

THE

SOUTHERN PLANTER

DEVOTED TO

AGRICULTURE, HORTICULTURE, LIVE STOCK AND THE HOUSEHOLD.

Office, 26 Wilkerson's Hall, Ninth Street.

T. W. ORMOND,	PROPRIETOR.
W. C. KNIGHT,	EDITOR.
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45th Year.

MAY, 1884.

No. 5

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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.

45TH YEAR.	RICHMOND, MAY, 1884.	No. 5.
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[For the Southern Planter.]

SCIENCE IN AGRICULTURE.

BY SIR J. B. LAWES, BART, LL. D., F. R. S.

In the February number of the *Southern Planter* I observe some very sensible remarks of Professor Scott, to the effect that science places at the disposal of the farmer the principles upon which his acts are founded, but that his own intelligence and experience must instruct him as to their application; and he further adds that “every farm is to a certain extent a separate problem.”

About a quarter of a century ago I published a table giving the relative manure value of a great many of the cattle foods used upon the farm. The construction of the table was very simple. I took the best analyses of the foods which were to be obtained at the time, and deducted from the nitrogen, phosphoric acid, and potash the amount of those constituents which—from my own experiments on feeding—I considered would be assimilated by the animals consuming the foods. I then placed a value on the residue somewhat below the cost for which a manufacturer would furnish a manure in every respect equal in value.

I have no doubt that the table could be made more perfect at the present time, but with all the increased knowledge which we have

acquired in regard to the action of manures, there is nothing to alter in the principle upon which the table was constructed. Decorticated cotton cake would still head the list as furnishing a manure superior to any food used in Great Britain. There are other foods which have a comparatively low manure value; and I noticed in a trade circular not long ago, one rather high priced food which would be almost without any manure value at all. The cost of a food therefore bears no fixed relation to its manure value.

At the commencement of the present year an act of Parliament came in force securing to the tenant farmer of Great Britain compensation for the manures applied by them which remained unexhausted at the time of their leaving their farms.

The act further gives the landlords and tenants the power to form some scale of compensation among themselves: that is to say, the land owner and the tenant may come to an agreement between themselves as to the sum which shall be paid the latter on his leaving his farm, as compensation for the cattle food consumed. Both sides in fact contract themselves out of the act; but with this proviso, that the compensation must be fair and reasonable: in other words, the land owner should not put pressure upon his tenant to compel him to sign away his rights.

It might be thought that, with some slight revisions and modifications, such a table as that which I had constructed would form the basis of cattle food compensation. Such, however, is not the case, and the popular idea is that some portion of the cost of the food should be the basis of the manure value.

As this view has been advocated by intelligent farmers who are thoroughly conversant with the contents of the table, I think it will be admitted that the progress of science in agriculture is somewhat slow in this country.

Your correspondent refers to my having said that sodium supplies the place of potassium when the latter is deficient in the soil. I do not now recollect the exact expression I used when writing on the subject, but I certainly did not wish it to be understood that sodium could perform all the functions of potash.

We are just now sending a paper to the Royal Society on the composition of wheat grain and straw; but notwithstanding that in some of our experiments soda has been used without potash, and in others potash without soda, for twenty years in succession, soda is hardly to be found in either the grain or the straw.

When, however, we come to write upon the composition of the ash of pasture grasses, we shall show that while the grass—when supplied

with a sufficient amount of both potash and soda—will always select the former; if it is supplied with the soda alone, it will take up such a large amount of that substance that more soda than potash is found in the ash.

These facts may be thoroughly relied upon, as they are based upon the most exhaustive and complete series of ash analysis which have ever been carried out.

Mangles supplied with soda will take up large amounts of that substance; while potatoes under similar circumstances do not take up any. The juice of potatoes—where we should expect to find any soluble salts taken up by the plant—contain hardly any soda, even when manured with nitrate of soda. The juice of mangles, on the other hand, under similar circumstances of manuring, contain almost as much soda as potash.

It is these special properties of different classes of plants that make our attempts to give any exact explanation of the economy derived from a rotation of crops so exceedingly difficult.

There is another peculiar property of plants which requires to be thoroughly studied. I allude to the different capacity possessed by different plants for taking food out of a soil. Without at all arguing that red clover derives its nitrogen from nitric acid, I have pointed out that it has greater advantages than any of the other agricultural plants commonly grown for taking up a substance which is diffused so rapidly through the soil. It has a longer life, and the plant grows very close together on the soil; the roots penetrate deep into the subsoil, and the leaves are always green. If, however, red clover can obtain more nitrogen from the possession of these properties, it might be supposed that they would have enabled it also to collect more mineral food. I should certainly have imagined that such would have been the case.

Let us see, however, what experiment tells us. At Rothamstead, between 1850 and 1873, wheat, turnips, barley, and beans were grown upon an unmanured soil. In 1874, red clover was sown and the plant was very good, although the crop was small. Between 1873, when the seed was sown, and June, 1874, when the crop was cut, all the phosphoric acid which it could pick up out of an acre of land only amounted to 2½ lbs. ! It may be said that after the removal of so large an amount of crops the soil was exhausted of its phosphoric acid, but such was not the case, as the wheat which followed the clover took out more than 17 lbs. of that substance; while the turnips which followed the wheat fared even worse than the clover, for they could only obtain 1½ lbs.; but the barley which followed the turnips took out 10 lbs., and

in 1883—after 36 unmanured crops had been carried off—the wheat removed 20 lbs. of phosphoric acid per acre, and produced a crop of 29 bushels per acre.

We get in these results some clue to the conclusions derived from practical experience in all countries, that mineral manures are much more beneficial to some crops than they are to others. It is evident that the sereal crops possess a greater capacity for obtaining their food from a poor soil than any of the other crops generally grown.

It is fortunate for the human race that such is the case, as nations must have bread to eat without having to be dependent for it upon the aid of science.

[For the Southern Planter.]

SOME THOUGHTS ON FARM MANAGEMENT.

An experience and observation of ten years as a practical farmer have impressed so deeply on my mind some truths connected with agriculture, and as others are imparting their knowledge to the farmers through your valuable journal, I will endeavor to show my appreciation of their kind efforts by writing a few lines.

1. As a rule, land which is rented out rapidly depreciates; small bushes grow up, which are not *dug up*, but *cut off* at the surface of the ground, and the roots below the surface continue to grow and in a few years are troublesome and costly to remove; fences and buildings go to ruin, and the land badly plowed and worked rapidly depreciates. My experience in several cases, and observation in dozens of others, point unmistakably to the fact that land, by ordinary renting, will in eight or ten years sink one-half in cash value.

2. As rail timber is scarce, and free labor has to be paid, the land enclosed should be made rich. Our land can be easily made to grow ten barrels of corn per acre, and other crops in proportion.

3. Raise all the manure we can, and that *under cover*; have stalls or sheds for horses, cows, out cattle and hogs, and add leaves, straw, muck, &c., to the stalls whenever required.

4. *Feed all stock well*, not only with rough food, but with meal, bran, cotton seed meal, &c. The manure made *under cover* will more than pay all costs. No farmer can afford to half feed his stock. We should look mainly to the manure for our outlay. Our cattle should be stalled and fed Summer nights as well as Winter nights. One ton of manure made under cover is worth two tons accumulated in rain, snow, frost, wind and sunshine. Manure made under cover from strong food to

our stock will pay in dollars and cents. I speak from experience. Try it, farmers.

5. Manure properly composted, and with the right constituents, will be doubled or trebled or quadrupled in value. I speak with great confidence on this point, and earnestly insist on our farmers composting. If properly done it will pay. I make a large quantity of manure and compost it.

6. Grow grass all we can, both for pasture and for hay. Our land, if correctly managed, will grow grass profitably. Poor land, of course, will grow little grass, but land in good heart and managed on correct principles will grow grass handsomely in Piedmont Virginia. I can prove this assertion beyond any doubt by showing excellent grass on land very thin six years ago.

7. Northern farmers come and see our lands and become discouraged and leave us, and no man who has traveled through Western New York or Western Pennsylvania, and many other sections of their country, can blame them for not purchasing our lands. We have scarcely anything to attract purchasers. Who wants to take half a lifetime to improve his land before realizing? But Virginia will not remain as she is to-day; the average farmer will be compelled to *improve* his land, or he will be sold out to some one who will improve. *Free labor means good land*, and we had as well realize it now, at once.

8. Every intelligent farmer should experiment in a small way upon an acre or two of land. His cost need not be much, but may lead to very valuable results. Practice should corroborate theory, and if it does not, stop the experiment, unless a mistake can be discovered which can be readily corrected. I am experimenting this season on four acres of land at a cost of \$40 per acre, and if satisfactory will extend it largely another year.

