filled with stone; and when the wood shall have rotted, he will not pull down and rebuild the old dam, but place another of the same size immediately below and touching it, the inclined plane only being in a different direction, is that there will be a rising in the middle, over which the water will flow when high.

The drought lasted at Monticello from June to August, and about fifty days.

WEYANOKE.

Nov. 2d, 1807.—I was at Mr. Fielding Lewis's, in the county of Charles City. He has about 700 acres of land; works three shifts of about 200 acres each; has about twenty working hands six plow horses, twelve oxen for two carts, one horse cart; three spinners—only for his fifty negroes, who make many little articles for the white family, such as napkins, table-cloths, &c, and

manufacture all the clothing for the women, and all that of the men, except their coats. They are often called out to assist in the crop.

His crops are wheat, rye, and oats, after corn.

He divides his corn-field into three parts, according to the fertility of the soil. *The best part* is laid off into hills five and a half feet apart, with two stalks in a hill. This distance gives 1,440 hills to the acre. *The second part* into hills five and a half feet one way, and three feet three inches the other. These distances give about 2,700 hills to the acre. *The third part* into hills six and a half feet one way, with an intermediate pea hill between each couple, and three feet three inches the other; there being three feet three inches between all the hills, and room enough to plow between them. This distance gives between 3,000 and 4,000 hills to the acre.

The first and second divisions, being the strongest land, are generally sowed in wheat and oats; and the third, being the thinnest and most sandy, in rye. Of this last, he makes on an average from eight to fourteen bushels on land which, if tended in wheat, would not make the seed.

The cow-pea flourishes on this division. It shades and improves the land. The stock are turned in to feed on a part in the fall; the rest are gathered, and fed out to the hogs, &c., in a boiled state, in the winter. The vines are gathered and put on the farm-yard.

He selects the most damp soil for oats.

He makes no tobacco.

He puts his wheat in generally with the corn-stalks still standing, in the usual way. But where the grass is very thick, he gathers the stalks together with the ears on them, into stacks, in the manner of the farmers of Charles City. Where this is practiced, he recommends the laying a pole on two-forked stakes fixed in the ground, and laying the corn against the pole, so as to leave a vacancy for the circulation of air in the middle of the stack.

He plants his oat and rye fields in the cow-pea. The rye may be sowed at any time before Christmas, after the peas are removed, and the oats follow in the spring.

He sows about ten acres annually of his wheat in red clover, which is grazed in the fall after the wheat is removed, and is cut for hay during the second year, when the shift, of which it forms a part, lies out. A temporary fence is thrown around it, to keep off the stock that run on the rest of the shift. These

clover lots are successively placed on different parts of the land, in order to widen the benefit arising from the clover, which Mr. Lewis thinks is equal to that of manure.

He sows fifteen or sixteen bushels of pug, or red clover seed in the chaff, to each acre. Pug yields one pound seed to the bushel. One bushel clear clover seed, equal to sixty pounds, or one peck to fifteen pounds; six bushels red clover seed would sow thirty acres, and Mr. L. thinks it waste to sow it on weak land. He advises only four or five pounds *white* clover seed to the acre. Sixty bushels cow-peas would be necessary to plant with corn 300 acres of land. One and a half pecks rye per acre, fully sufficient for seed, in Mr. L's thin land, and enough in general. More causes the rye to run altogether into straw.

He has five lots of two acres each near his house. The crops on these are red clover, two years; turnips, oats, cow-peas in the broadcast, and mowed to lie; wheat, clover again, &c. He cow-pens for the turnips, and manures for the wheat. The lots are highly manured. He says land tended constantly in the cow-pea will improve, from his own observation.

Cotton will succeed at his house, on James river, for market, from small but repeated experiments by himself.

He turns all his straw, and most of his corn-stalks and pea vines, into manure on his farm pens. He would purchase five times as much straw as his own farm produces, could it be had in his neighbourhood.

He has four farm pens: first, for his milch cows and fattening calves; second, for his steers, which is his treading-yard at his barn; third, for his outer cattle; fourth, for his calves. The first are fed on boiled peas, turnips, pumpkins, &c., and give the richest manure. The second, on chaff, shucks, &c. The third on tops and shucks. He says that cattle fed on tops and shucks look better than those fed on corn alone.

He makes compost with successive strata of manure and earth, &c. He puts his blades in his fodder-stacks, and throws his corn in the shuck into his barn and shucks it in the house in winter. He has a large pot constantly boiling for his stock.

His mode of making a farm pen is very simple and cheap. Rails are laid slanting, and as close as possible. They are supported by poles placed opposite to them. Corn-stalks are placed between the rails, straw on these, and the whole covered with pine bushes, &c. He says land tended in corn, cow peas, and rye, will improve. His corn averages him 15 shillings per barrel.

His coal stands him at twenty-two cents per bushel—viz., eighteen cents at Richmond, and four cents for carriage. This is the best kind of coal. A more indifferent sort costs fourteen cents at Richmond. One-half bushel coal, mixed with gum or green pine, makes a fine fire in his dining room from 12 till 10 at night.

At each of the proposed plantations at Corrotoman, he advises two carts—twelve oxen perhaps would be better. The dividing lane should be forty or fifty feet wide. Each corn shift of 300 acres should be divided into three parts: first, of 150 acres, to be put in wheat; second, of 100 acres in rye; third, of fifty, in oats. Two last in cow-peas also with the corn.

A RIDDLE.

A great many years ago a prominent merchant promised an old lady a prize if, taking her subject from the Bible, she would compose a riddle he could not guess. She won the prize by the following:—

Adam God made out of dust—But thought it best to make me first—
 —So I was made before the man—To answer God's most holy plan—
 My body God did make complete—But without arm or legs or feet—
 My ways and acts he did control—But to my body gave no soul—A
 living being I became—And Adam gave to me my name—From his
 presence I then withdrew—And more of Adam never new—I did my
 maker's law obey—Nor from it ever went astray—Thousands of miles
 I go in fear—But seldom on the earth appear—For purpose wise which
 God did see—He put a living soul in me—A soul from me my God
 did claim—And took from me my soul again—For when from me that
 soul had fled—I was the same as when first made—And without hands
 or feet or soul—I travel on from pole to pole—I labor hard by day
 and night—To fallen man I give great light—Thousands of people,
 young an old—Will by my death great light behold—No right nor
 wrong can I conceive—The Scriptures I cannot believe—Although my
 name therein is found—They are to me an empty sound—No fear of
 death doth trouble me—Real happiness I ne'er shall see—To Heaven
 I shall never go—Or to the grave or hell below.

Now, when these lines you slowly read—Go search your Bible with
 all speed—For that my name's recorded there—I honestly to you de-
 clare.—*Cincinnati Herald and Presbyter.*

SHORTHORNS AT THE STATE FAIR.

The exhibition of this breed at the late Fair was rather below the average in numbers, but fully up to the average in quality. The mature bulls in the class three years old and over were three in number; one shown by Palmer & Bowman, of Saltville; one by Major W. W. Bentley, of Pulaski, and one by the Agricultural College. Bentley's bull took first; second went to Bowman & Palmer. The bull exhibited by Major Bentley is the calf of his cow, *Illustrious 5th*, bred by Mr. Abram Renick, and selected for Major Bentley from Renick's celebrated herd by the late Alex. Matthews, the well known writer on Shorthorns. The sire of this animal was Raleigh, the pure bred Renick Rose of Sharon, late the property of the Agricultural College. There has never been but one bull shown at Richmond, within the experience of the writer, nearly equal to this animal in style and perfection of finish in all his points, except a two-year-old exhibited in 1879 by Mr. Oglesby, of Wythe, a young Mary bull by Joe Johnston, the sire of Raleigh. Bentley's bull is just three years old, and what he will come to be in his four- and five-year-old forms remains to be seen. He is not quite equal in his handling qualities to *Rosebuds' Oxford*, the bull shown by Bowman & Palmer, but surpasses him in style and the fineness of finish exhibited at every point. This animal is a bright, handsome, red color. He has the neatest and finest horns ever seen on the head of a bull; full, bright, mild eye and perfect nose and muzzle. His neck is short and well set into the shoulders. The crops are well rounded and roofed over and exceptionally good. The breast and brisket are full and well shaped and come low down between the fore legs, which are neat, fine boned and well placed under the body. Immediately behind the shoulder, the fore rib at first view seems a trifle flat, but when viewed in connection with the extra broad and well rounded crops and the greatly expanded back ribs, it is evident that the appearance of flatness there is only relative. Along the back the bull is level and broad all the way from base of horn to root of tail. The space between the last rib and the point of the hip is shorter and better filled with substance than I have ever seen in any other Shorthorn. This is the best bull in that I have ever seen of any age or breed. I heard it objected to this animal that his fineness of finish was carried to excess, and that he lacked masculine character. This is not a criticism which ought to come from a Bates standpoint. As an appearance, it is true, but the beast is obviously full of health and vigor, and is a very sure getter and impressive sire in point of fact.

Rosebuds' Oxfords is a good bull, and fit to head any herd. He has handling qualities of the highest type, and is, in point of fact, a vigorous feeder, and rapidly takes on condition, but he is not in as good show form as he was last year, being no longer quite level along the back. I suspect he has had a hard year's service, and probably was not as carefully fitted as he might have been for exhibition. Nevertheless, as a show bull, he is not, and never was, the equal of Bentley's bull. Mr. Renick's bulls are large masculine appearing animals, not often show bulls, but, if they are mated with neat, rather small cows, they have produced the best plow bulls ever seen in Virginia. The old horse breeders maxim—"blood from the sire, beauty from the dam"—seems to find verification in this case. Raleigh was not a show bull, but he was, when he ended his career, the best Shorthorn bull in America. He had more of the blood of Imported Rose of Sharon than any male then living, and possessed the great breeding and feeding qualities of the Red Rose tribe in their very highest development. Raleigh 2nd, shown by the Agricultural College, by Raleigh, dam Bertha 2nd, is a good bull in any company, but not a show bull. The College is now done with him, and anybody in want of a good useful Shorthorn bull cannot do better than to secure him. His dam is the greatest milch cow of her day. The Rose of Sharon family are great milkers, and some of Raleigh 2nd heifers show the predisposition to deep milking very prominently. In two-year-old bulls there was only one entry, and yearlings were not remarkable. The bull calves shown by the College were a very nice lot, and I believe were all sold on the ground. In the cow classes, two roans, shown by Palmer & Bowman, one a Gem, one a young Mary, took first and second. Two better cows have never been shown at Richmond. Susan 6th, Palmer & Bowman's last year's first premium cow, is out of form, getting somewhat patchy, and her show-ring triumphs are ended. Last year she was about as good a cow as could be made. The Golden Pipins, to which family she belongs, are evidently prone to begin to get patchy in their five-year-old forms, and I think the Oxford cross rather intensifies that predisposition. Early maturity is, after all, the grand desideratum in Shorthorns, and, in this respect, the Golden Pipins and Oxfords equal any tribes. I have sometimes thought that the same qualities which secures early maturity tends toward the production of patchiness after maturity. The Oxford blood seems to carry with it handling of the highest quality. And I believe that the Oxford cross would have done probably more for the Rose of Sharons than the Duke cross has done. If Mr. Renick's herd had had the services

of the 2nd and 10th Earls of Oxford, I believe they would have been better cattle than they are with 4th Duke of Geneva at the top of their pedigrees. If they had been in-bred to such bulls as Joe Johnston and Raleigh, they might have been better still. There were two animals on the Fair Grounds this year illustrating incestuous crosses. One, a heifer, by Raleigh, whose dam was by Raleigh. The other, a two-year-old bull, by 5th Duke of Hilhurst, and his dam by 5th Duke of Hilhurst also. I examined both animals critically, and there was nothing about either of them that could suggest any harm done by such breeding. The heifer is the best female in the most excellent herd at the Agricultural College, and the bull one of the best of his age in the great herd at Saltville.

M. G. ELLZEY, M. D.

WINTER OATS.

Editor Southern Planter :

As per request, I will give the reasons I consider the Russian White oats so superior to other varieties :

First. They will, under equal circumstances, produce at least twice as much as any oats I have ever seen.

Second. They are strong growers, and I believe entirely rust-proof. I have seen as many as ten stalks (with heads from ten to sixteen inches long) from a single grain.

Third. They weigh from two to eight pounds more to the measured bushel than other kinds.

Fourth. The straw being very large and stiff, they are more liable to stand through a storm, and also better adapted to very rich land.

You are mistaken in thinking this a winter variety.

Messrs. D. M. Ferry & Co. say they have been sown in the fall in some parts of the South with good results, but I think we are too far North for fall sowing; at least this section of Virginia is. Those who doubt their many good qualities should send to Messrs. D. M. Ferry & Co., Detroit, Mich., and get their circulars and testimonials, also one pound, or two, or a bushel, and try for themselves (the cost will be very small—only a dollar or two), and they will never regret it. My crop was seen by more than a dozen gentlemen, who can verify the statements made by me.

Yours truly,

A YOUNG FARMER.

December 4, 1882.

CABBAGES.

Twenty eight varieties of cabbages, early and late, were tested under garden culture. The seeds—30 of each sort—were planted in the cold-frame April 7th and 8th, and the plants transplanted to the garden April 27th, in rows 3 feet apart, plants 2 feet apart in the rows, the soil made moderately rich and the plants kept cultivated throughout the season with a hoe.

One of the first troubles which we met was in the varieties not coming true to name, although the seeds were procured of one of our most reliable seedsmen. Thus, Henderson's Early Summer gave but 13 genuine plants, Schweinfurt Quintal 25, Sugar Loaf 15, American Savoy 13, etc. But little difference was perceived in the time required for vegetation, varying only from 9 to 10 days in the varieties. There was, however, quite a large difference between the germinative powers of the different varieties of seed. In no case, however, did all 30 seeds vegetate. In 2 cases 29 seeds; in 4 cases 28; in 2 cases 27; in 2 cases 25; in 1 case 24; in 2 cases 23; in 6 cases 22, etc. The first to arrive at edible maturity was the Early Oxheart and the Nonpareil on July 26th. Vilmorin's Early Flat Dutch and Newark Early Flat Dutch came two days later, then followed, on August 1st, the Early Ulm Savoy, the Early Jersey Wakefield, and the Early Winnigstadt; on August 4th, Cannou-ball and Little Pixie; on August 11th Henderson's Early Summer, Crane's Early, Schweinfurt Quintal, Early Blood Red Erfurt; on August 12th, Sugar Loaf, Fottlers Improved Early Brunswick, Large York and Danish Drumhead; on August 22, Premium Flat Dutch, Improved American Savoy, Early Bleichfeld, Early York, Stone Mason, Red Drumhead, Drumhead Savoy and Red Dutch; on September 1st, St. Dennis Drumhead, and on October 17th, Bergen Drumhead.