“NEW SOUTH.”

A WRITER of mathematical bent, says the *Scientific American*, finds from the census returns that there are about 17,000 dentists in the United States, who, he estimates, pack into the teeth of the American people a ton of pure gold annually. Continuing his speculations, he predicts that in the twenty-first century all the gold in the country will be buried in the graveyards.

THE height and velocity of clouds has been determined in England by means of photography. Two cameras, placed about 600 feet apart, are provided with instantaneous shutters simultaneously released by electricity. The observer measures the angle of inclination of the cameras and the position of the cloud as photographed on the two plates, and from these data a trigonometric calculation gives the distance and height of a cloud with great accuracy.

THE "VIRGINIA, WASHINGTON OR CURTIS" BREED OF SHEEP.

Editor Southern Planter,—The breed of sheep referred to in "Stewart's Shepherd's Manual," and about which an inquiry is made in the letter you hand me from Mr. Morgan, of Fauquier, attracted my attention and incited interest in its history fully thirty-five years ago. In the flocks then driven to Piedmont and the Valley from the counties now constituting West Virginia, as also from the States of Tennessee and Ohio, it was common to see, in considerable numbers, sheep of such marked peculiarities as to impress the sheep-husbandman with the conviction that they must have sprung from the same common stock. They were of good size; a little leggy; well woolled (except under the belly, which was well nigh naked); face and legs colored a dirty brown or yellow. The ewes, with escutcheons that Guenon would class as "Flanders," milked like goats, and usually bore twin lambs, and were the most faithful nurses of any breed I ever handled. Crossed on a Southdown buck they seemed to lose their own fixity of type and, yielding to the prepotency of the sire, produced lambs hardly distinguishable from the full-blood Southdown.

Since the general infusion of Merino blood into the flocks of the best, we find fewer of this breed brought in, either as stock sheep or for the shambles, and yet I think it would not be difficult to pick up a few hundred a year from these western droves. I have found these sheep scattered generally through the Tidewater counties of this State, and have seen them in North Carolina and Georgia, and perhaps in other States. They are now most frequent where there has been least effort at recent improvement, and I would suggest to your correspondent that his object (which I think a wise one) may be accomplished by getting some livestock broker in the cities to pick up the ewes of this breed as they may be offered on the market, or to employ an agent to go into the counties along the Rappahannock, where I know a few years ago these sheep were to be found in many unimproved flocks. It may be that the enterprise of our old friend Ab. Rowe, of Fredericksburg, has infused his blue blood into many of these flocks, but in the out-of-the-way places, it may be, your correspondent's wants may still be supplied.

R. W. N. NOLAND.

THE quality which is called gentlemanly is that which theoretically, and often actually, distinguishes the person who is born in a certain social position. It describes the manner in which such a person ought to behave.—*George William Curtis.*

PEA-FALLOW.

Editor Southern Planter,—In reply to Mr. Ambler's inquiry concerning peas for seeding pea-fallows, I take the liberty of sending replies as to some details scheduled in your editorial remarks on said inquiry.

As to the quantity to be seeded per acre, this depends, as in all other crops, on the soil and care taken in preparation. On fair land *well* plowed and *well* harrowed, one bushel drilled or one and one-fourth bushels broadcast and put in with shovel or small gang plows, from the 1st to 20th of May, or even later, will give a good growth, and should be turned under when the pods begin to turn brown. Running over the vines a head of the plow with a smoothing harrow will greatly facilitate the work.

As to raising the seed; the land should be prepared as for corn, and the peas planted in May from twelve to twenty inches apart in the row, the rows being far enough from each other to admit of easy cultivation with double shovels. Any of our simple Virginia corn planters will plant them accurately.

As to gathering when ripe; three modes are practised: picking them by hand, which is too expensive; cutting them with a mower, windrowing the vines and putting them up in small shocks, or pulling the vines by hand, piling three or more rows in one heap row; when thoroughly dry, haul to a low scaffold made of rails or poles and beat them out with flails; fan them and store in moderate bulk—barrels make excellent garners for them. The vines and branches are good winter food for stock, especially sheep, and should be stacked or otherwise secured. A portion of the field seeded for fallow may be left until ripe, then cut and treated as above.

The best variety is the common black agricultural pea, or black-eye may be used; it does not give as heavy growth as the former.

Mr. Ambler can no doubt secure any quantity of seed in Richmond.

It would be more prudent for him to try them in a small way the first year, as many farmers think that peas do not do as well so near the mountains as lower down in Virginia.

Moss Neck, Va.

J. P. C.

You may know mock modesty as you do mock turtle, from its being the product of a calf's head.

"AT Frankfort," said little Simson, "I once saw a watch that did not believe in the existence of a watchmaker. It had a very poor movement, by the way, and a pinchbeck case."—*Heinrich Heine*.

THE FARMER SHOULD KNOW SOMETHING OF MECHANICS.

Editor Southern Planter,—I hold that to be a real good farmer a man must possess more general knowledge and have a better stock of common sense than is required in almost any other calling of life. The various qualifications necessary to make a good farmer I need not mention in detail, but I fear there is too little attention given to a very practical and necessary branch of instruction which is becoming more and more necessary every day. The use of labor-saving machines, including steam engines, on the farm renders some knowledge of mechanics almost, if not absolutely, essential. I know of no better way to impress what I say than by giving some examples.

A few years since, while in charge of a repair shop in one of the Southern States, a farmer from a distance of thirty miles and more, drove into the shop-yard late in the evening of a warm Fall day and almost begged for a hand to go down to his plantation to "caulk the tubes of his boiler." It fell to my lot to go with him. After a long, weary ride by moonlight, we reached his dwelling. The next morning I examined the little Geiser engine, looking first, of course, in the fire- and smoke-boxes to see to what extent the tubes were damaged. I found them as tight and snug as a sealed bottle, not the faintest sign of leaks about them. I had learned not to be surprised at this. After a few questions as to how the engine had behaved when steamed up, I looked at the governor and found that a very small taper pin had worked out of the valve stem, and consequently when the engine ran slow the governor balls failed to raise the valve which had dropped, and thus the engine was effectually throttled; but the boiler was in good order and capable of raising all the steam necessary to drive the engine. Five minutes, or say thirty, at the most, was consumed in getting the engine ready to run, but the farmer had to pay my employer for more than a day's work, besides the loss of time, the travel of over thirty miles, and general worry and fret.

I had in one ginning season two more cases exactly similar to the governor valve, and several where the farmer had fired up his engine in the morning without water and burnt the tubes until it was necessary to clinch them, at a cost of more than a farmer, whose per cent. of profits is close, cared to pay. Now in both cases of trouble mentioned, I thought a little common sense would have been sufficient; certainly some knowledge of an engine would have been of great value. In the first case a very simple process of reasoning would have led to a correct conclusion and the discovery of the trouble. First. I have, say, seventy

pounds of steam on my boiler because my steam gauge and safety-valve tell me so. My engine was driving the gin with a lower head of steam than this yesterday, why will it not do it now? The boiler is all right—plenty of steam, no leaks. Can the steam reach the engine? The throttle is open, can it go through the governor? And right here he would have found the trouble. Experience is a very fine teacher, but a hard, very hard taskmaster, to say nothing of the cost.

Farmers who are educating their sons should have an eye to this mechanical training, which will not be difficult to impart nor irksome to the student, but a recreation, if practically taught, from other brain-straining, memory-stuffing subjects for which the boy may have naturally no taste. We have in our State but one institution that I am aware of, save the *Miller Manual Labor School*, which is equipped to do the work. I allude, of course, to the Virginia Agricultural and Mechanical College. Where the farmer cannot avail himself of this institution, which should be supported, patronized, and kept up to its *special duties*, common sense, careful observation, and experience will do good training. A farmer should never rest until he understands the working of his machinery, and then and always he should take care of it. Understand your machine, take good care of it. When it really needs repair, have it done. If you cannot do it yourself, get some one thoroughly competent to do it, and many a dollar charged to loss will be saved.

M. AND W. W.

P. S.—Very full and accurate directions are usually sent with each machine. If read carefully and kept for reference, their value will be appreciated and tell financially in the saving of time, wear and tear and general loss arising out of an ignorance which is unpardonable with the means of information at hand.

BONE DUST AND WOOD ASHES.

A farmer in Indiana gives the following result of an experiment with bone-dust and wood ashes. He says: "I applied six hundred pounds of dry, unleached ashes to the acre, and sowed wheat on that, and the result was only six bushels to the acre. Adjoining this tract I drilled in two hundred pounds of bone-dust and the three acres produced twenty bushels to the acre, being an increased yield of fourteen bushels over the tract sown with wood ashes. The following year I used five hundred pounds bone-dust on the plat where I had previously sown six-hundred pounds of ashes, and the result was forty bushels of wheat to the acre, being double what the bone produced alone. This experiment satisfied me that ashes alone or bone-dust alone would not give me a yield that paid to my satisfaction."

THE FARMER AND POLITICS.

[An address delivered before the Convention of the National Agricultural Association by Governor VANCE, of North Carolina. Copied from the *Agricultural Review and Industrial Monthly*.]

What shall be done for the tillers of the soil? For the American agriculturists and their dependents? For those who represent the primal labor of man, which underlies all comfort, all prosperity, all civilization? The man who does not recognize the vital import of this question is lamentably blind to the tendencies of the times.

What is that tendency? It is not practicable, or material to my design, that the various directions taken by the energies of this age should be delineated; it is sufficient to say that the most remarkable is perhaps the fierce and abnormal stimulation of the productive powers of our race, and the accentuation of individual wealth in the handling and distributing of it.

Were the science of statistics old enough to take us back to the days of Adam Smith, with figures as accurate and painstaking as those of our day, the record of our wealth-getting would show such a geometrical progression, an increase so far out of proportion to the growth of population, as to seem absolutely miraculous. This is exhibited in the digging of metals and minerals from the bowels of the earth; the manufacture of raw materials from field, forest and mine into articles of utility and beauty, and the wondrous methods of distributing both material and products throughout the world. We designate the trio as mining, manufactures and commerce. In each the highest skill, the brightest genius and most unsleeping energies of the human race are employed. Science, with her searching eyes, is made their servant. They are divided and subdivided; to each man is assigned his task, and none can survive except the expert and the specialist.

If a new or important method or expedient is discovered, every other man or method is immediately tested by this new standard of excellence. There is no conservatism, everything is progress. In every department and sub-department there is a keen and constant straining after the greatest possible results with the least possible expenditure of means, and to these results the social and the political world are forced to conduce without stint and without remorse.

As their means increase their resources likewise increase, and these three great classes of workers draw nearer and nearer together. Their alliance, indeed, has become complete, and their organization for offensive and defensive action is perfect in all essential particulars. Touch but one of them, or any one of their dependent industries, and the armed battalions and mercenaries of all the others are instantly in line to defend. The cause of one is the cause of all. Now, against whom is this alliance framed? Or, if that be too strong, upon whom is it to operate? Of course, the aim of it all is to make money; but out of whom? It can only be the soil-workers—for they are the only class of producers remaining. Agriculture completes the grand enumeration of the industrial forces of society. It is by its followers the others live,

and upon the fruits of its labor the others grow rich. The field for combination is inviting; the means are ample, and the victims patient and unresisting beyond the dreams of cupidity. It is a fact worth noting, that of all the colossal fortunes owned by so many American citizens, not one has been made by agriculture—all have come by some of the other pursuits. Many thousands of them are made yearly by handling the farmers' products, but not one by the farmer himself. Every man who touches his productions makes more clear profit thereby than did he in coaxing them from the earth. Even the brakeman on the car which transports them to market gets more pay than the man who held the plow. One country merchant absorbs the profits of a hundred farmers; one in the great city will absorb the clear earnings of a thousand; one railroad line will consume the net proceeds of a province. This, too, in the ordinary course of trade, to say nothing of extraordinary courses, of corners, and all kinds of combinations and pressures of which they are so often the victims.

In round numbers there are engaged in agricultural occupations 8,000,000 of people. Now, allowing three dependents, or non-workers, to each worker, which is allowed for all the classes in the census reports, and we have 24,000,000 souls, nearly half our entire population, dependent on agriculture for their subsistence. They represent more than twelve thousand millions of capital, including stock and implements, and their annual product is about two and a quarter billions. As they are the most numerous, so are they also the most widely dispersed class of our people following any gainful occupation. They have cleared the wilderness and broken to the plow five hundred and thirty-six millions of acres of the virgin soil of America, divided into four millions of farms. This area is constantly enlarging. They furnish seven-eighths of our foreign commerce, and their fertile fields, under their energetic hands, aided by skillful modern implements, have become, beyond all thought of rivalry, the granary of the world. It is capable of demonstration, that under the stimulus of universal and unrestricted traffic, the United States could in a few years more feed and clothe the human race. And yet the agricultural class of this country is the prey of the others. Each of them has more of honor and of profit. The plow is under the ban, deny it who may. Mining, manufacturing, finance, trade and transportation draw to themselves nearly all the genius and ability of our people, that does not go to the professions, because their rewards are greater.

They organize for the promotion of their respective interests on most thorough methods, and combine on the basis of an identical welfare. By these means they secure discriminations against the agriculturists in the social code, in the laws of trade, and more than all in the legislation of the country. In the common mention of affairs they are positively excluded, in a matter-of-course way that takes one's breath almost.

In what has come to be called "business" and "the business interests" they are not supposed to be embraced at all. We hear every day that the effect of this, or the doing of that, or the omission of the other,

will "promote the business interests" or will "alarm the business interests," or will be "resisted by the business interests;" and often it is said the "business interests demand" the doing or not doing of a certain thing. In other words, the claim of the banks and stock dealers, the transportation companies, the manufacturers, etc., though a great minority, to regulate affairs and control legislation, is openly acknowledged and acquiesced in. The larger class who make bread and meat for the others and furnish the chief means of their foreign exchanges, are not referred to or consulted; *their* labors and cares by day and night, *their* hopes and fears, their prosperity and welfare, are not "*business!*" Nobody is afraid of them; they demand nothing.

Now, gentlemen of the Convention, there is a cause for all this, and that cause is not far to seek. Having found it, the remedy will not be hard to find also. Among many others, I should say the first reason is, that the agricultural people readily submit to this secondary position so universally assigned them. Of course people will dominate others so long as there is no resistance to that domination.

Again, it is said that it is not possible for the farmers to do otherwise than submit, because they are so widely scattered over so large a territory that they cannot, in the nature of things, surround themselves by organization, apply prompt and connected methods of action, aggressive and defensive, for the common interest, as the other classes do. I know that their situation renders prompt and united action difficult, but I do not believe it impossible. On the contrary, I believe it perfectly feasible to organize the agricultural interest of this vast country for its defense against the tyranny of capital in business, as well as against it in legislation. But it will undoubtedly require more labor and organizing ability than has heretofore been exerted in that direction. Let them learn from politics.

Pure democracy, which operated so happily in the Small States of Greece, was found impracticable in larger areas and with greater populations. Instead of submitting to its inconveniences or abandoning the principle, modern statesmanship has substituted representative democracy, by which the most free and beneficent of all forms of government has been preserved and adapted to any areas and any amount of population, with all the efficiency and promptness of administration possible to the most centralized governments. Now, is not the capacity of those interested in agricultural affairs sufficient to elaborate some scheme of organization that would help that class in the great battle, and enable it to hold its own in the fiercely contested race? Is not this of more importance in such a struggle of business energies as this age presents, than the improvement of the mere methods of production? Is it not possible and practicable to have, all over the land, organizations based upon the civil divisions of States and counties, with a supreme Chamber of Agriculture centrally located, whose members, selected by the primary organizations, should watch over the interests of the whole, and with authority to voice the will of all when speaking to transportation companies, to merchants, factors and middlemen—and especially to legislators?

Every interest in America comes to Washington to influence legislation except the agricultural. Why should they not be there also? It is not a reputable business—lobbying—I admit, but is done, nevertheless, and greatly to the benefit of those who do it and to the detriment of those who do it not. The “business interests” are as regularly and continuously on hand as the representatives of foreign nations, and forty times more importunate.

The farmer is not there—never has been—and is therefore presumed to be satisfied and to make no objection to any proposed legislation whatever.

The banks, manufacturers and transportation companies have their conferences and agree upon such designs and tactics as every crisis in their affairs requires; even the workmen in every branch of labor have protective organizations, greatly to their advantage, headed by able and zealous men, sharply on the lookout for the interests of their class. The farmer alone is unorganized and defenseless. He fights with a club and naked breast, as our Celtic ancestors did, against the keenest steel in the hands of men clad in mail. He sleeps in his quiet and lonely homestead after the labors of the day, whilst others assemble, consult, contrive and plot.