Those plants which produced as many heads as there were plants, were Schweinfurt Quintal and Early Winnigstadt. Green Glazed produced no heads, and among those which produced but few may be mentioned the Early Ulm Savoy, 7 heads from 29 plants; Henderson's Early Summer, 10 heads from 28 plants; Sugar Loaf, 9 heads from 22 plants; Fottler's Improved Early Brunswick 12 heads from 28 plants; Improved American Savoy, 8 heads from 27 plants; Early York, 5 heads from 22 plants; Drumhead Savoy, 7 heads from 19 plants; Bergen Drumhead, 5 heads from 12 plants; St. Dennis Drumhead, 6 heads from 23 plants. Selecting the few varieties which commend themselves to us, we can name the Vilmorin's Early Flat Dutch, at edible maturity July 28th, 10 seeds germinating, giving 17 heads, and the trimmed

heads weighing about 4 pounds apiece; the Newark Early Flat Dutch, at edible maturity July 28th, furnishing 19 heads from 22 seeds which vegetated, and the trimmed heads weighing about $5\frac{1}{4}$ pounds; the Early Winnigstadt, which was edible August 1st, furnished 23 heads from 23 plants which vegetated, the trimmed heads weighing about $3\frac{1}{2}$ pounds; the Schweinfurt Quintal, was ready for the table August 11th, which gave 24 heads from 29 plants, the trimmed heads weighing about 7 pounds and very solid.

We were troubled considerably by the ravages of the cabbage butterfly, *pieris rapae*, or rather by its larvæ. The butterfly was seen flying about the plants early in summer, and in the latter part of June the first brood of caterpillars appeared. These did less destruction, however, than the second brood, which came about the middle of August. In order to test the efficacy of a few of the so-called remedies for the cabbage worm, we confined some of the caterpillars in a bottle and noted their behavior under various treatments. One specimen, confined for three hours in a bottle partly filled with black pepper, crawled away discolored by the powder but apparently unharmed. The second, repeatedly immersed in a solution of saltpeter, and a third in one of Boracic acid exhibited little indications of inconvenience. Bisulphide of carbon produced instant death when applied to the worm, though its fumes were not effectual. The fumes of benzine as well as the liquid caused almost instant death, but when applied to the cabbages small whitish excrescences appeared on the leaves. Hot water applied to the cabbage destroyed a portion of the worms, causing also the leaves to turn yellow. One ounce of saltpeter and two pounds common salt dissolved in three gallons of water formed an application which was partly efficient. The most satisfactory remedy tested, however, consisted of a mixture of $\frac{1}{2}$ lb. each of hard soap and kerosene oil in three gallons of water. This was applied August 26, an examination the following day showed many, if not all, the worms destroyed.

The growing cabbage presents such a mass of leaves in which the caterpillars may be concealed that it is hardly possible to reach all the worms at one application. It is of importance, therefore, to repeat the use of any remedy at frequent intervals.

E. LEWIS STURTEVANT, M. D., Director.

N. Y. Agricultural Experiment Station, Geneva, N. Y., Nov. 4, 1882.

SUCCESS is always invigorating, but to truly great minds never intoxicating. Only light fabrics are puffed up by a breath.

THE INSPECTION OF EGGS.

METHODS OF EGG-CANDLING.

Many a housewife in this vicinity has expressed her surprise, when purchasing fresh eggs from the market, and being in total ignorance whence they came, that they were so uniformly perfect and gave no signs of decay. The old joke of "Spring chickens" in the eggs at boarding houses and hotels has also gone out of date and people now buy and eat of this favorite food with perfect confidence that it is fresh and wholesome. This state of affairs has been brought about by the custom, which has been universally adopted, of inspecting each egg separately by the dealers, and rejecting all that show the least sign of not being perfectly fresh.

There are few articles of a farm produce which are so easily affected as eggs by a damp, foul atmosphere, and the extremes of heat and cold. The shell of an egg is exceedingly porous, and when the place of storage is too warm and dry the albumen evaporates, and when too cold and damp the egg seems to lose its vitality and rapidly become stale. The porous shell also admits of absorption, and a single rotten egg, the shell of which happens to be broken or cracked, will contaminate whole dozens of eggs in the same package. As remarked in a recent article of the *CULTIVATOR*, the almost universal custom now is to ship eggs expressly prepared for the purpose. This system of egg carriage, which was designed simply to prevent breakage, has done a great deal to improve the market quality of eggs. They do not come in contact with each other, and after they are once packed no amount of knocking about will addle them.

The system of inspecting is called "candling" and the method may be described as follows: A dark room is provided, or a corner is curtained off from the store, in which no ray of sunlight is allowed to intrude. Within this enclosure a single candle, oil lamp, or gas jet is provided so that the "candler" may face it conveniently and have the light on a level with his face. If the lot of eggs which he is about to inspect is known to be a good one, that is, having come only a short distance, and from a party who has a good reputation, the operator grasps three eggs in each hand, from a case at his side and quickly passes each egg between the light and his eye. Those which are good have a clear transparent shell and a vividly rosy light shows through them. An egg which is perfectly fresh seems to carry its freshness with it and appeals to the favor of sight at once.

A rotten or addled egg is perfectly opaque, black in color and is detected at once. Not so with those which are a "little old" or having remained on one side for a considerable length of time, begin to show signs of decay. In these cases a small, sometimes a very faint, black spot is seen and to the quick glance of the inspector this is enough to condemn it and consign it to a lot which is to be eaten at once, probably the customers of cheap restaurants and boarding houses. In no case where the least sign of decay or old age is visible, is the egg placed in the receptacle set apart for those of the first quality and known as "fresh." Should the consignment be found to "run bad," or come from a long distance, the inspector goes about his work in a much more deliberate fashion, for experience has taught him to be conscientious, and his work is much more difficult. In this case he only handles two eggs at a time, one in each hand, and the process is necessarily slower, more careful scrutiny being necessary.

With the best of packing and the utmost care some eggs in every case or package are sure to crack. These the candler places one side, generally with those which are slightly damaged or old, and all are sold together. In making his returns for the consignment the rule is for the dealer to allow one half price for these, and this rule is found to work quite satisfactorily. In Chicago and some other markets "egg candling" is followed as a regular business by men who have become experts at the trade, for trade it really is. These men charge a regular price of ten cents per case of thirty six dozen, and when they are at work are enabled to earn as much as \$3 per day, or even more. In Boston the inspection is done by some one in the employ of the seller or by the seller himself, and no charge is made for the work. It may be safely said that our dealers as a rule are conscientious and furnish their customers with only fresh or first-class eggs. There are some, however, who do not pretend to be honest and only seem to care for the immediate profit. These men are soon well known and should be avoided, not only by the customer, but also by the shipper. A shipper's reputation is quickly known by all the dealers in the market. They exchange notes and compare, one with the other, their observations on the quality, style of package and general qualities of merit or demerit of the different shippers, and will take nothing which comes from a man who is not considered by them firstclass.

We clip the foregoing article from the *American Cultivator*, Boston, Mass., and we know that the handling and proper inspection of eggs should be regarded of the greatest importance to the farmers who produce for sale, the merchants who hold and sell, and those who purchase and consume them. Eggs are a product of the country, and the

cities, towns and villages are dependent on the country for them. They are thus an important item of traffic to the extent of a million, or more, of dollars each year in the United States.

These *candling fellows*, if they are honest and faithful in their assumed expert judgment, are doing the right thing for all persons concerned. They who send eggs to market are taught to know that *good* eggs will only bring a profit, and the merchant who buys and sells them, and the purchaser who buys and consumes them, will feel protected.

RECENT PROGRESS IN OYSTER FARMING.

The modern oyster-farm is essentially a Connecticut idea. The laws of other States do not yet make it a possibility elsewhere. In Rhode Island the oyster grounds are rented at \$10 an acre for a period of ten years, but those who wish to cultivate farms have no guarantee that they can reap the final results of their best endeavors. The law in Maryland and Virginia is that a man having riparian rights, can stake out and have a life-interest in one acre contiguous to his own shore property, not for cultivating, but simply for planting. All else is public property. In Connecticut, however, while the "natural oyster-beds" remain free to all comers, the remainder may be sold to private individuals.

An oyster commission is appointed to hold the office for four years, or longer on reappointment, whose duties are of a very general nature, sufficiently clear on the main points. At the present time these commissioners are Messrs. William B. Hudson, Robert G. Pyke and G. M. Woodruff. They have drawn a shore-line from point to point, within which all is the property of the several towns along the shore of Long Island Sound. Each town has its own oyster ground committee, with whose management we need not now concern ourselves. Outside the shore line, and as far as the lately defined State-line between Connecticut and New York are about 300,000 acres of water territory, a large amount of which is supposed to be suitable for the cultivation of oysters with modern appliances. All this is under the jurisdiction of the oyster commission, who are to map it out and who may designate the portions surveyed to applicants for the purpose of actual cultivation. The price is \$1.10 per acre, for which a deed of permanent possession is given. Among the conditions, however, is one enabling the purchaser to return the ground if it should prove to be worthless for the purpose in view; in which case he gets his money back. But, on the other hand, if he allows it to lie unimproved for five years, it returns to the State as forfeited.

Of course numerous questions arise, some of them sufficiently vexatious, concerning the practical operation of this system. One of these has reference to the reservation of natural beds, from which any one may remove oysters provided he does not dredge for them by steam. Cases are now pending that will settle many of these disputed matters. Meanwhile the fact remains that in Connecticut waters there is room for enterprise, as shown in the cultivation of what may very properly be styled "oyster farms." There are at this time more than 300 applications before the commissioners for the designation of grounds, varying in size from a few acres up to 1,000 or more; and some of the grounds hitherto sold and now under cultivation include several thousand acres.

The largest oyster farm in Long Island Sound, if not the largest anywhere in the world, belongs to Mr. H. C. Rowe, of Fair Haven, a gentleman whose sagacity has done much to shape the legislation of Connecticut, and whose shrewdness has enabled him to profit by opportunities as they presented themselves. Mr. Rowe now controls between 10,000 and 11,000 acres of oyster-ground, and has it all staked off by buoys, so that he can go from one field to another, as a farmer traverses his wheat-fields and grass-lots. For the successful cultivation of such extensive grounds resort has been necessary to steam dredging, but not without strenuous opposition from those who feared that such a method would injure the natural beds. Several other persons have now entered farms rivaling his in size, including from 2,000 to 6'000 acres, and more will be staked out as soon as the surveys can be completed. There is quite a contrast between the old method of "tonging," but even the more effective but uncertain mode of dredging by sail-boats (often at the mercy of the wind and tide), and the trim, wide awake little steamers that run four large dredges and rake up a thousand bushels of oysters a day. With the facilities thus furnished grounds are managed under water from 25 to 50 feet deep.

Not long ago the Connecticut Academy of Arts and Science accepted an invitation to visit the oyster-farms. on the new steamer the Gordon Rowe, in company with the commissioners, and Lieut. Francis Winslow, U. S. N., of the U. S. Fish Commission. The day was favorable, and a large party went, including Profs. Dana, Brewer, Waldo, Platt, and others learned in geology, agricultural chemistry, astronomy, law, and theology, but confessedly having much yet to learn as to the growth of shell-fish. Omitting the incidents of the excursion, it is my intention to explain to the reader the facts exhibited to us by Lieut. Winslow.

Preliminary to doing so, it should be stated that fishing without restriction tends to destroy the source of supply. This fact seems so ob-

vious as to be self-apparent. Yet a wrong impression has prevailed that the millions of eggs annually laid would repair any waste resulting from human invasion. Under this wrong impression they did away with the "closed season" in England some time ago, and in consequence their oyster-beds were nearly destroyed in six years, and it was found necessary to restore the old usage.

Count Pourtales made observations for a single season, ten or twelve years ago, in the Great South Bay and in the Hudson River. In 1877 the Maryland oystermen began to make inquiries as to how far up the stream oysters could be raised in brackish water. About the same time Lieut. Fred. Collins made investigations as to the density of the Chesapeake Bay. These steps were designed to be preparatory to similar investigations to extend over the entire area of national oyster-grounds. In 1878, Lieut. Winslow relieved Lieut. Collins in the Chesapeake Bay, and began his inquiries as to the conditions having special reference to domestic economy. They were continued in 1879, and the results, in part, have been published by the Maryland Fish Commission, but are to appear in full in the report of the U. S. Coast Survey, next fall. Dr. Brooks, of the Johns Hopkins University, began and successfully concluded, in 1879, his experiments in artificially fertilizing the egg of the female oyster, and raising the embryo from the period of segmentation through various stages up to the formation of the shell. An account of these interesting experiments was published in the proceedings of the Johns Hopkins University Laboratory. In 1880, Mr. J. H. Ryder, of the Philadelphia Academy of Science, investigated further, but with no results of especial importance. In the same year, Lieut. Winslow, following Dr. Brooks' methods, succeeded in raising from the eggs, artificially, the Portugese variety of the European oyster, the first attempt of the kind abroad.

During the present year, Lieut. Winslow has been able to reduce the period required for the hatching operation from six or eight days to two or three; and has been trying to devise methods of raising oysters artificially that would be of practical value. His investigations show that the Chesapeake beds are rapidly disappearing, and it remains to be decided whether experiments for restocking them are to be carried on by individuals or by the States. The latter seems to be impracticable, because the young brood will unavoidably attach themselves to localities, instead of benefiting the public oyster grounds at large. Hence Lieut. Winslow has been carrying on his experiments in Connecticut waters, where he can put large quantities of newly hatched oysters directly on the beds where they are to stay.

The parent oysters are first cut up by knives, or more usually ground fine in a small mill, and mixed in glass jars holding sea water. As soon as the particles have settled somewhat, the excess of spermatozoa is drawn off by a siphon, and the remaining mixture is set away to await further developments. The principle difficulty thus far is to supply the young with a sufficient quantity of food and lime in suitable proportion to aid in the formation of the growing shell. It is now known that the male and female oysters differ little in their appearance to the eye, but the "milk," as it is termed, differs greatly under the microscope, that of the male consisting of an infinitude of minute particles gyrating among themselves, while that of the female contains true eggs. In the mixture each egg is forthwith attacked by the spermatozoa, afterward taking the form of globules. All this takes place in a few minutes after the chopped particles are stirred together. The process of segmentation lasts for perhaps twenty-four hours, after which numerous cilia are put forth, and the young oyster uses them to enable it to swim about during its brief life of freedom. The sight is a strange one of a hundred of these diminutive creatures darting about in a drop or two of water, executing a sort of dance under the magnifying glass. The shell on its first appearance is single, then it parts into two valves, at first separate from each other, and afterward joined by a hinge. The cilia grow into a sort of hairy tuft, by means of which it is conjectured that the final attachment is made to the old shells, or other objects at the bottom where the shell fish is to stay. When this has been accomplished, the upper valve grows far more rapidly than the under one.