How can he be awakened and made to hold his own in these extraordinary times? How can this noble and unselfish class of our society be made to know their strength and exert it wisely for themselves and their country? The man who shall arise among them and show them the way to meet the acute selfishness of the business world, to reap a fair share of that which they sow, to assume their rightful position in the control of affairs, without impairing their conservative influence upon our institutions, will be a great and good man indeed, and will deserve the honor of a great people.

A resolution was passed, thanking Senator Vance for his eloquent address.

We do not have great trials and sharp agonies, and heroic works to do every day. It is very small strokes that make the diamond shine.—*Rose Terry Cooke.*

“Protection” has ruined more of our people, body and soul, than drink. Your people cannot in this age be so overridden as ours was before the world was better; but if you judge wrong on this point, you will settle the point of progression or lapse. You will establish an influence second only to slavery, in debasing the common morals and manners.—*Harriet Martineau.*

The affections are the children of ignorance; when the horizon of our experience expands, and models multiply, love and admiration imperceptibly vanish.—*Beaconsfield.*

I know a lady who loves talking so incessantly she won't give an echo fair play. She has the everlasting rotation of tongue, that an echo must wait till she dies before it can catch her last words.—*Congreve.*

There are three classes into which all the women past seventy that ever I knew were to be divided. First, that dear old soul; second, that old woman; and third, that old witch.—*Coleridge.*

The truly virtuous do not easily credit evil that is told them of their neighbors; for if others may do amiss, then may these also speak amiss; man is frail, and prone to evil, and therefore may soon fail in words.—*Jeremy Taylor.*

Music is the harmonious voice of creation; an echo of the invisible world; one note of the divine concord which the entire universe is destined one day to sound.—*Mazzini.*

WOMEN FARMERS.

A correspondent of the *Farming World* says Miss Abah Parker is a girl of eighteen, who lives on a cotton plantation two miles from Monroe, Louisiana. For the last four years she has had exclusive charge of the place upon which her widowed mother, sister and two younger brothers reside, supporting them all by her industry. She is her own overseer, supervising all the work done in person. She is said to be modest, energetic, intelligent and attractive in person.

A young lady living two miles from town, says the *Charlotte (Mich) Leader* weighing 116 pounds, and only seventeen years of age, arises at 5 a. m. and milks eight cows, helps her mother get breakfast, takes the team and carries the milk of thirty-two cows to the cheese factory, two miles distant, and brings back a load of whey; then hitches the team to the machine or rake, as the occasion requires; does all the mowing, reaping and raking on the farm of 300 acres. At the close of each day's work she milks the cows, assists her mother in finishing the house-work, and retires at 9 p. m. Besides this she keeps the books of the farm, is fair looking and intelligent.

Miss Coggsell, from Owatona, Minn., went to Coddington County, Dak., in 1878, when just twenty-one years old, and at once entered 320 acres of land, a "homestead" and "tree claim" She has taught school in winters, and has expended a part of her salary in improvements upon her land. But the land itself has been fruitful of income. Her last year's crop, raised on one hundred acres, consisted of 945 bushels of wheat, 2,000 bushels of oats, 200 of rye, 300 of potatoes, besides, she has twelve acres of thrifty trees started, and a comfortable dwelling-house, with the necessary barns and granaries. The value of the whole estate is estimated at \$4,200.

Miss Dora Kinney, of Indiana, is the boss shepherdess of the Wabash. A few years ago an uncle gave her an orphaned lamb to raise by hand, which she did successfully, and becoming interested in sheep husbandry, she procured a mate for the lamb, and she now sports a fold of twenty-eight old sheep and thirty three lambs—sixty-one in all—all from the first starting pair. Miss Kinney attends to her flocks herself, and receives a handsome little income from the annual sales of wool and mutton. "Women do so many kinds of work that the men have become dudes," says the correspondent who writes this paragraph. "The fine, idle creatures these days are certainly not women." F. D. Curtis of New York, writes of two widows left on farms as follows:

There is a great contrast between country women who are left widows or without any male representative, who have been brought up according to modern notions, and those who have been trained to a knowledge of business. I have in mind two young widows, each left with a farm and a small family, who are forcible illustrations. One of them depended entirely upon her husband for everything, as such had been her training at home, and when he died she was obliged to lease her farm and walk to church, not knowing even how to harness a horse, when she could not catch a ride with a neighbor. She knew no more about the farm, the

crops and the stock than a child, and her want of qualification was such that it was almost impossible for her to obtain an associate guardian for the property and her young children. The condition of the farm at present is a sad commentary on the helplessness of a woman when left to her own resources, and educated according to modern ideas, quite too common. The other widow, left in similar condition, but differently trained, after her husband's death took the charge of the farm herself, drove her own carriage to church with her family, attended to her own business, brought up her children to aid her and has made a complete success. She has subscribed for several agricultural papers and endeavored to apply the knowledge which she obtained from them in a practical way. She has never appeared unwomanly or unlady-like, but her independence and success not only commands respect, but the commendation of every one.—*N. C. Farmer.*

GROUND PEPPER.

The attention of the trade is being seriously directed to the fact that so-called ground black pepper is being freely offered at prices far below the cost of the lowest whole pepper, which is the more remarkable, as the cost of, and loss in, grinding is at least $\frac{1}{2}$ d. pound. The chief explanation of this remarkable state of things is to be found in the following facts. White and black peppers are both, as is well known, the produce of the same vines, and the difference is simply due to the removal of the outer or darker portion of the corns in the former: white pepper being the same as black but less the dark skin. This envelope, or outer coating, used always to be removed abroad, and by a process which, if it be as is reported, was by no means an agreeable one to reflect upon. Some years back, owing to speculation, white pepper was driven up to famine prices. It was then found that black pepper could be husked here by suitable machinery, and that the resultant white pepper had a preferable colour, when ground, to that which was made abroad. Consequently the process known as "decorticating," that is, of removing the outer husk from black pepper, and of leaving only the central white portion of the corns, has become general here. The question then arose of what was to be done with the large proportion of black husks which were removed by decortication, and it has been solved by simply grinding them up with whole black pepper, and selling the produce as ground black pepper. The white pepper prepared in England by decortication fetches such a high price, that the refuse husks can be sold at an exceedingly low rate, and then mixed off, and used to reduce the selling price of ground black pepper far below the original cost of the raw material.

The question whether such a practice is allowable is one of degree, for black pepper has always been ground with its husk, but the mixture, in the process of grinding, of a larger proportion of husk than appertains to the pepper, might be carried on to a point, at which the product might be more rightly termed ground black pepper husks. Still, the practice could scarcely be called adulteration, as the husk has pungent

qualities, serviceable for the uses to which pepper is put, and it is not proved that the inside of the grain is more useful than the outside. Indeed, a large number of persons much prefer black to white pepper.

It is also to be said in favour of the husks in question, that decortication cannot be well practised with the very lowest qualities of black pepper, so that the husks are from a superior quality of pepper to that which is often ground. Still, allowing all this, there is much to be said on the other side. A wheat miller may with perfect propriety sift his flour into various degrees of whiteness, and offer it as firsts, seconds, and thirds, mixing off a portion of the bran, but if he ground up his bran by some new process so as to make it resemble flour, for which he passed it off, he would be doing something more nearly resembling what has recently been done with pepper. The spice grinder, in the same way, may sort out his pepper into various degrees of fineness or colour, and offer them at proportionate prices. But if he exaggerated the operation, the question would certainly arise whether he would be justified in grinding the husks, and then, by implication, selling them as the produce of the entire peppercorn—for such ground black pepper is certainly supposed to be.