Each female oyster is estimated to contain from one to ten million eggs, not a tenth of which are vitalized in the course of nature. But by the artificial process, when perfected, it is hoped that fully one-half may be brought safely through the embryo state and then left to take care of themselves. As the matter now stands, each five-gallon planting-can used by Lieut. Winslow, when finally lowered with its load of young oysters, is thought to contain about fifty million alive! These cans are provided with double caps, one at each end, which are removed by cords attached to them, after the can has been let down to the spot to be occupied by the young colony. Care is taken to mark the location exactly, so that it can be found again; and thus in a few months we can tell if the experiment has been followed by practical results.

It may as well be added, for the information of those not familiar with the mysteries of the oyster trade, that "seed oysters" are those that have attained the age of one or two years, when they are about as large as a dollar; the size varying according to the waters. At this

stage they are gathered by ship-loads from the Connecticut beds and sold to oyster-raisers in New York and Rhode Island and elsewhere, at fifty cents a bushel. This is a profitable operation to both seller and buyer. For, while it thins out the beds of the former, it allows what are left to grow to better advantage, on the same principle that thinning a bed of beets will benefit the plants that remain; and for the latter it is profitable, because the third year of an oyster's life witnesses an extremely rapid growth, ending in a fine and marketable bivalve. Those that are four years old, and have been properly cared for, are the so called "saddle rocks," for which the consumer must pay a fancy price.

REPORT OF EXPERIMENTS IN WHEAT CULTURE ON THE EXPERIMENTAL FARM OF THE UNIVERSITY OF VIRGINIA, 1882.

"Whatever may be its constitution and physical properties, land yields lucrative crops only in proportion as it contains an adequate quantity of organic matter in a more or less advanced state of decomposition."—*Boussingault*.

DIAGRAM.

LOTS.	VARIETIES.	FERTILIZERS USED.
1.	German Amber.	Ober's Dissolved Phosphate, 200 pounds.
2.	Yellow Missouri.	S. C. Undissolved Phosphate, 200 pounds.
3.	Bill Dallis.	S. C. Dissolved Phosphate, 200 pounds.
4.	Sandford.	S. C. Undissolved Phosphate, 200 pounds.
5.	Australian.	S. C. Undissolved Phosphate, 200 pounds.
6.	Ohio Swamp.	Ald. Co. Alkaline Phosphate, 200 pounds.

The above diagram represents a piece of land divided into six-acre plots, running east and west. It has a southeastern exposure, and slopes to the east and to the west from about its middles. The soil is a gray micaceous sandstone, naturally very poor. It was in corn last year, following a tolerably good stand of clover, of two years' duration, allowed to remain in the ground until plowed for the corn crop. The corn crop was cut off, and it was plowed for wheat the 19th to the 22d of September; an indifferent crop of peas sowed at the last working being turned in, harrowed and put in thorough order for seeding with the drill on October 13th and 14th, at the rate of five pecks per acre, with 200 pounds per acre of the above-mentioned fertilizers.

PLOT I.

German amber wheat, bearded; seed obtained from Staunton, Va.; sowed with 200 pounds of "Ober's Dissolved Phosphate" in the drill, at the rate of five pecks to the acre; harvested June 19th, threshed July 26th; yield of wheat, $10\frac{3}{4}$ bushels per acre; weight per bushel, 61 pounds; weight of straw, 1,022 pounds per acre. This is a hardy variety of wheat, usually very productive, and very highly esteemed by the millers. It grew vigorously all the winter and spring, but was very seriously damaged by the myriads of "aphis avenæ" or oat plant lice, which attacked the heads before it was out of bloom.

PLOT II.

Yellow Missouri wheat, beardless, sown in the same way as the above, with 200 pounds of "Undissolved S. C. Phosphate," from W. A. James, agent, Richmond, Va.; harvested June 21st, threshed July 26th; yield of grain, $9\frac{1}{2}$ bushels; weight per bushel, 60 pounds; weight of straw, 1,400 pounds per acre. This variety was more injured by the insects than the German amber.

PLOT III.

Bill Dallis wheat, beardless; seed originally obtained from Northern Georgia; treated in the same way, with 200 pounds of "Dissolved S. C. Phosphate," from W. A. James, agent, Richmond, Va.; harvested June 19th, threshed July 27th; yield of grain, $11\frac{1}{2}$ bushels per acre; weight per bushel, 60 pounds; weight of straw, 1,568 pounds per acre. Also very much injured by insects before it was out of bloom.

PLOT IV.

Sandford wheat, bearded; seed originally obtained from Kentucky; seeded with the drill, like the others, with 200 pounds of the "Undissolved S. C. Phosphate" per acre, obtained from the Maryland Fertilizing Company, Baltimore; harvested June 20th, threshed July 27th; yield of grain, 9 bushels per acre; weight per bushel, 58 pounds; weight of straw per acre, 1,300 pounds. The light weight of this wheat is undoubtedly due to the insects sucking the sap, as it has generally weighed well heretofore.

PLOT V.

Australian wheat, beardless; seed originally imported by R. B. Haxall, from Australia; seeded with 200 pounds of "Undissolved S. C. Phosphate" per acre; harvested June 20th, threshed July 29th; yield of grain, $9\frac{3}{4}$ bushels; weight per bushel, 60 pounds; weight of straw,

980 pounds per acre. This variety also suffered from the insects, and was probably on ground more uneven than the others.

PLOT VI.

Ohio Swamp wheat; seed bearded; seeded with 200 pounds of "Alkaline Phosphate," from the Maryland Fertilizing Company, Baltimore, Md.; harvested June 20th, threshed July 26th; yield of wheat, 19 bushels per acre; weight per bushel, 61 pounds; weight of straw, 2,080 pounds per acre. The land of this plot is more level, and naturally a better soil than that of the other plots, but the variety of the wheat and the mixed fertilizer were undoubtedly the main factors in the larger yield.

Golden Straw wheat, yellow beardless variety; seed originally obtained from Northern Georgia. The land on which this wheat was seeded is greatly more improved than that of the foregoing varieties. It has an exposure to the west and south, and a gray sandy soil, with numerous small flint rocks. It comprised $3\frac{3}{4}$ acres, and was cultivated with corn last year, after remaining in grass three years. Having been thoroughly prepared, it was divided into five sections, and seeded on October 13th and 14th with the following fertilizers:

Section A.—500 pounds "Undissolved S. C. Phosphate" (Etiwan), obtained from W. A. James, agent, Richmond, Va.; harvested June 21st and 22d, threshed July 27th; yield of wheat, 16 bushels per acre; weight per bushel, 62 pounds; weight of straw, 1,400 pounds.

Section B.—Dissolved S. C. Phosphate (Etiwan), 500 pounds per acre; yield of wheat, 15 bushels; weight per bushel, 62 pounds; weight of straw, 1,476 pounds.

Section C.—Fine ground Undissolved S. C. Phosphate, 500 pounds, from Maryland Fertilizing Company, Baltimore, Md.; yield of wheat, 15 bushels; weight per bushel, 62 pounds; weight of straw, 1,400 pounds per acre.

Section D.—Acid or Dissolved Phosphate, 500 pounds, from the Maryland Fertilizing Company, Baltimore, Md.; yield of wheat, 18 bushels; weight per bushel, 62 pounds; weight of straw, 1,224 pounds per acre.

Section E.—Alkaline Superphosphate, 500 pounds, from Maryland Fertilizing Company; yield of wheat, 19 bushels; weight per bushel, 62 pounds; weight of straw, 1,568 pounds per acre.

Section F.—Dissolved or Acid Phosphate, 200 pounds, from the Maryland Fertilizing Company; yield of wheat, $14\frac{3}{4}$ bushels; weight per bushel, 62 pounds; weight of straw, 1,775 pounds per acre.

It will be observed that no nitrogen compound was used with the fertilizers applied.

The stand of clover and orchard grass over all the land comprising these sections is equally good—as good as I have ever seen. But it will be noted that the yield of sections “D” with the Acid or Dissolved Phosphate, and “E” with the Alkaline Superphosphate, also more soluble, is from two bushels more than section “A” to three more than “C,” with the fine-ground undissolved phosphates. This indicates that the greater solubility of the acid and alkaline phosphates has increased the yield to this extent. But it is questionable whether the permanent improvement to the land will be any greater with the one than the other; and the difference in price considered, whether the one is really more valuable than the other to the farmer. The observations of practical farmers have induced the belief to some extent that the large use of acid phosphates has not been followed by as great permanent improvement as fine ground bones and fine-ground undissolved phosphates, and our experiments, in the main, bear out the same conclusion.

Oats.—Experiments with new varieties of oats, and with various fertilizers, were rendered entirely worthless by the ravages of the plant lice (*aphis avenæ*).

Experiments in Corn Culture on the Experimental Farm of the University of Virginia, 1882.—The object of the following experiments is to test the action of nitrogen in different forms and quantities, along with superphosphates of lime and potash, on Indian corn.

The most important forms of nitrogen are (1) *nitric acid*, (2) *ammonia*, and (3) *organic nitrogen*. The most common fertilizers containing nitrogen in these forms are, (1) for *nitric acid*, nitrate of soda and nitrate of potash; (2) for *ammonia*, sulphate of ammonia; and (3) for *organic nitrogen*, dried blood, meat scrap, fish scrap, and fish guano, and leather scraps. The above-named substances are used in quantities called “*rations*,” viz: “one-twelfth,” “one-sixth,” “one-third,” “two-thirds,” and “full rations,” corresponding to 6, 12, 24, 48, and 72 pounds of nitrogen per acre.

The nitrate of soda used is 96 per cent. pure, with 16 per cent. of nitrogen. The sulphate of ammonia contains 21 per cent. nitrogen, and for organic nitrogen, meat scrap is estimated to contain 11 per cent. of nitrogen, fish guano 8 per cent., and leather scraps—finely pulverized—7 per cent. nitrogen. Nitric acid, ammonia, and organic nitrogen together are called “*nitrogen mixture*,” and consists of nitrate of soda, 16 per cent. nitrogen; sulphate of ammonia, 21 per cent. nitro-

gen; and dried blood 11 per cent. nitrogen in equal parts—all together containing 16 per cent. nitrogen.

In the "*nitrate of soda group*," one-twelfth ration is contained in 38 pounds of nitrate soda, one-sixth 76 pounds, one-third 150 pounds, two-thirds 300 pounds, and "full ration," 450 pounds.

In the "*sulphate of ammonia group*," one-twelfth is contained in 29 pounds of sulphate of ammonia, and so on, multiplied up to the "full ration," which is contained in 343 pounds.

In the "*dried blood group*," one-twelfth ration is contained in 55 pounds of dried blood, and likewise multiplied up to the "full ration" of 660 pounds.

In the "*nitrogen mixture group*," one-twelfth ration is contained in 38 pounds of the "mixture," the same as in the nitrate of soda group.

The term "*mixed minerals*" is applied to a mixture of superphosphate and potash salts, in proportion of 400 pounds of the superphosphate and 133 pounds of muriate of potash.

In the "preliminary group" it will be noticed that the nitrogen mixture, one-third ration, 7.5 nitrogen—superphosphate, 20.0 pounds phosphoric acid, and muriate of potash, 6.7 pounds potash, are used, each by itself, and two by two, to show the action of each separately and two combined. So much by way of explanation.

The land has a gray soil derived from micaceous sandstone rock, is nearly level, and had lain out in clover for two years. It was well plowed in November, replowed on April 17th, harrowed thoroughly, laid off into rows four feet apart, and planted on the 18th of May. The fertilizers were sown carefully by hand along in the furrow, and thoroughly mixed with the soil by running a coulter twice in the furrow. One row without any fertilizer was left between each section, and in addition to the mineral fertilizers, hen manure mixed with sand, separated by the distance of one row from the next section, and stable manure in a like manner, were both used as eminently nitrogenous manures for comparison, as will be seen in the subjoined tabular statement. The work in conducting this experiment was done with the greatest possible care and accuracy. The different sections were staked and labeled and numbered, as represented in the tabular statement. The land was well worked, and the season was altogether very favorable. The corn was cut down, hauled off, and shocked on the 5th of October, and shucked and weighed on the 10th of November, with the result shown in the accompanying tabular statement :

TABULAR STATEMENT.

GROUPS.	EXPERIMENTS WITH INDIAN CORN.		EACH SECTION ONE-SIXTEENTH OF AN ACRE.		
	Number of Plot.	FERTILIZERS USED.	Pounds Applied.	Weight of Corn. Pounds.	Weight of Stover. Pounds.
Preliminary Group.	0.	No fertilizers applied.....		131.	89.
	00.	Hen manure mixed with sandy earth....		160.	125.
	1.	Nitrogen mixture, one-third ration.....	7.5	152.	115.
	2.	Superphosphate.....	20.0	143.	127.
	3.	Muriate of Potash.....	6.7	170.	119.
	4.	{ Nitrogen mixture, one-third ration.	{ 7.5	197.	150.
		{ Superphosphate.....	{ 20.0		
	5.	{ Nitrogen mixture, one-third ration.....	{ 7.5	230.	180.
		{ Muriate of potash.....	{ 6.7		
	6.	{ Superphosphate.....	{ 20.0	276.	193.
		{ Muriate of potash.....	{ 6.7		
000.	No fertilizers.....		182.	160.	
Nitrogen Mixture Group.	7.	{ Mixed minerals.....	{ 26.7	150.	182.
		{ Nitrogen mixture, one-twelfth ration....	{ 1.9		
	8.	{ Mixed minerals.....	{ 26.7	171.	90.
		{ Nitrogen mixture, one-sixth ration.....	{ 3.7		
	9.	{ Mixed minerals.....	{ 26.7	140.	125.
		{ Nitrogen mixed, one-third ration.....	{ 7.5		
	10.	{ Mixed minerals.....	{ 26.7	201.	190.
		{ Nitrogen mixture, two-thirds ration.....	{ 15.0		
	11.	{ Mixed minerals.....	{ 26.7	198.	170.
		{ Nitrogen mixture, full ration.....	{ 22.5		
	6.a	Mixed minerals.....	26.7	146.	80.
* 0000.	Stable manure, one cart load in row....		305.	209.	
00000.	No fertilizer.....		165.	123.	

It will be noticed in scanning the tabular statement given, that in the "preliminary group" of the substances used separately, the muriate of potash gave the largest yield, 170 pounds; the nitrogen mixture, one-third ration, the next largest, 152 pounds, and the superphosphate the smallest, 143 pounds. Where they were used two and two respectively, the largest yield was in favor of the superphosphate and muriate of potash, 276 pounds; the next of the nitrogen mixture, one-third ration, and muriate of potash, 230 pounds; and the least was from the nitrogen mixture, one-third ration, and the superphosphate, 197 pounds. This would indicate that muriate of potash has a very decided effect upon corn—a fact borne out by experiments of a similar character in various parts of the country, as well as my own, during the past three years. In 1880, in my experiments conducted in the

*This experiment is believed to be perfectly correct, with a certain allowance made for deprecations, at roasting-ear period, by a class designated as "*nati consumere fruges.*"

same way as between nitrogen, phosphoric acid, and potash compound, used separately, the yield stood: nitrogen, 60 pounds; phosphoric acid, 148, and potash 97. Where they were used two and two, nitrogen and phosphoric acid stood 153, nitrogen and potash 108, phosphoric acid and potash 156, while the three—nitrogen, phosphoric acid, and potash, used together, stood 148. In this experiment the effect of phosphoric acid was much more marked than in those of the present year. In 1881 the drought rendered the experiments unsatisfactory. But the nitrogen compound used stood 34, the phosphoric acid 24, and the potash 37. Used two and two, nitrogen and potash gave 37, while all three together, in full rations, gave only 34. The yield of the section marked 000, tabular statement, between 6 and 7, without any fertilizers, over the two similarly treated, is most probably due to the beneficial effects of having the roots shaded by the contiguous corn on each side, and perhaps to a participation in the fertilizers as well.

In the "nitrogen mixture group," it will be noticed that the difference between "one-twelfth," "one-sixth," "one-third," "two-thirds," and "full rations" is very marked, and is in favor of the two-thirds over the full ration. The one-twelfth and the one-sixth also exceed the "one-third ration," while none of the group attain the yield of number 6, with superphosphate and muriate of potash in the preliminary group (mixed minerals without nitrogen in any form). The disparities in the nitrogen mixture group are doubtless due to the difference in the character and condition of the soil of the sections, and may be to robbing of roasting ears rather than to any defect in the fertilizers or the conduct of the experiment. These variations show the importance of repeated experiments, and of duplicating them in various ways in order to attain the greatest accuracy. It is to be hoped that the large number carried on now throughout the whole country, under the auspices of the United States Commissioner of Agriculture, and the zealous and untiring *Professor W. O. Atwater*, will furnish valuable information in regard to the exact value of each and all of these substances, used separately and in combination on all the various crops we cultivate. All the experiments that I have made with corn with different fertilizers, tend to establish the following general propositions:

(1.) That fertilizers supplied by fine-ground phosphates, superphosphates, and potash salts, do better for corn than the highly-nitrogenized or ammoniated mixtures.

(2.) That corn has generally done well without any artificial supply of nitrogen, and is always benefitted by phosphates and by potash.

(3.) That the opinion that potash is generally found in sufficient quan-

tities in our soils, and that an artificial supply is not required, is utterly incorrect. All of our crops are increased by the use of potash salts—corn especially.

(4.) While mixtures of phosphates and superphosphates with the compounds of nitrogen act well with wheat, rye, oats, the presence of potash seems to be necessary for corn, to insure the best results.

(5.) Corn, like the leguminoid plants, does not seem to be dependent on an artificial supply of nitrogen, like most of the other cereals, but is able to gather its own; and hence it is believed that corn is really not an exhauster of the soil to anything like the same extent as the other cereals.

(6.) That not only corn, but all the crops we cultivate, can be produced with greater profit and more permanent improvement to the soil by the use of fine-ground phosphates, potash salts, and leguminoid plants than by any other system whatever. On seven acres of land cultivated in corn the present season, with S. C. Phosphates, the average yield was eight barrels or forty bushels per acre, where ten bushels could not be produced five years since.

Lucerne.—This leguminoid plant is grown for soiling animals during the spring and summer, and has no superior for this purpose. On the 11th and 12th of April it was killed down to the ground by severe frost when it was fully knee high, and would have been ready to cut in a few days. On the 23d of May it was first mowed, and again on July 21st and August 14th. The three mowings yielded 4,560 pounds of green food for soiling from one-eighth of an acre, producing at the rate of 36,480 pounds per acre. Fed with a little meal and salt sprinkled over it, it is a wholesome and highly nutritious food for horses and cattle of all kinds. That it is not more extensively cultivated for this purpose by farmers generally is very much to be regretted.

Red Clover, Orchard Grass, Timothy, and Randall Grass.—These are cultivated separately and mixed together, because they are believed to be best adapted to the soils we have to deal with, which are superficial, naturally poor, and deficient in lime and alkalies. The great difficulty in the cultivation of grasses is to procure a good stand or catch of the seed, and the question as to the time of seeding seems to be the one uppermost in the minds of most farmers. But this is a matter of minor consideration in our experience. It makes very little difference whether the seed is sowed in the fall or spring, provided the land is in thorough tilth and properly prepared. To sow grass or clover seed on land merely plowed, or fallowed, and seeded with wheat or oats, even with fertilizers, is, in a majority of cases, to throw the seeds away. The

land should be thoroughly stirred, aerated, and reduced to good tilth by cultivation with some plow or hoe crop, as tobacco, corn, root crops, or truck, with which lime in some form, or potash and phosphates, have been liberally used. Clover and all the leguminoids are essentially *lime plants*, while the grasses are more especially benefitted by the use of the salts of potash and the phosphates. The seeds, when sown, should be harrowed in thoroughly, and the land then rolled, so as to pack the soil about the seed, exclude the air, and prevent the drying up of the young roots. There can be no valid objection to seeding clover and orchard grass in the spring on land with wheat, following a corn crop, which is the plan we generally pursue. The idea that what the wheat consumes it takes from the grass and clover seed, and *vice versa*, is true only in part, and the chances of a good and permanent stand, with a good crop of wheat, is as good as by any other method we have pursued. Clover and grass seeds should receive an application of plaster as soon after the wheat is cut as possible, and the plaster should be applied late in the afternoon or early in the morning, to have the benefit of the dew, to protect the young plants from the injurious effects of the sun.

The following is the yield of clover and grasses on the Experimental Farm this season, weighed as cured when housed:

Red clover alone, three-fourths of an acre, - -	3,200 pounds.
Clover and orchard grass from hillside, $4\frac{1}{2}$ acres, -	8,000 do.
Two half-acre plots near the gate, 1 acre, - -	5,500 do.
Clover, timothy, and Randall grass, "bottom plot," $2\frac{3}{8}$ acres, - - - - -	6,900 do.
Corner plot, clover and timothy, seven-eighths of an acre, - - - - -	6,140 do.
Timothy alone, oblong plot, $1\frac{1}{8}$ of an acre, - -	7,130 do.
Randall grass or meadow fescue one-eighth of an acre, - - - - -	900 do.
Total cured, weighed, and housed, - - -	<u>37,770 pounds.</u>

Of course there will be some loss of weight during the process of curing in the house. Clover (red), when growing, or freshly cut, contains about 79 per cent. of water. When it is dried, as for making hay, the greater share of this "*free water of vegetation*" escapes, so that "*air-dry*" clover contains only about 17 per cent. water. "Meadow grasses" are estimated to contain about 72 per cent. of free water of vegetation when growing or newly cut, and 15 per cent. in the air-dry

plant as in making hay. The exact loss in the process of house-curing I have no means of estimating now. The fact most interesting to the farmer is, that 18 tons and 880 pounds of cured hay has been produced on a fraction over ten acres of land (an average of 1,880 pounds an acre), more than half of which, eight years ago, was a "*caput mortuum*," having been deprived of the surface soil to the depth of 18 inches to 2½ feet to make an adjacent railway embankment. Except the drainage, the means used to bring this land up to its present condition have not been expensive. The use of lime, salt, ashes and plaster, peas and clover, and after the first two years a regular order or succession of crops, with a liberal use of phosphates and potash salts in the cultivation of them, and the turning the clover in regularly, has made a surface soil or tilth, in which plants find now a congenial home. The crops produced during this period steadily increased, and may be credited as paying a considerable portion of the expense of improvement. Farm-yard manure was applied as a top dressing last fall to the poorer parts of the area denuded of the soil, but has not been used to any extent on any other portion of the ten acres in question.

JNO. R. PAGE.

WHAT WILL Dr. POLLARD SAY TO THIS?

WHEAT.—Experience teaches me that thorough culture of the soil pays in nothing better than in wheat-raising. The slip shod farmer never succeeds at wheat. Occasionally the season is propitious, his seed good, and by scratching the ground a time or two he does make a tolerably fair crop of corn in spite of himself, but such farmers have never experienced the pleasure of checking off thirty bushels of wheat per acre, and rarely twenty even where their land is of the best quality and well drained. The great secret in wheat raising may be summed up in two words: Thorough pulverization. Some argue that cloddy ground feeds the wheat, and is therefore preferable. Such men are content with from six to ten bushels of wheat per acre. Their bank account is not fed from their wheat profit, but, if it is fed at all, the sustenance comes from some other crop. It is no uncommon thing to meet a farmer who is excellent in tobacco, corn, potatoes and all other crops of his farm, and yet he is a failure in raising wheat. The explanation is to be found in the fact that he has not time, as he thinks, to harrow, and roll, and crossbreak, and pulverize thoroughly his ground. "I am pushed to my work this year," he thinks, "but another year I'll have my ground like a lettuce patch and no mistake. Anyhow, my friends

Slowcoach and Nogood and Tailend—all large wheat raisers—say clods feed the wheat and they ought to know.” “Blessed is he who reconcil-eth unto himself whatsoever he doeth.” If this is not in the Bible it ought to be. Such farmers would be miserable if they could not find some good excuse for doing their work wrong, or rather, for leaving it undone altogether. That “clods-are-good-for-wheat” business was hatched out by some fellow who hadn’t time, or was too lazy, to put his ground in proper condition, and who had pride enough to try and hide his slothfulness beneath a bushel of wisdom made to order. He fell among friends when he offered his secret to the public; and his disciples are occasionally heard from now. We do not desire to get into a controversy with these disciples, but admit to a real curiosity to hear the scientific side of their question.

But to business: What I started out to do was to give my idea of how a crop should be treated in the beginning; in a word, how a crop should be “put in.”

We still cling to the old notion that our fallowing should be gone through with as early in the summer as practicable—say, commencing as near June 1 as possible and continuing until finished. The ground should be smoothed with a roller or harrow as soon as plowed and rebroke or cross-plowed early in September. The harrow should then be put upon the field and the ground harrowed closely; this should be followed by a heavy roller. This programme, so far as it relates to the harrow and roller, should be repeated, to form a good seed bed. Do not stop until every clod as large as a goose egg is mashed into smithereens. Every time you rework your field you will experience an increased heaviness of your pocket, which may not be very marked until after your crop is made and sold. If you have raised wheat in the same field before, and will follow my advice to roll and harrow your ground until it is perfectly pulverized before sowing this fall, the increase in yield will be very surprising as well as gratifying.

The seed wheat should be soaked invariably in bluestone and put into the ground by means of a drill. Drilling wheat has almost entirely superseded broadcast sowing, and it is useless for me to pause for the purpose of declaiming the excellencies of the former method and its superiority over the latter.

After a shallow seed bed has been obtained by repeated workings, and just previous to drilling, the manure pen should be emptied and its contents applied to the surface of the wheat field and harrowed in. This will put the manure within reach of the wheat roots, which run very shallow, and give the crop a vigorous start, enabling it when winter comes to stand the freezes without injury.

In almost every neighborhood the custom varies as to the best quantity of seed to use to the acre. In my opinion this matter should be regulated by the strength of the soil. Rich ground makes the greatest returns when thinly seeded. Every man knows, or should know, the characteristics of his own soil, and it is of the highest importance that he should ascertain by repeated experiments the proper quantity of seed to be used on his land. No man can find this secret in one year, or two; it is only by repeated trials and experiments that the truth can be reached. The main thing, in my judgment, is to pulverize and manure as much as possible. I am satisfied that every load of manure I spread on my wheat last fall, at a cost of \$1.50 per load, was worth at least \$15 to me.—*Farmers' World.*

INFLUENCE OF LIME ON SOILS.

Sir John Bennett Lawes, writing concerning the statement made before the Scottish Chamber of Agriculture that the action of an application of lime to some soils might continue during thirty years and might cease at the end of seven, remarks:—

When we consider that the influence of lime upon a soil that is naturally deficient in this substance is due to several distinct causes, and further that the after treatment of the land which has received the lime differs in different cases, we have no difficulty in understanding that there must be considerable variations in the periods of time during which the beneficial effects of the lime will be apparent. Two of the crops which are grown at Rothamsted in our ordinary rotation—roots and clover—contain large quantities of lime in their ash, and when potash is not abundant in the soil they possess the property of utilizing this lime in its place. The ash of leguminous plants growing in an ordinary pasture which has been supplied with potash, contained 32 per cent of potash and 22 per cent of lime; but on pastures where potash was not supplied, the ash contained 32 per cent of lime and 14 per cent of potash. Lime, therefore, economizes the use of potash.

The first application of lime to moor land, or to pastures which are deficient in lime, is often followed by a growth of white clover so abundant as to have led some to the conclusion that the plant was spontaneously generated in the soil. It may be observed that it is only plants with creeping roots which can so rapidly cover the ground; a similar instance in the case of arable land may frequently be observed in the equally rapid covering of the soil by couch grass; this being a

graminaceous plant can find in all soils an abundant supply of its own proper food—silica; but lime, in many soils, is by no means abundant, and if the supply is insufficient, a liberal dressing is essential, not merely for the purpose of furnishing the lime which the plant takes up, but also to enable the roots to be in constant contact with that substance.

I must observe that, although the amount of lime dissolved and removed in drainage waters is considerable, still the necessity of repeating the application after a few years appears to be rather due to a descent of the lime to a lower level in the soil, where it is less accessible to the roots of the plants. Lime also acts as the medium by which nitrification takes place; and the almost entire absence of nitrates in the water passing through the peat soils in Scotland—which abound in nitrogen—must be mainly due to the absence of lime. A reference to the returns in the table shows that the effect of lime is most durable upon pastures that are grazed; that its effects are very good on virgin soil; that it lasts longer upon good than upon bad land, and upon clays and heavy loams than upon light land. The amount of soil nitrogen which is nitrified each year must depend somewhat on the amount that the soil contains, but where each application of lime is attended with less benefit than the preceding one, we may feel tolerably sure that the resources of the soil have been too largely drawn upon, and that the export of fertility has been too great.

Lime, therefore, acts in a double capacity; it furnishes an important ingredient in the food of roots of leguminous plants, and in addition it furnishes the key by which the stores of organic nitrogen in the soil are unlocked and rendered available as the food of plants. It is in this latter capacity that its functions are more liable to be abused. As lime does not furnish any of the more important or of the more costly ingredients which plants require to form their structure and seed, it is quite evident that these must be derived from the soil; this being the case, if the views of those who hold that agriculture should be carried on without any reduction of the fertility of the soil are correct, it is evident that an application of lime should be accompanied by an application of all those ingredients which are carried away in the crops or by feeding with stock. My own opinion is that the soils are generally competent to yield a certain portion of their fertility without injury, and that practical experience of the particular district will be the best guide for deciding the amount of fertility that may be thus removed.