It is well to remember, if any public question arises as to these matters, that the whole consequences would fall, not upon the wholesale dealer, but upon the retail grocers. If the latter offer as pepper, that is, as the produce of the entire corn, a material containing, say, 50 to 80 per cent. of the husks or shells, the fact is sure to be detected by the chemical tests now in vogue, especially as the proportion of dirt always contained in unscreened pepper, even of the fine pepper used for decortication, is to be found entirely in the husks. The law would find out the misrepresentation, by discovering the differing proportions in the constituents of ground pepper and ground husks, and not improbably arrive at the conclusion that there was none. It is true that it is not believed that any one has as yet gone so far as to grind husks only and call them pepper, but, judging from the prices quoted, a good deal of progress has been made in that direction. Of course, pepper ground whole, as has been said above, must include some husks, and therefore all these points are questions of degree. The grocers, however, run a serious risk in buying very low-priced ground peppers, and considering the small importance of the trivial extra profit, even to those in a large way of business, it is surely to their interest to discourage to the utmost all such departures from an old-established practice. Already not only are husks very freely employed to "reduce" cost, but long pepper, a totally different commodity, is added to the product, to "improve" colour. In fact, owing to the demand caused by its being mixed in this way, long pepper has recently risen about 9s. per cwt. If the grocers wish to avoid another question between them and the analysis, like that of coffee and chicory, or that of mustard and sago flour, or other ingredients, they should decline to buy any pepper but that ground from the whole corns, for the gain of the substitution of the one for the other would not be worth considering to any individual retailer. On the other hand, the wholesale spice grinder, if unscrupulous, would have a wide field opened to him by such commodities becoming current in the

trade. At the present moment the lowest and dirtiest whole black pepper costs in the market $6\frac{1}{4}$ d. per lb. The cost of grinding, the loss of weight and putting into barrels, is at least $\frac{1}{2}$ d. per lb., so real pepper cannot be sold, without any profit, under $6\frac{3}{4}$ d. per lb. wholesale. Husks, of which 1,400 bags were disposed of last week at public sale, cost $2\frac{7}{8}$ d. per lb., ready ground for, presumably, the commonest; and about $4\frac{3}{8}$ d. for the roughly broken husks and pepper. The latter would cost, ground, about $4\frac{7}{8}$ d. per lb., filled into barrels. Mixed half and half with pepper ground from the whole corns, the commonest of the above could be sold with a profit at 5d. per lb. Of course there can be no objection to husks being sold, either wholesale or retail, as "Ground Pepper Husks," since there is nothing that unfits them for similar uses to pepper, and they certainly contain nothing injurious, but the grocers should be careful not to buy or sell them as simply ground pepper.—*Produce Markets' Review*.

[We copy the foregoing from the *Tropical Agriculturist*, published at Colombo, Ceylon, which is one of our most interesting exchanges. Telling, as it does, of the adulteration of *Pepper*, an article of condiment which is used in every household throughout the world, it will, doubtless, prove interesting to the readers of the *Planter*. We are sure that there are many other adulterations besides the hulls of the pepper itself, and among these we have heard of ground cocoanut shells. Why buy and use ground pepper when the pepper corn can be so easily ground in a common coffee mill costing fifty cents? A small mill for grinding pepper and spice should be kept in every family, as it will not do to use the mill in which coffee is ground, the flavor being imparted to the coffee.—ED. S. P.]

HARNESSES.

How often does it happen to see farmers working their horses to wagons, plows, or carts, with harness so ill-fitting, tattered and patched, that the sight at once illicit pity from any human person? For such neglect, there is no excuse, as the amount of harness necessary for plowing is so small that only the most careless and slovenly farmer has any excuse to offer. Wagon and cart harness are more elaborate and complicated, yet even they are simple enough to be manufactured at home, if certain portions are purchased at the saddlers, such as buckles, rings, traces, and hames. Collars, best suited to our Southern climate, are made of shucks; these are easily procured, there being many persons in every neighborhood who are very adept in making them, and when made to fit, are smooth, and with them the shoulders never become chaffed, and being so cheap, can be replaced as often as necessary. Nothing betokens a poor, improvident farmer sooner than slouchy harness, to say nothing of the damage they inflict upon their poor dumb brutes. When an animal is required to labor, the owner should compare his case to theirs. For instance, how would a man like to follow a plow all day with shoes which pinched his feet, or which had a rock in them? Yet he would not suffer any more than the animal with a collar too small, or a back-band which galled his back, or one trace shorter than the other; but unfortunately there are too many who apparently care nothing for these details, though in attending to them depends in a great degree their success.

On well regulated farms, there is attached to each barn or stable a harness-room, where after being used, the harness is carefully hung up-

on pegs, there to remain until wanted; when a rainy day comes, then it is overhauled, mended, and oiled. By this means, they not only last longer, but are more comfortable for the horses, and are proofs of a thrifty management. When harness is purchased complete, cheapness is not always a wise consideration, because a good set made of well tanned leather, properly put together, will in careful hands outlast two or three of the flimsy made ones.

PHOSPHATES AND SUPERPHOSPHATES.

The belief is gaining ground in the minds of many, that farmers have made a mistake in insisting that the phosphates they buy shall be wholly soluble, or, as it is often expressed, shall be in the form of superphosphates. Farmers have been taught that fertilizers, to be of any immediate use, must be presented to the plant in a soluble form, which is, undoubtedly, true. But it does not necessarily follow that manures or fertilizers applied in a comparatively raw state, may not sometimes be quite as economical to apply as if they were first reduced to a perfectly soluble condition. The plants have some power in the matter. If all the plant food in a soil were to be rendered immediately available, by making it soluble in water at ordinary temperatures, there would be the greatest probability that the fertility of such a soil would be washed out of it by the rains in a comparatively short time.

But Nature, in her wise economy, allows nothing of this kind to happen. Nature feeds the birds, but the birds have to hunt for their food and pick it up. Nature places plant food within reach of plants, but the plants must send out their roots in search of the food, and the little mouths of those roots may be said to have some picking, and some work to do in preparing that food for digestion. Chemists teach us that plant roots have a power to wrench, as it were, proper food from very unpromising sources, as the gravel stones of our soils. Plants are the intermediate workers that stand between the crude limestone of the quarry, and the bones of the animal and human frame. Nature's processes for converting raw material into highly organized matter may be slow in their operation, for Nature has an abundance of time, and it is perfectly proper that we should discover some of the shorter cuts, especially when we undertake to gain a living from poor, hard, forbidding soils.

The theory of giving our plants soluble plant food is a sound theory, but the question is, whether we have not carried it a little too far, in some cases, for profit. Phosphoric acid is one of the most valuable ingredients that are purchased in our commercial fertilizers, and it is largely furnished in the form of bone, also in the South Carolina rock.

Now fresh, raw bone, with its grease and gelatine all in, is very far from being readily soluble, and when the agricultural chemists tell us that phosphoric acid, locked up in a raw bone, might about as well, so far as feeding the plant is concerned, be locked up in the dealers, storehouses, they tell us what is practically true. We cannot wait for raw, whole bones to rot in the soil, after we put in our seeds. We must

have them in a more readily available form. The question then arose, "What is the best form in which to apply them?" The answer very naturally came, in a "soluble form," and so our fertilizer manufacturers immediately undertook to give it to us in that form; that is, in the form of superphosphates. The farmers soon discovered by trial that superphosphates acted very much quicker upon their crops than the ordinary ground bone which had not been treated with sulphuric acid. The manufacturers also were not slow in finding out that, at the same price per ton, there was a chance to make quite as large a profit from their business if they sold all their phosphoric acid in the soluble form; that is, be dissolving the bone in sulphuric acid. Sulphuric acid, of the proper strength for dissolving bone, contains a large amount of water, one of the cheapest of substances. The truth is, that by the adoption of labor-saving machinery for manipulating the materials, the fertilizer can be sold cheaper after treating it with acid than before, on account of the extra weight that has been added in the form of sulphuric acid and water.

This is not the only case in the arts where manipulators might claim that they were doing all their work for nothing. Colorers of silk goods ask no better pay for their work than what they gain on the weight of the goods handled. The fertilizer lesson has been a slow one to learn, and many who may have thought they had completely mastered it, are becoming less sure of their ground as the laws which control fertilization are rendered more clear to the understanding. The chemists are now claiming that the phosphates which we have been at so much trouble and expense to render soluble, may not remain so but for a very short period after being applied to the soil, but that they revert or change back to an insoluble, or a less soluble condition, and that this is nothing to regret, either, if looked at in the proper light. For, were it otherwise, there would be great danger that the fertilizer we apply would, as we said before, be washed from the soil before the plants could have time to appropriate it. The almost universal call from the farm has been for fertilizers that would act quickly. Many have been willing, had it been possible, to get back all the fertilizer applied the first year.

Tenant farmers would naturally take this view. The writer has not recently been of that class, and having learned that a soil that is made very rich with surplus of animal manures was a very satisfactory soil to cultivate, he reasoned that a soil made fertile by the use of commercial fertilizers would be a very satisfactory soil to farm it on.

We have also been fortunate in finding fertilizer manufacturers who were honest enough to tell their customers what they believed was their best course to pursue. The result has been that our purchases of bone have been largely of those grades which are sufficiently available, but much more lasting than the acid treated brands, and, at the same time, more economical in price. Dr. Hoskins treated upon this subject quite at length, in his writings, last year, and others have occasionally touched upon it, but the public is not beyond the need of more talking and more writing.

We give, in another column, a few extracts from the letter of a dis-

tinguished gentleman, Mr. Arthur R. Guerard, Associate Royal School of Mines, London, published in the *Southern Planter* for February. We doubt not it will interest both the buyer and the seller of phosphates.—*New England Farmer*.

VALUE OF HAY AT DIFFERENT STAGES.

There is no other class of feed used upon the farm, for stock, so little understood in general as to its real value as hay. By this we mean the absence of any understanding and agreement among farmers as to the exact, or anything approaching the exact, difference in value between early and late cut hay. In the minds of those who have made thorough tests, we think there remains no question as to comparative value. But most farmers have been raised to believe that the time to cut timothy is when it is ripe — not when its seed is fully ripened and the stalks dry, but when it is fully matured. Taking timothy seed as an example, we admit that the seed in itself is very insignificant in bulk and weight, but nevertheless it contains, when fully matured, a large proportion of all the nutriment which comes in through the root. This is the case with oats, wheat, and all plants that bear seed, no matter how small the seed are.

If we were to try the experiment of cutting and making fodder of our oats and wheat while yet in bloom, it would be found that they would make very good winter feed, probably approaching timothy hay in value, and perhaps better than late cut timothy. But, as is well known, after maturing their grain, the straw of these plants afford very little nourishment. So it is with the grasses when their seed is fully matured; and those who consider them valuable in proportion to the bulk and weight shown will find they have been deceived. The comparative value of those from the flowering to the fully ripened stage is decreased as the latter is approached. When we are able to demonstrate at just what time in the flowering stage the plant contains the largest amount of nutritive sap, then we know the period for cutting which will insure the most nourishment. Upon the same principle, the shell of the walnut, while in its formative stage, contains nutritious matter, but none at all after the meat is formed. The shell is like the thoroughly ripened timothy stalk, a mere husk, as innutritious as woody fibre.

Among important questions which should be settled by the managers of our State agricultural farms, this one of early or late-cut grasses stands among the foremost. When the vast value of our hay crop, as compared to other materials for feed, is taken into account, it gives this question very great importance. In the absence of such careful trials as should be made upon every farm, those in charge of experiment stations established by legal enactment, and sustained by liberal money appropriations, are altogether inexcusable for not making more thorough tests on the many important practical questions relating to agricultural management, and making the results of these tests public.—*National Live Stock Journal*.

MANURES.

Most important of all farm topics we feel that we must revert to it now and then in order to keep it fresh in the mind of the reader. And yet we may not be able to offer anything new upon the subject. Any material that will enrich land and nourish and feed crops is a manure.

The best manure is made upon the farms, and all things considered, compost is the best form of manure, it requires but little outlay of money, but much elbow grease to have enough of it. In fact it is extremely doubtful whether any farmer ever did have enough of it for every want of his farm. Manure can be and should be made the year round. It would pay any well established farmer to keep a hand regularly employed collecting the material and composting manures. Everything that can be got in the way of green weeds, straw, leaves, muck, rubbish, cornstalks, rotting wood, old rags, leather, hair, feathers, old hog beds, wood scrapings, rich dirt, road dust, bones, oyster shells and animal deposits of every kind, will go to help swell the compost heap.

Collect every thing that will rot or that can be reduced by acid or steeping in lye. Strong wood ashes is an essential part in all compost.

Few things will resist long the action of wet ashes, but in a few months refuse of every kind will be reduced to a mass of manure it will delight your heart to see and handle. Add, then, to your compost piles as often and as much as you can. As weeds grow up cut them for the compost. In this way you will gradually get rid of many troublesome weeds by preventing them from maturing their seed. This kind of manure properly mixed with ashes will enrich your crops many-fold. With plenty of this sort of manure a man may make more and live better on twenty-five acres than on fifty without it. The heaps must be kept moist or wet all the time, as both moisture and heat are necessary to decomposition. Have all the slops of the kitchen, soap-suds, etc., thrown upon them, or pour water over the heaps from time to time. Charcoal dust, dry dirt from the public roads, plaster, lime and salt are excellent additions. There ought to be a compost pile near every kitchen to catch the slops, ashes, dirty water and sweepings of the yards. Make manure of every thing you can get."

Two persons took trouble in vain, and used fruitless endeavors, he who acquired wealth without enjoying it, and he who taught wisdom but did not practise it. How much soever you may study science, when you do not act wisely you are ignorant. The beast whom they load with books is not profoundly learned and wise; what knoweth his empty skull whether he carrieth firewood or books?—*Sadi*.

The knot, or nautical mile, is variously reckoned at from 6076 feet to 6120 feet. The British Admiralty standard is the length of one minute of longitude at the equator, or 6086 feet 1.1527 statute inch, or 1855 metres; the mean length of one minute of latitude, sometimes reckoned as a knot, is 6076 feet, 1.151 statute mile, or 1852 metres. A marine league is three of these sea-miles.

VALUE OF SALT TO CROPS.

Col. A. J. McWhirter,—In the interest of our farmers I lay before you, for your careful consideration, a few facts coming under my own personal observation. I refer to the beneficial application of salt on certain plants. Every gardener knows the benefit of salt on asparagus plants; no one can raise them to perfection without it. How many of our farmers and gardeners have tried and failed to raise raspberries, and yet there is no fruit that is more readily raised than they. Conversing with a well known nurseryman of our State, not long ago, on this subject, he remarked: "If I can keep rust from raspberries, I am able to make more on ten acres of this fruit than any farmer can off of fifty acres of cotton." For years I have tried raspberries and have, after raising one crop, entirely failed. My vines would take the rust and die. After experimenting with many different remedies, I tried common salt. Plants that were covered with this fungus, after applying salt, were restored to their former vigor. I have applied as much as a small handful to one vine and have never seen any but most beneficial results. For years farmers and scientific men have known the beneficial results derived from the application of salt. Even the old Romans knew this fact. Another fact that farmers knew long ago is that salt will make strong stiff straw. Show me good straw, and the chances are you will make good wheat. Salt, ashes and lime, have proved themselves, mixed together, a most excellent fertilizer; at the rate of five bushels of lime, three of ashes and one of salt, they make a good top-dressing for all grasses. The value of salt for man and beast is well known. Salt is a necessity to the higher animal life. The best authority in chemistry asserts that "salt promotes the passage of albumen to and from the cells by the perpetual changes which it occasions in the relative densities of the fluids within and without. The similarity between vegetable and animal life is very much the same. Take, for instance, the stem of a wheat plant. Here the cellular sap performs a similar function as the blood in animals. Without going into detail on this subject, because it does not belong here, nor is it necessary for our object, I call your attention to the function of the cellular sap in plants—more particularly in wheat—how rust originates and how prevented.

We all know that without water no plant or animal would live; but here let me say that water is only an agent; water dissolves the food necessary for the nourishment of plant life. The water in the cellular sap holds in solution sugar, gluten, albumen, acids and the different salts. Rust appears nearly always and does the most harm. In moist, warm weather the leaves, unable to carry off, by evaporation, the large influx of matter, the cells become overcrowded, and, aided by heat, fermentation takes place. Now, if there was a sufficient solution of salt present, salt would aid the flowing of this sap, and the leaves could carry off more readily this influx, and as every one knows that salt stops fermentation in meat it is natural to suppose that it would do so with the sap of the wheat plant.

I have endeavored to show you the cause of rust; now in a few short remarks, I will give you a remedy and call the attention of the farmers

to this most important subject, that they, by their own practical experiments, may demonstrate for themselves the value of this simple remedy. Salt in the animal keeps the blood limpid (it promotes the passage of albumen to and from the cells by the perpetual changes which it occasions). Most every butcher knows that salt added to the blood of a slaughtered animal, well agitated, will keep it from coagulating; this shows plainly the power of salt to keep the blood limpid and also the power to arrest fermentation, if only for a short time. If salt is present in the soil, water will readily carry the same in solution through the cellular structure, and its very presence will suffice to retard, if not prevent, fermentation, the great and main cause of rust. No one ever thinks of adding salt in any form to the impoverished lauds of our country. Every farmer gives to his stock their weekly allowance of salt; what would you think of a farmer that would not give salt to his sheep, and how long would he be able to have them? No salt finds its way to your land; with the exception of a little stray uric acid, this most valuable solvent is absent from our fertile soil. Every farmer knows that salt, lime and ashes make a valuable manure; therefore, I think no harm would be done if farmers would make careful experiments and supply their wheat fields with this much-wanted agent. Salt by itself, or in combination with lime and ashes, say four bushels of salt, twenty of wood ashes and six of lime, well mixed and applied in fall after sowing, or early in spring, would be a great benefit to the growing wheat crop, and at the same time a preventive of rust.—F. B. CRASS, in *Nashville World*.