HE who by the plow would thrive, should make an effort to get the best.

KEEPING ONE COW.

The management of a single cow differs from that given the herd in the dairy, as she usually comes under the care of the whole family, and possesses a monopoly of attention and privileges that cannot be afforded under the wholesale system. She is the dependence of the poor farmer, and her place cannot be filled by any other animal. But it is quite a business to so manage the family cow that she may be of the greatest service, but how to furnish her with green food is commonly an important question. Where pasture can be had at a small cost advantage is usually taken of the opportunity, but there are times and places in which no such opportunity occurs. If the family possesses a small piece of ground, there can be grown a large variety of green feed, for early in the season a crop of peas can be grown for the family, the vines given the cow, and the whole taken off in time for some other crop. Small places are made rich in such instances when all the manure is given them, and for that reason the seeding down of one crop before the first is removed is but the practice of a high system of farming, to which the small farm and family cow have contributed more than anything else, for it has compelled the adoption of the best methods in order to attain success. Green corn can be cut several times, if only fodder is wanted, and Hungarian grass will spring up as fast as it is cut down. A few cabbages put away in the fall will help the cow along in winter, and a large crop of carrots, turnips and beets, enough for one cow, can be grown on one-fourth of an acre, to say nothing of the crop of millet that can be quickly grown and stored away late in the season. A Jersey cow or grade Jersey, is small, and better adapted for a family cow than any other breed, if butter is the desideratum; but the Holstein or Ayrshire is better for milk, and it is cheaper to keep a good cow than a poor one. The owner of a farm of one acre in New York State reports that his cow gives him about five hundred pounds of butter every year, but it is by good feeding and attention that she does so; and while he claims that the profit from her is large, he admits that his cow would be an expense if she were an inferior animal. It is best, therefore, to be willing to pay for a good cow. The outlay, though large at first, will bring in a quicker and surer return than a small investment in a scrub. As the family cow receives kindness as a general thing from all, the lesson to dairy-men is that by carefully managing the herd, and treating each cow with the best care, there is no reason why the profit may not proportionately be as great. The soiling system is the family plan on a wholesale basis.—*Phila. Record.*

THE TAG QUESTION.

Mr. Editor,—In your December number of *Southern Planter* is a communication from the late Commissioner of Agriculture, Mr. Thos. Pollard, reviewing the remarks of the editor in the November number on the “Tag Question.” In that number the editor said: “The Commissioner has the legal right, and ought to affix a tag or brand on all fertilizers inspected and licensed by him.” Ex-Commissioner Pollard says if this be so, he misunderstood his legal right, and failed to perform his duties when Commissioner of Agriculture. This may be, and probably is, true. I have never seen a copy of the law, but it was enacted at the urgent request of the farmers to protect them against the fraudulent material sold them by manufacturers of fertilizers, as genuine. The *object* of the law was protection to the farmers. This being admitted, Did ex-Commissioner Pollard understand his legal right, and did he perform his duties when Commissioner of Agriculture? Let us see what he did. He tells us all he did. “In the first circular I issued to manufacturers requiring samples of their goods for analysis, I called their attention to this old law concerning brands, to see it enforced. It is the duty of the Commissioner of Agriculture to have analyzed such fertilizers as he may deem of importance.” “*Then* the farmer can compare this analysis with the brand on the bags of the manufacturer, and decide whether the brand comes up to the analysis, and make up his mind whether to purchase.” This is protection “with a vengeance”!! Then come the depositions of Dr. Wm. H. Taylor and Dr. Pollard, which prove beyond peradventure (one exception) that manufacturers of fertilizers need no watching!!!

Let us look some further into this protection of the farmers. The samples being analyzed, the farmer can take the analysis and compare with the brand on the bags, “and decide whether the brand comes up to the analysis.” This is child’s play. Does it *follow* that because the sample is a valuable goods, the bags have same goods in them because same analysis is branded on them? I don’t say any manufacturer would exhibit a sample of good fertilizer and fill his bags with spurious goods, and brand on them the analysis of the good *sample*, but the farmers throughout our State have called aloud for protection against *frauds*, and we all know the analysis of a sample to be compared with the brand on the bag, is no protection whatever. Well, how are you to protect him? By such rules and regulations as a practical business man would at once adopt. Require samples to be analyzed, and by the Commissioner’s tag on the bag tell the farmer this is analyzed and

registered on Commissioner's books. But this is only one step. Send agents, as Dr. Blanton did, to every part of the State to meet these goods, take samples, and send to the department for analysis, to detect rascality if attempted. I don't expect *the law* directs this to be done, but don't any practical man see at a glance the necessity of *such* regulation to carry into effect the law? There has been a great deal said about the law in this case, but had not partizan political feelings entered into this case, Dr. Blanton would have been by public sentiment fully sustained in *all* he has done in this great work.

Mr. Editor, let you and me have a little business talk on this subject. We will, for the time, be manufacturers of fertilizers; you are manufacturing honest goods, I a fraudulent stuff, which I can sell far below what you can sell for; would you not be willing to pay, say fifty cents per ton, to force me to show my hand by an analysis of our goods by an impartial officer? You would, although you might not be able to tax the farmer with it. But, sir, if on the other hand, by adulteration you could make more, you would oppose the scrutiny into your manufactures. This *tax* is the great "bug-bear" in the way of the manufacturer. Admit *he* paid it, is not the burden of this office imposed on the farmers to screen them from fraud (as they allege), on the part of the manufacturer, and if he should be required to bear some portion of the expense, is it other than just? There is something about this fertilizing business I don't understand. In passing through South-western Virginia on the Norfolk and Western road, I saw a brand of fertilizer, "Registered in Virginia," when I knew it was not registered at the Agricultural Department. At what other place are fertilizers registered? *I thought that* was not frank dealing. Fertilizers may be registered at some other place than the Agricultural Department, if so, this brand was right.

J. M. S.

THE FISHERIES OF VIRGINIA.

Virginia comes seventh on the list of fish-producing States, the oyster, menhaden, and shad fisheries being the three branches in which her citizens are most extensively interested. In the first-named fishery she ranks second only to Maryland, having 16,315 persons employed, with products valued at \$2,218,376. Her menhaden fisheries are of recent origin, but they have developed with remarkable rapidity. In 1880 the fleet numbered 102 sail, and the oil, scrap, and compost produced sold for \$303,829, 88,213,800 being utilized in this way. The

river fisheries are also important, furnishing employment to 2,641 persons, and over 3,000,000 pounds of shad and nearly 7,000,000 pounds of alewives (locally known as herring), with many other river species, were taken, the whole having a value of \$272,828. Table XVII, which gives in full the fishing interests of the State, shows the following:

Persons employed.....	18,854
Fishing vessels.....	1,446
Fishing boats.....	6,618
Capital dependent on the fishery industries..	\$1,914,119
Pounds sea products taken (including oysters)	146,122,545
Value of same..	\$2,851,616
Pounds of river products taken.....	12,752,064
Value of same.....	\$272,828
Total value of products to the fishermen....	\$3,124,444

[We are indebted to the Hon. R. Edward Earl, of the Census Bureau at Washington, for the above statement of the fisheries of Virginia.—Ed. S. P.]

THE PROGRESSIVE FARMER.

[For the Southern Planter.]

The true farmer does not stop to count the cost of improvement, for his reason prompts him to believe that he cannot go wrong by endeavoring to improve. Every acre of his farm is or should be cultivated to its greatest capacity, and his soil never deteriorates in quality. He rotates his crops with a view to increased fertility, and he estimates his profits by the amount of expenses entailed in securing that profit. The failure to realise immediate results does not discourage him, for he knows that through his judicious system of cultivation, the realization is best deferred for a little while longer. He farms for profit and he spends for profit. He knows nothing of stinted economy which saves to-day and robs to-morrow. The farm is his bank, his workshop, and his occupation; no stone being left unturned, and no portion slighted at the cost of another part. A good farm means good stock. The razor-back hog has no place on it, but must be superseded by the thoroughbreds. The scraggy cattle are seen no more, for the Short-horns, the Holstein, the Jerseys, or their grades occupy their places. The thoroughbred, the Percheron, the Clydesdale, and their get plow the fields that formerly yielded to the wind-broken horse, and the implements used are of the most approved labor-saving patterns. All this means capital and is expensive, but when the fact is considered that it costs no more to keep the best than the bad, and that expense means

profit in the end, the cost is not so formidable as it seems. The manure heap is the most important of all. The good farmer can be selected by the manner in which he keeps his manure. The manure is the wealth, the bank on which the check is drawn; it is therefore very improvident to neglect it. Drenching rains and scorching suns carry upward and downward the soluble and volatile constituents of the unprotected heap, and often ditches are dug to allow the black liquid riches to pass off and are lost forever. But the good farmer works differently, he makes the manure fine, attends personally to the process of decomposition, protects it from the weather, and endeavors to make it a ready food for the crops when hauled to the fields. Farming pays to good farmers.

A few words more about manure. Many Southern farmers appear to regard the saving of manure as something unworthy of their attention, not because it would be unprofitable, but because it is considered a disagreeable or undignified employment. Much money is often expended by them for "commercial fertilizers," when they have on their own lands considerable quantities of fertilizing material which is much better for the soil and for their crops. Southern farmers could add thousands of dollars to their wealth by *making manure at home*, which would not cost a dollar in money, nor require anything, indeed, but a little time and care. There is little profit in paying out nearly as much as a crop will be worth for manure to produce it. M.

ENGLAND AND THE TURNIP.

Few plants are better known to farmers than the turnip, called with affectionate intimacy "'neeps" by our Scottish, and "tumults" by provincials of North-Humber-land. It was imported by Viscount Townshend in the seventeenth century, and was, according to Ray, the naturalist, first used for feeding kine about 1688, that is at the time of the glorious revolution, when James II fled in disguise. We do not remember any mention of the humble and bucolic root in Macauley, but we venture to say that a greater and more glorious revolution was accomplished by the introduction of the turnip than by a change of dynasty. What would England be without it? If, as we are informed, Lord Viscount Townshend, who represented England at the States-General, introduced the turnip, he is worthy of a higher monument than the Duke of York. We owe fresh meat for eight months out of

the twelve to his enterprise. We owe our freedom from leprosy, scurvy and other disagreeable consequences of feeding salt flesh, to him. The wonderful increase in population in these countries would not have been possible without the turnip. The employment of millions hangs upon the turnip. The investment of millions sterling is due to the turnip. The turnip is one of the mainstays in England, and the Lord Chancellor might well sit upon one, instead of a woosack, were it not a trifle too hard and otherwise incommodious for such a purpose. Poets, statesmen and historians are apt to consider the acts of Kings and of Parliaments as of the first importance; but to the vast majority of mankind, who governs is of no matter whatever. Work and food are of more importance, and it is difficult to exaggerate the value of the turnip as a source of both.—*London Agricultural Journal.*

ENQUIRIES.

Editor Southern Planter :

Will you be so kind as to write me whether the refuse lime used in the manufacture of gas is a good fertilizer. If you have no experience with it yourself, perhaps you might find out from some gentlemen who have been using it near Richmond. I have heard that it was good for wheat and grass. I am looking out something that is cheap that is suited to the improved grasses, and more lasting than the manipulated fertilizers that we find on the market. When is the best time to use lime on grass? To sow it on grass that was seeded last spring, at this season of the year, would it kill it? or how would it do to sow it on wheat this fall and seed to grass next spring? It is my wish to get my farm in grass that I may improve my stock, and also improve my farm, hoping to make the stock pay for the fertilizer, and the seed and all the benefit the land may derive, let that come in as a clear gain. Any information you will give me on the subject will be thankfully received.

Yours truly,

J. T. KING.

P. S.—I notice that "T. R. C.," in *Country Gentleman*, says that an application of *dissolved* South Carolina rock and kainit will almost insure a crop of wheat. What does he mean by *dissolved*, and what is the price of the South Carolina preparation or kainit in Richmond by the ton?

J. T. K.

Omega, Halifax county, Va.

[We have written our subscriber and friend a private letter giving such responses as we

deemed best to his several enquiries; but we give his letter to our readers with the hope that some of them will respond who are better informed than we are. As to *kainit* and South Carolina rock-phosphate, and the methods and results of composting, we refer him to an article from the *Atlanta Constitution* we publish in this issue, and to advertisements of the *Stono* and *Ashley* companies in the *Planter*.—Ed. S. P.]

SHEEP HUSBANDRY.

“SHIRLEY,” CITY POINT, VA., December 2, 1882.

Editor Southern Planter:

Dear Sir,—Your postal card of 14th ulto. duly received; acknowledgment deferred in order to see the editorial note referred to. This, I find, requests “practical experience on adaptation of this section to sheep husbandry.” My *experience* is hardly a fair test, as I have kept only a small flock on a grain farm, of five eighty-acre fields, heavily stocked with other animals, so that the sheep have no very extensive range nor opportunity to cleanse and improve exhausted pastures, but are, nearly all the year, in good grass, either clover or stubble fields. They have access to a slab-shelter in the field during winter, and when snow or sleet prevent their grazing, two bundles of fodder to each sheep a day are put under the shed; no other feeding, except salt and ashes, at any time. I tabulate results below, not caring to venture an *opinion* on the question by your West Virginia correspondent until requested.

Periods of seven years.	LAMBS.			FLEECES.			MUTTONS.		Average yearly proceeds from the flock.	REMARKS.	
	Average number of sheep.	Average No. yearned.	Average No. sold.	Average price.	Average No. shear'd.	Average weight each.	Price unwashed.	Average No. sold.			Average price.
1st.	31	30	11	\$6 00	31	6½ lbs.	29c.	2	\$9 25	\$138 00	The average number of flock is the minimum; for from January to May, counting lambs, usually make double the number, and they all eat young clover.
2nd.	46	46	23	4 62	46	7¼ “	24c.	4	9 00	224 00	

In 1866 I took to pasture, on shares, twenty-four mixed-grade sheep, each party using what mutton he required for the table. At the end of two years we divided the flock—forty-two to him, thirty-five to me. Then, taking periods of seven years each, say first period from 1869 to 1875, inclusive; second period from 1876 to 1882, inclusive, I tabulate, from my records, the yearly averages adjoined. The mutton

and lamb used at my table would more than pay for expense of fodder, shearing and of four Cotswold bucks bought during the sixteen years. I turn out a young buck each year. A few sheep die every year, and all skins, either if killed or dying sheep, are sold to credit of flock. In the flock are included usually two rams and about five wethers.

Use the letter as you may wish. I shall not be disappointed if it is not considered worth notice

Very truly, &c.,

R. R. CARTER.

[We thank Mr. Carter for his response to our enquiry, and we think he makes a good showing. If we understand his tabulated statement, he has made about five dollars *per capita* on his flock for each year; and this is about *one hundred per cent.* profit. We think our West Virginia enquirer may be satisfied with this. We have just returned from a short visit to *Westover*, five miles, by land, from *Shirley*, and was shown by Maj. Drewry a flock of *pure Southdown sheep*, of which each one was a *perfect beauty and rolled in fat*. The saddle of mutton from this flock, which the Major had on his table, could not be excelled in fatness and flavor by any section of this State or country.—ED. S. P.]

BROAD TIRES.—A farmer who has used a wagon with broad tires on wheels long enough to ascertain their relative value as compared with narrow tires, writes: "A four inch tire will carry two tons over soft ground with greater ease to the team than a two-and-a-half inch tire will carry one ton. The wheels are not so much strained by stones and rough tracks on the road, and the road is not cut up, but, on the contrary, is packed down and keeps smooth. The prevalent idea that the draft is increased by widening the tire is altogether baseless; on the contrary, a wide tire reduces the draught. The extra cost of the tire is repaid many times over every year in the extra work that can be done by a team."

[The *Farmer's Review*, of Chicago, Illinois, publishes the above item. We have long thought that broad tires on our wagon- and cart-wheels will lessen draught and improve the roads by packing the surface. Why do not our wagon- and cart-makers adopt the idea, and why do not our farmers demand this change? The common roads of Virginia are bad enough, all know; and if broad tires will improve them, and at the same time lessen draught, they should be universally used.—ED. S. P.]

IN constructing barn floors too much care cannot be given to making them water-tight. This is especially true of stables. The time when the urine of cattle and horses was left to run through the floors to get rid of it has gone by forever. In some elements, particularly potash and nitrogen, urine is richer than the solid excrement. With air-tight floors and an abundance of bedding the urine can all be saved.

FURMAN'S FARM.

Growing from Eight Bales of Cotton on Sixty-Five Acres to One Hundred Bales, and how the Increase was Made—Formula Feeding the Earth.

I suppose there are few readers of the *Constitution* who do not remember Farish Furman.

He was a bright and brainy senator in 1876, and led the capitol campaign against Atlanta, was mentioned for Congress, and I always esteemed him one of the best equipped and most capable of our young politicians. A few years ago he quit politics and went to farming. I heard that he had settled on a thin piece of land with poor prospects, and in common with many of his friends thought he had dropped out of affairs.

At the last agricultural convention he electrified the older farmers of the State with the details of the most astounding five years' farming ever done in a Southern State, and is to-day more talked about in the State than if he had served twenty years in Congress.

I have heard the record of his wonderful work several times within the past few months, and the comment with which it is usually greeted is, "I don't believe it." I simply say that I have the authority of three excellent gentlemen for the truth of the following main points:

Furman started work with sixty-five acres of the very poorest land in middle Georgia five years ago. The first year he made eight bales on the sixty-five acres, or less than one bale to eight acres. This shows that it was the poorest of scrub land.

The second year he put 500 pounds of compost to the acre, and made twelve bales of cotton where he made eight before.

The third year he used 1,000 pounds of compost to the acre, and increased the yield on the sixty-five acres to twenty-three bales.

The fourth year he used 2,000 pounds of compost to the acre, and increased his crop to forty-seven bales on sixty-five acres.

The fifth year he used 4,000 pounds of compost to the acre, and his crop is certainly above eighty to the sixty-five acres, and may reach one hundred bales.

He has done all this work with two plows and eighteen days extra plowing. His official and detailed statement shows that the total expenses were \$2,300, and his net profit \$2,725, a fine record on a two-horse farm. In addition, the land that was worth \$5 an acre five years ago, is now worth \$100 an acre. So with two mules this year he has raised at least 80 bales of cotton, 1,000 bushels of oats and 400 bushels of corn.

Isn't that a better record than he could have made in Congress? Hasn't he done the State more good by this demonstration than he could have done by ten years of political speeches?

I had a talk with Furman to-day. He is the very picture of health, prosperity and intelligent enthusiasm. With a perfectly independent income, and the secret of a better one in his hands, he is truly a happy man. He said to me :

“ When I determined to go to farming five years ago, I saw that it would not do to farm in the old way. I saw farmers around me getting poorer every day, though they worked like slaves. I saw them starving their land so that each year their land was scantier, and their farm less valuable. I saw that it was still the plow following the ax, and as fast as a farmer starved one piece of land he cleared out a new piece. With 800,000 immigrants pouring into this country annually, and the public domain virtually pre-empted, I realized that this wasteful system must stop somewhere and soon. Worse than all, I saw that my own land rented to small farmers was 25 per cent. poorer and less valuable than it was a few years ago, and that it would soon cease to pay me rent. I knew that Georgia was blessed with the best conditions of season and soil, and that if properly treated it would yield large results.

I therefore selected sixty-five acres of the poorest land I had and went to work. The first thing, of course, was to enrich the soil. To do this there was but one way; to feed it, and to give it more food than the crops take from it, and above all to give it the proper food. I knew that certain phosphatic manures stimulated the soil so that it produced heavy crops for awhile and then fell off. I wanted none of this. I did not believe in soil analysis. That was not exact enough. What I wanted was to know exactly what a perfect cotton plant took from the soil. That ascertained, then to restore to the soil exactly those elements in larger quantities than the crop had abstracted them. This is the basis of intensive farming, and it will always give land that is richer year after year. I had a cotton plant analyzed, and found that I needed eight elements in my manure, of which commercial fertilizers furnish only three, and the soil only one. I therefore determined to buy chemicals and mix them with humus, muck, decayed leaves, stable manure and cotton seed till I had secured exactly what was needed. I did so, and at last produced a perfect compost for cotton. I then ascertained that my crop of eight bales had taken out of each acre of my land as much of the constituents of cotton as was held in 250 pounds of my compost. I therefore put 500 pounds of compost on each acre,

restoring double what the crop of the year before had taken off. The result was that I made four bales extra. I then restored double what the twelve bales had taken out, and made 23 bales. I doubled the restoration the next year and got 47 bales. I double again and this year have at least 80 bales."

"But does this extra manuring pay?"

"Immensely. Here are my figures: 2,000 pounds of my compost costs \$7.20, or \$3.60 a thousand pounds. The first year I put 500 pounds to the acre—cost \$1.80 an acre, \$111 for 65 acres. But my crop rose from 8 to 12 bales, the extra 4 bales giving me \$200 surplus, or \$83 net on my manure. The next year my manure (1,000 pounds per acre) cost \$234; but my crop increased to 34 bales from 8 on unmanured land. These extra bales give me \$650, or net profit on manure of \$516. The next year I used 2,000 pounds per acre at a cost of \$7.25 per acre, or \$471 for total. But my crop went from 8 to 47 bales, giving increased income of \$1,950, or net over cost of manure of about \$1,500. This year I used 4,000 pounds to the acre, costing \$14.50, or \$942 for total manure. But my crop is at least 80 bales with this manure, where it was 8 without. This increase of 72 bales is worth \$3,600. Deduct cost of manure, \$940, and we have \$2,650 as the net profit on the use of manure."

"And then the land is so much richer."

"Certainly. It is worth \$100 an acre where it was formerly worth \$5. You must credit the manure with this."

"Where will you stop in this progression?"

"I don't know. I shall double my manuring next year, putting 8,000 pounds to the acre. I believe I will get 150 bales from the 65 acres. I hope to push it up to three bales an acre. I have a few acres on which I put 10,000 pounds of compost as an experiment, and every acre of it will give me three bales this year."

"Mr. Warthen raised five bales to the acre?"

"Yes, but left his land poorer. He pushed it, stimulated it, and took the very heart out of it. After taking off my enormous crop, I leave my land richer than before. I cultivate my sixty-five acres with two plows, and I will make 150 bales with those two plows on sixty-five acres. That will be glory enough for me, and will be a revelation to the world. I believe I will get ninety bales this year with two plows. I have already picked thirty bales and the best judges say hardly one-third is picked. This is an astounding result, and simply shows what intensive farming will do."

"How do you make this compost?"

“Here is my formula: Take thirty bushels well-rotted stable manure or well-rotted organic matter, such as leaves, muck, etc., and scatter it about three inches thick upon a piece of ground so situated that water will not stand upon it but run off in every direction. The thirty bushels weigh about 900 pounds; take 200 pounds good acid phosphate, which cost me \$22.50 per ton, delivered, making the 200 pounds cost \$2.25, and 100 pounds kainit, which cost me by the ton \$14 delivered, or 70 cents for 100 pounds, and mix the acid phosphate and kainit thoroughly, then scatter evenly on the manure. Take next thirty bushels green cotton seed and distribute evenly over the pile, and wet thoroughly; they will weigh nine hundred pounds. Take again 300 pounds acid phosphate and 700 pounds kainit, mix and spread over the cotton seed; begin again on the manure and keep on in this way, building up your heap layer by layer until you get it as high as convenient, then cover with six inches of rich earth from fence-corners, and leave at least six weeks; when ready to haul to the field, cut with a spade or pickaxe square down and mix as thoroughly as possible. Now we have thirty bushels of manure weighing 900 pounds, and 300 pounds of chemicals in the first layer, and thirty bushels of cotton seed weighing 900 pounds, and 300 pounds of chemicals in the second layer, and these two layers combined form the perfect compost. You perceive that the weight is 2,400 pounds. Value at cost is:

30 bushels cotton seed, 12½c.....	\$3 75
400 pounds acid phosphate.....	4 50
200 pounds kainit.....	1 40
Stable manure—nominal	
Total.....	<u>\$9 65</u>

Or for 2,400 pounds a total value of \$9.65. This mixture makes practically a perfect manure for cotton and a splendid application for corn.”

“This restores to the soil everything taken from it?”

“Except silica, which is in the soil in inexhaustible quantities. So that when you put in a larger quantity of these than the cotton took out, your soil is evidently richer.”

“You do not believe in commercial fertilizers?”

“In a certain respect. There are many fertilizers that are made with a view to showy results that really parch and impoverish the land, besides taking all the farmer’s cash. I do not believe in them. But the chemicals that are prepared for composting are very reliable, and we could not do without them. The secret of success is buying these chemicals judiciously and composting with leaves, humus, cottonseed, etc. No farmer can succeed permanently without composting.

The greatest waste in the South is with stable manure. Many farmers never think of saving it. In Ohio, the compost raised on one fifty-five-acre farm from ten head of horses and thirty head of cattle in one year, was estimated by the State Chemist at \$2,650, and scattered 4,000 pounds to the acre, made a net profit of \$300 an acre.

"Another thing is that our farmers do not appreciate cotton-seed. That comes nearer to being a perfect fertilizer than any one thing in the world. And yet over 100,000 bushels was sold at my depot for a trifle and hauled away."

"You do not believe in cotton-seed oil mills then?"

"Yes, I do. I think the seed is just as good a fertilizer after the oil is extracted as it was before. The trouble is that when it goes to the oil mill it never comes back. Once made into cotton meal, it is sent to England for stock food, and the Southern farms are robbed of it."

"You see the English or Northern farmer can afford to pay more for it than we can, because he feeds it to his stock, and then saves the droppings of the stock. In this way he fattens his cattle with it and still uses it as a manure after it has performed this function. We do not reach the economy because we have not the stock to feed it to and because we do not save the manure of the stock we do feed. The ideal system would be to take the cotton to the oil mill, sell the right to the oil, have the pressed cake returned, feed it to stock and then return it to the soil in the shape of droppings from the animal. This will come in time. It is one of the results of the intensive system of farming. The more manure we use for compost, the more sheep and cattle we will need. The more stock we have, the more cotton-seed cake we will need. The more cotton-seed cake we feed to stock at home, the richer our lands will be. We waste millions of dollars annually from the failure to pen our stock at night. There is no excuse for any Southern man staying poor or starving his land.

"With his cotton-seed and stable manure saved and composed with decayed leaves, fine straw, etc., any farmer can become rich if he wants to and double the value of his land in three years."

(To be continued.)

THE injuries to the Western corn crop from frost appear to be mostly local rather than wide-spread. Whatever failure exists will be due to the cold and wet early season, not to premature cold at the time of ripening. It is reasonably certain that the crop cannot be large enough to make very low prices.

Editorial.

A NEW YEAR'S GREETING.

The *Planter* has now reached its *forty-fourth* year. This is a good old age for an agricultural, or any other journal, dependent upon the support of a community of readers of diversified tastes. It shows, at least, that its efforts in behalf of practical agriculture are well sustained. Its corps of editors—starting with Botts—and the prime of its life upheld by such men as F. G. Ruffin and Chas. B. Williams, establishes a confidence which accidental circumstances and changes cannot erase from the minds of the farmers of Virginia, and of all other States, where, in this long term of years, it has found its way.

Its present editor, who was one of its first subscribers, has kept up his regular reading of it and has often sent it farm-letters; and now that he is placed in charge of it, with *very great pleasure* he is enabled to send a new year's greeting to its readers.

The year 1882 has been great in its productive results over the entire country. Its agricultural production has been very favorable; the mining, manufacturing and other productive interests have been largely advanced; and so *agriculture*, which is the fostering mother of all, and the farmers who are the workers in her fields, are to be congratulated.

Whilst we pen these words, as generally applicable to our State and country, our heart swells with sympathy for a large number of bad farmers, we may say, in special sections who do not feel the exhilarating influences of a great progress. To them we would say, study better your methods; do not accept the idea that farming is a menial or low occupation, but on the other hand, educate yourselves to the knowledge and belief that it is one of the noblest of callings, which demands *education, and active and practical effort to ensure success*. All other professions have the same demands on them, and that of agriculture has a wider and broader scope than any other.

The *Planter* enters on its new year with a determined purpose to do its part in the great work of agricultural advancement. Hundreds of other journals, all over the country, are doing the same thing, and the *Planter* only asks for itself a just share of the support which may be distributed. The field is large. The division by States, agricultural sections, soils, climate and products, make work for all; and *readers* are what is wanted.

The *Planter* goes to every State in the Union, and has a fair circulation beyond the Atlantic Ocean, but a *larger home circulation* is desirable.

It will *club* with every agricultural paper of the country, or any other paper on its exchange list, to *new subscribers* at 20 per cent. below the regular subscription rates of each paper. So that we may say, that every *new subscriber* to the *Planter* and any one or more of other agricultural journals, will get them at this reduction by a prepayment for a year's subscription. We have not space now to give terms for combination with other papers by name, but will do so on application by letter or postal card.