JERSEY SWINE ASSOCIATION.

To Editor of Southern Planter :

The first annual meeting of the American Duroc-Jersey Swine Association was held November 15th and 16th, 1883, at Chicago, Ill. The compromise on names has been accepted by a large majority of the breeders of Red Swine throughout the country. The organization is a national one, and the Executive Committee are making rapid progress with their register. One hundred and twenty-five members are enrolled in eighteen States, and over eight hundred names are claimed for registry. Membership fee, \$2. Annual assessment, if any, not to exceed the fee. Dividends equal to all members. The membership fee will doubtless be increased, as has been done by similar organizations. Registry, \$1 to non-members for each animal; fifty cents to members, and twenty-five cents for transfers; no charge for necessary reference to animals in the appendix. Entry blanks forwarded free on application. Will it not pay you to become a member? Recorded stock must soon become much more valuable. Send us a list of names you wish to claim for your present breeding stock.

G. W. STONER, *President, La Place, Ill.*

CHAS. H. HOLMES, *Secretary, Grinnell, Iowa.*

The undersigned is a member of the above mentioned organization, and fully concurs with the efforts of its officers and members to elevate the standard and improve the Red Swine of the country.

March 15th, 1884.

FRANK A. LOVELOCKE.

WAGES IN COTTON MILLS.

It is worthy of notice that while the rate of wages in our Southern cotton mills is undergoing a steady improvement, there is a gradual reduction going on in those of the Eastern States, as the result of the ability of manufacturers of cotton goods at the home of the raw material to undersell the Eastern millmen. This reduction, which has been going on since 1883, now exceeds forty per cent. of the wages then received, and complaint now goes forth from the operatives that they cannot live on present rates. There is nothing more certain than the realization of our predictions ventured some time ago, that the cotton manufacturing of this country, and largely of Europe will, in the near future, be transferred to our Southern States.—*Texas Siftings.*

[For the Southern Planter.]

THE PROFITS OF SHEEP.

So much has been written on sheep the subject is well nigh worn out; but with your permission I will give my experience with them for the last four years.

A neighbor, with "Go West" on the brain, had a small flock of—they could hardly be called sheep, rather the carcasses of what were once nearly pure Southdowns, which, as an act of kindness, I bought. Feeding them a little corn sparingly, and a run on orchard grass soda soon improved them so much their former owner would never have recognized them, and the result was in less than three months they paid first cost and a profit on the investment besides. I now have forty ewes and a fine Shropshire buck, and as good flock of sheep as can be found outside of the fancy breeders' pens. My last year's lambs will compare favorably with any on exhibition at the last State Fair. My preference is for Shropshires and Southdowns; mine being a cross of the two breeds. Sheep require close attention, and if given salt and sulphur regularly, and kept under shelter in inclement weather, I know of no investment that will pay better. It is a fallacy to think they will thrive when any other stock will starve. An old field will do to alternate with good sod, and seems to keep them in better health than grass alone. At the suggestion of a neighbor, for several years I have sheared my ewe lambs the last of July, and find it quite an advantage to the lambs, and the first Spring fleece being fully as heavy, if not better in texture and weight. A well grown lamb will shear from three to four pounds of wool, worth one dollar, which is clear profit. Shearing the lambs adds greatly to their comfort during the hot weather in August.

In the following statements no estimate is made for the wool used in

a large family for socks, gloves, &c., besides several pairs of blankets make of lambs' wool at home :

1881.	March 10.	18 old ewes and two bucks		\$62 50
	May 3.	By 2 Bucks sold.....	\$10 00	
	"	By wool sold.....	22 00	
	June 5.	By 12 lambs.....	36 00	
		By 10 ewe lambs kept	30 00	
		To 14 bushels corn fed		5 60
			<u>98 00</u>	<u>\$68 10</u>
1882.	26 ewes.....			\$104 00
	1 buck.....			10 00
Cr. by	5 old ewes.....		\$25 00	
"	20 lambs.....		65 00	
"	Wool.....		39 50	
"	10 ewe lambs.....		32 50	
"	2 mutton } Butcher.....		8 00	
"	4 lambs }		13 00	
	30 grain fed.....			16 00
			<u>183 00</u>	<u>\$130 00</u>
1883.	30 ewes			\$135 00
	1 buck.....			15 00
Cr.	17 lambs.....		\$55 25	
"	Wool.....		40 25	
"	12 ewe lambs kept.....		39 00	
"	5 lambs butcher.....		16 25	
	Grain fed.....			14 50
			<u>150 75</u>	<u>\$164 50</u>
1884.	Forty ewes.....			\$200 00
	One buck.....			15 00
				<u>\$215 00</u>

Respectfully,

S. HEEP.

[We take the liberty to add a summary of results.—ED. S. P.]

1881.	Cost of flock.....	\$62 50
	Grain used.....	5 60
1882.	Buck purchased.....	10 00
	Grain fed.....	16 00
1883.	Buck purchased.....	15 00
	Grain fed.....	14 50
		<u>\$123 60</u>
1884.	Value flock on hand.....	\$215 00
1881.	Wool and bucks sold.....	32 00
1882.	Wool, \$32; 5 old ewes sold, \$25; lambs and mutton, \$21.....	78 00
1883.	Wool, \$40.25; lambs, \$16.25.....	56 50
		<u>\$381 50</u>
	Deduct cost of flock and expenses (except attention, hay and grazing not in expense account).....	<u>\$123 60</u>
	Total profit of over 200 per cent., or about 70 per cent. per annum.....	<u>\$257 90</u>

[For the Southern Planter.]

DO PLANTS GROW IN THE NIGHT ?

This enquiry has often been made, but no answer to it is remembered. Long personal observation enables me to make response to the question with something of confidence, and by way of preface it may be stated that for more than thirty years I have nourished in my chambers during the Winter, the geranium and kindred plants, and in the early Spring the tomato, &c., intended for garden planting at the first approaches of Summer weather.

It is well known that the chief essentials to the growth of plants are a genial soil, moisture, heat and sunlight. The first supplies the plant through the pores of its roots with the requisite sustenance from inorganic substances, the carbonates, phosphates, &c.; the second in dew, and rain, or snow charged with the fertilizing gases of the atmosphere, nurses alike the leaf and the root, and for the latter also liquifies the requisite mineral properties of the soil for ready elaboration, whilst the light and heat of the sun stimulate all its energies tending to healthful organism and development.

Enjoying all these essentials to their growth, I have for many years had my attention drawn to the fact that for days, and even weeks, at a time, no perceptible progress was revealed, when some sudden atmospheric change during the night, not to speak of the day, would ensue, disclosing in the morning a marked improvement, notably in the tomato plant, having an increased growth in the space of twelve hours of nearly an eighth of an inch.

The rooms being secure, to a great extent, from the outer air with its abrupt changes, repeated, thoughtful consideration of the matter has resulted in the conviction that there exists, at certain intervals, a mysterious, subtle, electric principle of positive nature pervading the atmosphere that strongly affects the vegetable kingdom, producing chemical changes, influencing, and perhaps changing the combination of oxygen and nitrogen gases, with a quickened effect to that of ammonia, within as well as outdoors.

May not this essential influence pervading all nature likewise affect the animal kingdom, even as the human intellect and emotions, as well as the tides, are believed to owe their inspirations, at certain periods, to lunar influences?

If permitted, I would like to pursue this subject in a future article.

RICE W. PAYNE.

THIS day we fashion Destiny, our web of Fate we spin.— *Whittier.*

GEAR AND GEARING HORSES.

Editor Southern Planter,—Few farmers properly appreciate the importance and economy of keeping good gear, and frequently overlook the gearing of their work team. A horse can do one-third more work with less fatigue when properly geared. If the few following rules are systematically carried out, you will never have a galled animal: See that the collars fit properly and never permit them to be left in the sun at feeding time. Make your teamster keep a piece of glass at the stable and scrape off carefully all the perspiration, rubbing well with a corn-cob or hand after scraping. Do this every morning. Keep a lump of beef tallow at hand, and grease twice a week after scraping. In warm weather, when perspiring freely, have the shoulders washed clean every night when watered. Do this and you will never have a galled horse. In the Spring of the year, when flies and gnats are troublesome, grease the ears and neck of your horses with a little grease in which has been mixed a little cerosine oil, and the little pests will not worry them so much.

B.

[For the Southern Planter.]

SORGHUM HALAPENSE.