We do not say more for the *Planter* than for other journals, when we say that farmers will find their pleasure and profit in reading papers which *teach of their business*. There has been a time in the past when *book-farming*—so-called—was held in contempt by farmers who thought themselves successful and knew more than they could execute. There may be some such farmers now, but as they go but little beyond the fences which enclose their lands, they rest contentedly on an old and fixed belief, and rejecting information to be obtained from books and papers, they have but a faint idea of scientific progress in any department of business, which these same books and papers, if read, would teach them. This class of farmers have a *sandy foundation* to rest upon. They are running in opposition to the current, and reject information through well conducted farm reports, experiments with prevailing and new crops, manures, rotation of grain and other cultivated crops with the grasses for hay and grazing fields, the green fallows, improved livestock, and many other methods of improvement which are taught by publications they neglect to subscribe for and read. If they can stand such a neglect of their vital interests, it is their business. We have another class who read agricultural papers and profit by them. They afford support and encouragement, and so agricultural journals and papers are not likely to fail by the non-reading class. Our words are addressed to them in their own behalf. It makes but little difference what publication they may subscribe for and read, so that it is adapted to their tastes and ideas, to the crops they may cultivate, cattle or fowls they breed, or fruits they produce. They can find good publications which make all these subjects *specialties*, and others which teach of farm production in all its varied branches—the household, garden, poultry-yard, cattle-pens, stables, and the field, as well as of the vineyard and orchard.

We, therefore, say to the farmers of the whole country, *read*, and be well-informed of the progress which is made, and attempted, in *agriculture*, on which the subsistence and commerce of the world depends, and, at the same time, their own industrial profits and family comforts.

THE ASHLEY PHOSPHATE COMPANY.

We invite attention to the advertisement of this Company, appearing in this issue of the *Planter*. In our last we referred to the *Stono Phosphate Company* and its advertisement. Both of these Companies are located at Charleston, S. C., and are engaged in working up the large phosphatic deposits of that section into the most convenient and profitable shape for agricultural use. The phosphate of lime, which those South Carolina deposits so abundantly furnish, is what may be said to be the *life-blood* of wheat and other grain crops; and when *potash*, another important element, is furnished through *German salts*, or kainit, the two most important elements of grain and general plant growth are secured.

An *Old Farmer*, writing in the *Philadelphia Practical Farmer*, furnishes the following formula for one ton of what, he says, is a good fertilizer, costing only about fifteen dollars per ton, and, in the same connection, says: "Avoid commercial ammoniated fertilizers. They act on the soil very much like alcoholic stimulants upon our physical constitution—arouse it to temporary energy, to be succeeded by corresponding exhaustion, &c."

FORMULA FOR ONE TON.

600	pounds	ground phosphate.
400	"	kainit (German potash salts).
50	"	nitrate of soda.
200	"	land plaster (gypsum).
800	"	dry earth (surface soil).

We desire to say that we have no adverse feeling against any person, or company, who are honestly endeavoring to furnish to the farmers the best and cheapest manipulated fertilizers, and hope that all will have a just share of success; but, at the same time, we must say that the farmer who *loses his hold upon his home-made manure-heap, which is his banking capital*, and transfers the control to any manufacturer of fertilizers, whatever may be his brand, is in a bad way.

SHEEP AT THE LAST STATE FAIR.

As explained in our notice of the late State Fair, we were unable to go into a detailed notice of the exhibition.

We only propose now to make brief mention of the display of sheep, which all good judges say was of great merit.

Looking over the premiums which were awarded, we see that H. A. S. Hamilton, of Augusta county, was the largest recipient in *long-wools*, and Dr. J. A. Reid and brother, of Orange county, and R. R. Carter, of Shirley, Charles City county, followed. Mr. Hamilton was, also, as to number, the most successful exhibitor of *middle-wools*, but an old friend, Dr. Jno. R. Woods, of Albemarle, came in with a limited number of very fine animals, after an absence for several years, as did William Green, and Graves and Bradbury, of Orange county, and Dr. J. G. Beattie, of Henrico. Mr. W. C. Preston had also a number of awards in this class.

In the class of *fine-wools*, that constant and veteran exhibitor, Col. S. S. Bradford, of Culpeper, won all the awards except one, which was given to R. M. Newman, of Orange.

FARM GATES.

There is nothing so useful and contributes more to the convenience of the farmer and his visitors than a well-hung gate, secured by a simple, safe and handy latch. The mechanism of gates may be elaborate and ornamental, and yet solid and useful, or it may be plain and simple; and in either case, there is no fixture about a farm which deserves more attention. Bad enclosures and gates involve trouble, invite stock to vicious habits, lead to heavy losses, and show the farmer in a very bad light. We have had opportunity to see on some of the best farms of Virginia on which culture and enclosures were, in the main, to be commended, that the matter of *gates* was sadly neglected. We have also seen, in the past year, farms of fair reputation which had all their gates of a *saggy* character, which a *latch* was superfluous and the *primitive fence rail* was used as a prop. This class of gates whilst, possibly, secure against the ingress and egress of stock, must be especially annoying. To dismount from a horse and lift off the rail and then, with much exertion of strength, to *lift* the gate from its *saggy* rut, demands more than an ordinary degree of patience. If the farmer, himself, has to do this thing many times a day, his interest will prompt him to *duplicate* the labor in closing the gate, but one not so interested may pass on in a spirit of *ill-temper* and leave a breach through which trespassing animals may enter and do much damage.

Other farmers, still less appreciative of a good gate, use "*draw bars*," or a *gap* in the old Virginia worm-fence across their roads and entrances into fields. Such as these deserve no consideration at all, and

should be read out of the farming fraternity. We hold that any farmer of ordinary pluck, and having a proper regard for decency and comfort, if he owns an axe, hand-saw, an auger and a chisel, can do better. And should this be done, the general appearance of the country would be improved, home comforts will be advanced, and the agricultural character of the State elevated.

Our remarks have been suggested by the advertisement in the *Planter* of a new-patented *gate-latch* by Dr. P. J. Winn, of Fluvanna county, which was exhibited at the late State Fair, and received from a committee of practical farmers the award of a Diploma. We have examined the latch at the Agricultural House of Ashton Starke, in this city, and commend it for its simplicity and apparent efficiency.

We may add, that we have had frequent visits, recently, from one of our *subscribers* residing in *Canada* who, for two months, has been searching for a home in Virginia, and his greatest draw-back has been in the neglected condition of farms which are offered for purchase; and this neglect is owing, in a great measure, to what our farmers regard as small things—*pleasantly-appearing homes*, including good farm gates, &c. Waste, or unoccupied, lands will be purchased, provided the surroundings are pleasant, but bad cultivation, bad enclosures, bad gates, dilapidated houses, &c., drive immigrants away.

HOW MUCH SEED WHEAT TO THE ACRE?

Eds. Press,—I have never seen the question satisfactorily answered. Some say 100 lbs., some 90 lbs., some 75 lbs., and a few say 60 lbs. Scarcely any say less. But when we consider how marvelously a single kernel of wheat, when deposited in suitable soil, will multiply itself in the way of reproduction, it must be conceded that even the least of the above mentioned quantities is far in excess of the exact quantity required to properly seed an acre. A single kernel of wheat, under favorable circumstances, will produce from 30 to 40 stalks, each bearing a head containing from 60 to 75 kernels (I have seed heads of wheat which contain over 100 kernels). Take, however, the least of the above multiples—30 and 60—and a bushel of wheat can be made to produce 1,800 bushels of wheat. But it will be objected that this sort of seeding for wheat could not be made practically successful. Be it so; the fact still remains, and has come under the observation of every intelligent wheat farmer, that every kernel of seed in his wheat field maturing into a crop has produced from three to eight stalks, bear-

ing heads containing from 30 to 50 kernels; say, averaging five stalks, and 50 kernels. His yields from 60 lbs. of seed ought to be 200 bushels, or from 90 lbs. 300 bushels; but instead of such yields, he is well satisfied if he reaps 1,800 lbs. from his 90 lb. sowing. Given 90. Pro=1800 $\frac{90}{1800} = \frac{1}{20}$, that is only $\frac{1}{20}$ lb. of his 90 lbs. seed sown came to maturity and produced his 1,800 lbs. wheat; 1-20 lbs. of his seed was absolutely lost. Yet, if his land was in good order and he sowed good seed, it is safe to assume that nine-tenths of his seed sprouted and put forth blades. What, then, became of eight-tenths of it? Smothered by the remaining tenth—the fittest only surviving.

These facts coming under my observation during my long experience as a wheat farmer, both here and in the Atlantic States, led me to a series of experiments, the result of which led me to the conclusion that wheat growers used altogether too much seed—that if they prepared their lands well and took pains to properly sow the necessary quantity of seed, they would largely increase their yield per acre.

Having arrived at that conclusion, I put it to a practical test some 10 years ago, being the last year that I have farmed my lands to wheat. I selected an eight-acre lot, which had been cultivated to beans the year previous, plowed the lot, measured off three acres and harrowed it down; took a one-horse plow, for want of a drill, and marked off the three acres into shallow rows 18 inches apart; then took a part of a sack of seed, having previously weighed the same, and distributed in the rows very sparingly till the whole three acres were thus seeded. I then weighed what was left of my sack of seed, and I found I had used 15 lbs., or a peck of seed on three acres. I then, on the same day, sowed the remainder of the lot broadcast, using about 75 lbs. of seed to the acre, thoroughly harrowing down the whole lot both ways. After the wheat was well up, I went through the three-acre portion with a hoe to clean out the young grass and weeds starting. Now for the result. The three acres yield, 160 bushels, or $53\frac{1}{3}$ bushels to the acre. The other five acres yielded 40 bushels to the acre; but whether I got the right quantity of seed on the three acres is still undetermined in my own mind. But I was satisfied 75 lbs. of seed were too much. The wheat smothered itself out to a great extent, the fittest only surviving.

Wm. C. BLACKWOOD.

Haywards, Nov. 11, 1882.

[From the *Pacific Rural Press*, California. Keep it and think over it before the next seeding time. In considering the matter remember that 60 lbs. make a bushel.—ED. S. P.

The Southern Planter.

SUBSCRIPTION: \$1.25 a year in advance, or \$1.50 if not paid in advance.

TERMS OF ADVERTISING.

PAGE RATES.

	1 Mon.	3 Mons.	6 Mons.	12 Mons.
One-eighth page	\$ 2 50	\$ 7 00	\$12 00	\$ 20 00
One-fourth page	5 00	12 00	22 50	40 00
One-half page...	9 00	25 00	45 00	80 00
One page.....	15 00	40 00	80 00	140 00

COLUMN RATES.

	1 Mon.	3 Mons.	6 Mons.	12 Mons.
One inch.....	\$ 1 50	\$ 4 00	\$ 7 00	\$12 00
Two inches.....	3 00	8 00	14 00	24 00
Three inches....	4 00	10 00	20 00	40 00
Half column....	5 00	12 00	25 00	50 00
One column....	9 00	25 00	45 00	80 00

Special rates for cover.

Reading notices, 25 cents per line, of brevier type.

EDITORIAL NOTES.

TO OUR SUBSCRIBERS AGAIN.

With the commencement of this new year, we renew our appeal to subscribers who are in arrears for the past year, and some for a longer time, to settle up their accounts. All such will find bills in the present issue, and we are glad to say that the number is not large. Our former appeals have been generously met, and we take it as evidence that the readers of the *Planter* appreciate its efforts to supply them with good agricultural reading. We hope, therefore, that before the close of the month all arrearages will be paid up, and that the *Planter*, will have its track cleared for a new years business which will be profitable and pleasant to itself and its readers.

NOTICE TO CORRESPONDENTS.—We are not conducting the *Planter* now as has been done for some years past, when its issues were delayed for a week, or more, past the first day of the month of its date. Our plan is to issue it by the 25th of the

month preceding date, so that it will reach its subscribers promptly, by, or before, the day of its date.

All communications, therefore, should be received by the 15th of the month preceding the date of issue. We have now in hand several interesting communications which we should have been pleased to have in the January number, but they came too late, and will have to lie over for February. Our correspondents and advertising friends will, therefore, take notice of this fact.

TUCKAHOE FARMER'S—CLUB PAPERS.—

We have received from F. Guy, Esq., Secretary of this Club, three good and practical articles which constitute a part of their proceedings and regret that we did not get them in time for our present issue. They will appear in the February number under the above heading, and we hope this active association of practical farmers will keep us supplied each month, so that our heading can be continually preserved.

AN ITEM FOR DR. POLLARD.—We clip the following from the *Georgia Macon Telegraph and Messenger*, which quotes from the *South Georgia Clarion*:

Mr. J. H. Hall made 165 measured gallons of fine, thick syrup, from the cane off a patch 66 by 17 feet square. We have a sample of the syrup in our office and it is the finest we have ever seen. Don't that beat cotton?

It is true it beats cotton and everything else. There must be a great mistake in the figures. As given there would be a yield of upwards of 6,000 gallons of syrup to the acre, and at fifty cents per gallon more than \$3,000. If the figures given for feet mean yards, then the yield would be marvelous, and give about 700 gallons to the acre, worth \$350.

One of the largest seed establishments in the United States is located at Marblehead, Mass., and is owned and managed by James J. H. Gregory. Mr. Gregory has earned a reputation second to none throughout every State in the Union, of selling the most reliable seeds that can possibly be obtained. Notice his advertisement in another column.

The *Southern Planter* for the present month is filled with articles of great value to agriculturists. This is the best agricultural journal in the country and no farmer should be without it.—*Eastern Virginian*.

Thanks, friend Brent, for your compliment. We have received many such from other portions of the country—inside and outside the State—but when one comes from away yonder at *Onancock*, beyond the Bay, we especially appreciate it. We do not know, distinctly, whether this is near "*Peyanketank*," where bull-frogs jump from bank to bank," but we do know that it is the place of which our esteemed friend, Henry A. Wise, has, in the latter days of life, talked and told us of. We wish we could now recall the statement of Gov. Wise of his sales from cherry trees planted in the corners of the fence along the avenue leading to his *Onancock* residence. His account was graphic as to the *skipper* who anchored at *Onancock* and purchased the cherries for the Boston Market; how he arranged his sheets to prevent contact with the ground; the clipping of the bunches of fruit, one by one, with scissors; then pressing and barreling the juice for wine; the packing of skins and pulp for vinegar; and the saving of the stones to be converted into a chemical acid. Whilst the Governor thought he received a large price for his cherries, he saw that the skipper's skillful manipulation gave him the best of the bargain.

EASTERN LUNATIC ASYLUM.—We have been favored by Dr. R. A. Wise with a copy of the Annual Report of this Institution for the fiscal year ending September 30, 1882.

We have read it with much interest, but are only at liberty to refer to its agricultural and horticultural features. The gross annual production of farm and garden for the year is stated at \$5,519.04. Not many farms and gardens in Virginia make so great a yield. We have no knowledge of the extent of surfaces cultivated in *farm* and *garden* products, and the Report does not give the cost of production, in the shape of labor, tools, seeds, manures, su-

perintendence &c. If they are reported at a fair average, then, we think, the farm and garden of the *Asylum* have not only done a good thing for the State, but have placed them in an enviable position before the farmers of the country.

We have heard that our friend V. Vaiden, when steward, made fine crops of farm and garden products. If such an institution can beat the average farmer in *net profits* we should like to know it, and the reasons for it.

W. D. BLAIR & Co.—We call attention to the card of this long established house, of which Julian Binford and L. B. Tatum are now the proprietors. As a first class family-supply store none can excell it. The late Walter D. Blair, who established the house more than a half a century ago, and who only passed from life a few years since, was so well known in this city and throughout the State, as to give assurance that his successors in business will faithfully guard its reputation. People from the country or city who may patronize it, will have ample guaranty of fair dealing and the *best of goods*.

THE PRANG CHRISTMAS CARDS.—MESSRS. Prang & Co. of Boston, Mass., will please accept thanks for a lot of their elegant cards. We regret that they did not come earlier, so that we might have noticed them in our issue for December, but many of them are good for New-Year's Day as well as Christmas, and hope this notice may attract the attention of our readers. Each one in a beautiful work of art which the most fastidious taste will not fail to commend. The prices range from fifty cents to \$1.25 each, and are put up in sets of a half dozen.

THE POEM OF PAUL H. HAYNE ON THE WHEAT FIELD.—We have received from the Editor of the *Home and Farm*, Louisville, Ky., a personal letter calling our attention to the fact that the poem of Mr. Hayne was copied into the December number of the *Southern Planter* without giving the proper credit for it. We are

greatly obliged to the Editor of the *Home and Farm* for inviting our attention to an omission either of ourself or of the printer. We prefer to take it on ourself, as we are never disposed to cast blame on others, and especially on such a careful printing house as that of Fergusson & Son who print the *Planter*. We thus make the *amende honorable* to our brother of the *Home and Farm*, and thank him that he has called our personal attention to the matter. Every Editor should feel himself honorably bound to credit properly all his selections from other papers. We see, daily, instances of neglect of this duty. We have suffered by it, and have been tempted, like the *Home and Farm*, to write personal letters, but have forbore. Articles written for and printed in the *Planter*, and editorials as well, have been copied without credit, and for the time we were annoyed, but let them pass as among the tricks of journalism. A striking case occurred not long since, when we were discussing with ex-Agricultural Commissioner Pollard the question of substitutes for the wheat crop. Our eye, therefore, caught readily anything written of wheat culture; and in an editorial article in one of our agricultural papers we saw *our views* advocated in our own words, *but the quotation marks were omitted*, and thus they appeared as the utterances of that paper. We did not complain as its editor was on our side, and we only mention it to show that editors should be more cautious in respect to this matter of crediting properly their clippings.

THE venerable Theodorick Pryor, D.D., of Virginia, last month preached at Shiloh church, Nottoway county, a sermon commemorative of his fifty year's labor in the ministry. Just half a century before he was ordained in that church by the Presbytery of Hanover. And after all these years of untiring work, he is to-day an able, earnest, and effective pastor and preacher, and "always abounding in the work."

We clip the above from the *New York Observer*, one of our regular exchanges. Dr. Pryor ministers, in the main, to agricultural people. We have known him

from the time he commenced his ministrations in the Nottoway Presbyterian churches. He preached the funeral sermons of our father, mother, sisters, and brother; and performed our own marriage ceremony forty two years ago. There is no man for whom we entertain a higher regard. *We love him*; and trust our readers will pardon our departure from agricultural topics and allow us the opportunity for this brief tribute to his personal and ministerial character.

SOUTH GEORGIA and FLORIDA.—J. L. Taylor, Esq., general passenger agent for the *Savannah, Florida and Western Railway*, will accept our thanks for his neat pamphlet of 72 pages, entitled "A Guide to South Georgia and Florida." It is beautiful in its typography and illustrations. Besides its special railway information, it treats of the soils, climate, farm products, flora, sports, &c of this semi tropical region. The residents of the northern section of our country will, we dare say, be much interested by its examination.

PROFESSOR TICE, the distinguished Meteorologist and Weather Prophet of St. Louis, has issued his ANNUAL NATIONAL WEATHER FORECASTS for 1883, in which, besides foretelling the weather for every day in the year, and clearly explaining the theory on which his predictions are based, he gives much other information concerning atmospheric phenomenon—the whole designed not only to give the *facts* as to the weather, but to *teach* the masses the facts determining weather changes. In the present number the Professor has a timely article on "Comets," and also on Electricity as "The Fuel of the Future." In view of the terrible storms of last summer, his "Notions about Tornadoes" are specially interesting, and his directions for guarding against their destructive effects, possesses rare practical value. The pages of the Almanac for 1883, are further enriched by a variety of fresh, popular and instructive matter relating to the fascinating science of Meteorology—the whole making the most complete and useful annual for the farm, the household and the shop ever published. For sample copy and terms to the trade and to agents, send 20 cents to Thomson, Tice & Lillingston, of St. Louis, Mo.

FALLOW.

LUCY LARCOM.

I like these plants that you call weeds—
Sedge, hardhack, mullen, yarrow
That knit their roots and sift their seeds
Where any grassy wheeltrack leads
Through country byways narrow.

They fringe the rugged hillside farms,
Grown old with cultivation,
With such wild wealth of rustic charms
As bloomed in nature's matron arms
The first days of creation.

They show how mother earth loves best
To deck her tired-out places;
By flowery lips, in hours of rest,
Against hard work she will protest
With homely airs and graces.

You plow the arbutus from her hills;
Hew down her mountain laurel:
Their place, as best she can, she fills
With humbler blossoms; so she wills
To close with you her quarrel.

She yielded to your ax, with pain,
Her free, primeval glory;
She brought you crops of golden grain:
You say, "How dull she grows! how plain,"
The old, mean, selfish story!

Her wildwood soil you may subdue,
Tortured by hoe and harrow;
But leave her for a year or two,
And see! she stands and laughs at you
With hardhack, mullen, yarrow!

Dear earth, the world is hard to please!
Yet heaven's breath gently passes
Into the life of flowers like these;
And I lie down at blessed ease
Among thy weeds and grasses.

DIGITATED STOCKINGS.—We note from
the London, England, *Lancet*, the follow-
ing:

"That digitated stockings—that is, stock-
ings with a stall for each toe—would con-
duce much to comfort, and spare many
persons who now suffer from the develop-
ment of soft corns between the toes a se-
rious trouble. They would also prove
more cleanly than the stockings in com-
mon use, because they would naturally ab-
sorb and remove the acrid moisture which
accumulates between the toes, and which
is the general cause of offensive odors
from the feet. They will, moreover, give
the foot better play, allowing its phalanges
greater freedom of action. And, lastly, a

well-fitted digitated sock or stocking will re-
move a mass of material from the toe of
the boot, and at the same time give in-
creased breadth and space for expansion
across the base of the toes. The new
stockings, supposing them to be well-cut
and fitted, possess many advantages.

PEABODY EDUCATIONAL FUND. Proceed-
ings of the Trustees at their Twenty-first
meeting, held at New York city, 4th Oc-
tober, 1882, with the Annual Report of
their General Agent, Dr. J. L. M. Curry.

We have received this interesting pam-
phlet of fifty eight pages. It shows the
working of this great charity of Wm. Pea-
body; and under the skillful management
of Dr. Curry, a devoted, learned and expe-
rienced educator, the country may be as-
sured of its great benefits.

THE POPULAR SCIENCE MONTHLY for De-
cember, 1882.

This is a very interesting number. The
great feature of this Monthly is having ar-
ticles on one subject by specialists. Prof.
Ferdinand Cohn's article on the "Cell
State" is of remarkable interest of a sum-
ming up of the latest views on the subject
of cell structure and cell action. The
professor treats in a very lucid manner the
problem as to the *cost* of the phenomena
of life. The article on speculative zoology
is a fine study of the past life of the earth.
There are other articles full of instruction
and interest, especially the first by Gold-
win Smith in reply to Mr. W. D. Le Sucur.
The editorial department in this number is
quite equal to the others in excellence.

ARMS AND THE MAN. A metrical address
recited on the one hundredth anniver-
sary, (19 October 1881) of the surrender
of Lord Cornwallis, at Yorktown, on in-
vitation of Joint Committee of both
Houses of Congress, by James Bar-
ron Hope, of Norfolk, Virginia.

Messrs. Randolph & English, publishers,
will accept thanks for this interesting
book. Apart from its conceded merits as
a metrical address, the associations which
surround the subject, appeal to the mind
and heart of every American citizen.

This ode is subdivided under nineteen

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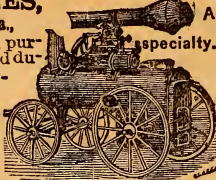


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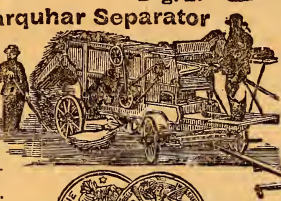


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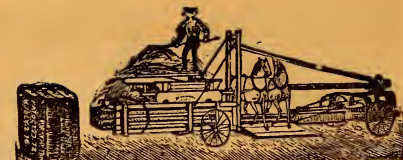
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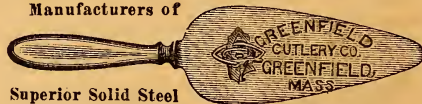
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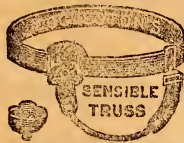
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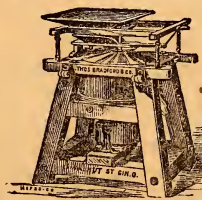


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CAPT. CHAS. B. ROGERS, Ship "Twilight," San Francisco.
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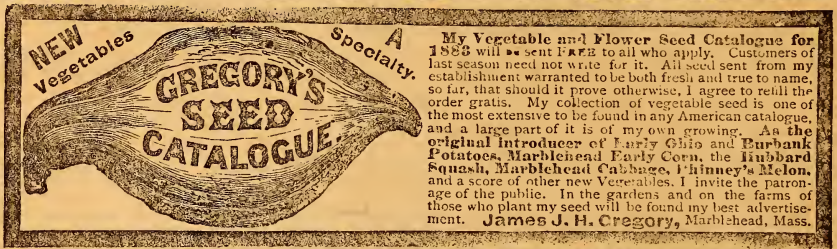
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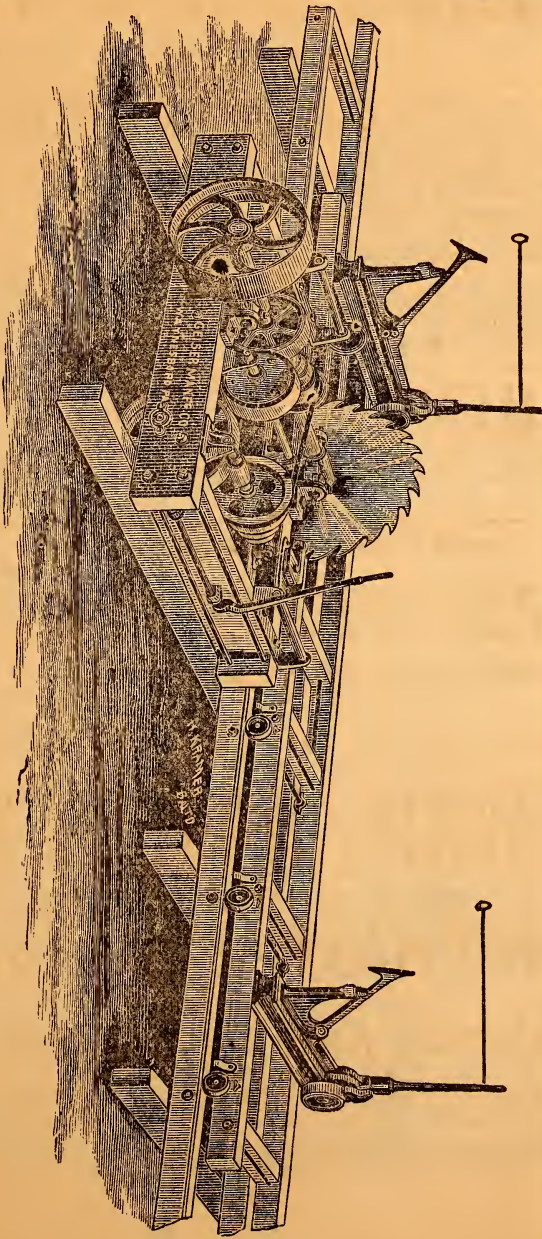
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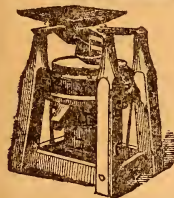
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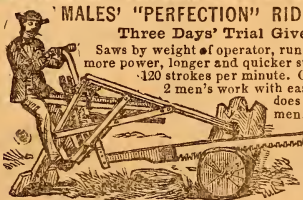
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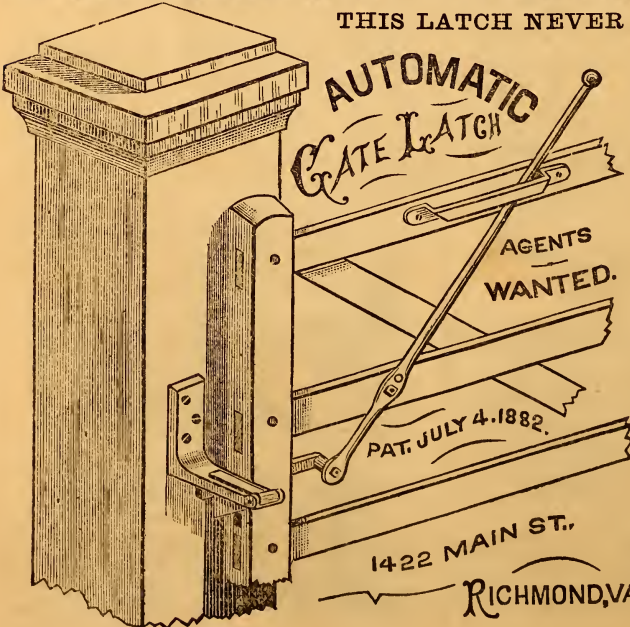
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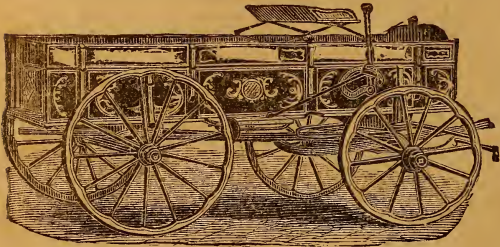
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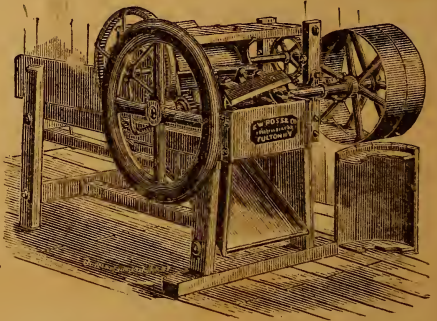
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