While clover does well in Virginia generally, still there are many places in the Old Dominion where the *sorghum halapense* would pay the farmer much better. It is a perennial, drouth-proof grass that will grow with less moisture than any other plant. Its roots are white, tender, as large as one's finger, and so numerous as to completely fill the soil to water or bed rock, though they be a dozen feet deep, thus furnishing an inexhaustible supply of excellent hog feed, making over 1,000 bushels to the acre. Its yield of hay of an excellent quality is simply enormous, making from four to eight tons to the acre at a cutting, and may be cut from three to six times a year, according to land and latitude. Nothing can kill it when it is once started; flooding, freezing, and continued drouth are alike harmless to it. It can be started on pasture lands without plowing, but the best way to start it is to break up the land, sow the seed and drag them in, and then when it does come it comes to stay, spreading by seed and roots until it runs out everything else. *Culture, none.* It gives excellent grazing, and equals blue grass or timothy in milk- and fat-producing qualities, and stock prefer it to any other grass.

J. W. WALKER.

Franklinton, N. C.

ABOUT FENCES.

Editor Southern Planter,—I related to you something of my trip from Lunenburg Courthouse to Green Bay, on the R. & D. R. R., some time in February. About the 15th of March I made the same trip again, and found things somewhat altered; that is, in spots. For several miles after crossing Couche's Creek the fences have been neglected apparently for many years, and have been made available as enclosures by chopping down some of the many sapplings and small trees which grew in their corners. The growth was mostly of cedars, from the size of a switch to that of from four to six inches in diameter. I wished that Dr. Pollard could be with me that he might see how easily we might avail ourselves of his suggestion of "planting the trees eight feet apart for permanent posts;" only that here we would have to *thin out* instead of *plant out*, and that we would be working for ourselves as well "as for posterity." Further on, in my first trip, after passing Nutbush, I saw, by scanning very closely, some five or six acres of very poor land which had been plowed so badly that the little pines of from two to three feet in height, and many small tufts of broomsedge, seemed not to have been disturbed by the operation. There was no vestige of a fence or rail anywhere in view, and I wondered if the "no fence law" had been adopted in that portion of the country. In my second trip in March, when I came to this field I saw heaps of new oak rails on the roadside and extending back in two lines to a cross fence four or five hundred yards distant; making a fence not only sufficient to enclose the five or six acres of land intended for cultivation, but to embrace in its area forty or fifty more. I wondered what it cost to maul, haul and put up such a fence, and what sort of crop could be raised on such land as would be sufficient to pay the cost of fencing. Somebody suggested "they would use fertilizers." Then I wondered if the crop would pay for the fertilizers. And then again I wondered, why enclose so large an area to secure for cultivation a field so small. And then I commenced a discussion in my own mind as to which was the wiser, the man who neglected his fence and permitted the corners to bring forth material for the help of posterity, if not for himself also; or the man who fells the sturdy oaks of the forest with which he may enclose impoverished fields? I was very much bothered. I wanted you and Dr. Pollard to help me out of the difficulty. But then I thought, what do we know about it any way. We are "book farmers," and know nothing of the luxury of mauling and toating rails; of that manly and ennobling exercise which is so necessary for the development of muscle,

and a keen relish for "bacon and greens," to say nothing of its preparation for the enjoyment of "Nature's sweet restorer." Again, I say, I was bothered, and in my bewilderment I suddenly came to the conclusion that the fence question was a big question. *A very big question.* In its present status a powerful obstacle to immigration, the sale of our lands and the prosperity of the State.

Can you not wake up our people? And to do so, can you not manage to get your journal more widely circulated? Every Virginian should read it; if for no other reason, to rid him of that heresy inherited from his fathers—that this is not a grass country. We can raise grass, and with a little pains raise it abundantly; but if we could'nt, don't everybody know that we can raise wheat and oats and rye and clover and millet and sorghum and cornstalks and pea vines for green forage, for ensilage, and the root crops of beats, turnips, &c.; and that take it all in all, the climate and its productions, there is no better country on the globe for raising the best cattle and the best horses, to say nothing of the vine and the fig tree.

Very truly your friend,

R. I. H. HATCHETT.

Reedy, Va., March 29, 1884.

A CORRECTION.

In my letter headed "Experience with Three Jerseys," published in the April number of your paper, in writing of "Bonnie of Spring Hill," I am made to say "this calf is worth \$4,200." I meant to say \$200. For while "Mary Ann of St. Lamberts" is estimated at \$50,000, "Eurotas" (ten years old) at \$40,000, and the calves of the latter sold for \$10,000 and \$12,000, I am content to receive *hundreds* for my Jersey calves, although breeding this same "Alphea" blood.

JOHN WASHINGTON.

Woodford, Caroline Co., Va.

DR. HALL, in his *Journal of Health*, says: "If a man is hungry within an hour, more or less, after a regular meal, he is a dyspeptic beyond question, and it shows that the stomach is not able to work up what he has eaten so as to get nourishment out of it; but to eat again, and thus impose more work, when it could do nothing for what had been already eaten, is an absurdity; and yet all dyspeptics who eat whenever they are hungry do this very thing, and thus aggravate and protract their sufferings."

A SOUTHERN DAIRY AND HONEY FARM.

[Condensed from the Atlanta Constitution.]

A bright, frank-looking young farmer came to the *Constitution* office, and handed in the following card:

F. N. WILDER.
DAIRY AND HONEY FARM,
FORSYTH, GEORGIA.

He followed this with some samples of butter wrapped in cheese cloth, set in boxes. It was of a golden color, firm and fragrant. Each lump was stamped in raised letters "F. N. W."

"I read the article in your paper on home enterprise, and I thought I'd show you this, as a sample of what I am doing."

In reply to inquiry, Mr. Wilder said:

"I have 280 acres of land. I am putting all of it except about 30 acres into grass and clover for my cattle and bees. That 30 acres I am enriching for corn, wheat and cotton. I will make it give me a bale to the acre. But my main purpose is to make butter and honey."

"What progress are you making?"

"I am building up my herd slowly. I am milking nine cows from which I get sixty-five pounds of butter a week. My cows are selected scrubs, bred to a fine Jersey bull. As I increase the size of my herd, I am grading it up to better quality. All the money I get I put into cows. I am going to push my butter product up to 500 pounds a week."

"What do you get for your butter?"

"It nets me 35 cents a pound, and I could sell 1,000 pounds a week if I had it. Atlanta alone would take that much at 35 cents net to me."

"And about cost?"

"My cows cost me, besides their grazing, 10 cents a day, or say \$35 a year. They average 250 pounds of butter a year, which brings me \$90. I can make each cow clear \$50 a year on butter. If I had 50 cows I could do better. The expense of each cow would be reduced, and I would be justified in getting machinery for butter-making."

"What do you do with your buttermilk?"

"I feed it to my swine."

"What pasturage do you use?"

"The Bermuda grass is the best pasture we can have. I tried for years to kill it out, ignorant of its value. Now I'm encouraging the same old sod to grow and turning it into butter. It can't be killed. I've seen it parched down to the ground, in August, till it looked like brown paper. A rain would come, and ten days it would be two inches high and bright green. I am putting an acre or two into clover every year, and will soon have as good clover as anybody. This is for my bees, principally."

"Have you many hives?"

"I keep from 60 to 100 hives. I sold thirty-odd stands in 1883. I generally let one swarm hive three times a year, which gives me enough

to sell. I sold Mr. Leavey, of Griffin, one hive of Italians in 1882, and he now has nine. I charge from \$15 to \$20 for a swarm.

"What do your stands yield in honey?"

"They will average 50 pounds each year, in and out. I have taken over 100 pounds from one hive frequently. Once I got 350 pounds from one hive, but had to feed the bees in winter. A year or two ago I sold five tons of honey—10,000 pounds—from 60 hives. This was about 160 pounds to the hive. This was unusual, and the best honey I ever saw. You can count on 50 pounds a year from strong stands, if the bees have good forage."

"What is the best forage.?"

"Clover—white clover. Red clover would be as good, I suppose, but the bees can't get into the necks of the red clover blossoms. The bees are very fond of white clover and it makes very beautiful honey."

"Do you find ready sale for your honey.?"

"Yes, my crop runs from one to five tons a year, and I sell it readily. I get 25 cents a pound at retail, and by the barrel 10 cents a pound."

"You haven't quit cotton.?"

"I will raise a few bales. But I will put it on rich land, and try and make it give me a bale to the acre. It don't pay to scatter cotton over a whole plantation and buy the meat and bread to raise it with."—*Industrial South.*

THE AGRICULTURAL PRESS.

Editor Home and Farm:

About sixteen years ago an agent came to me to subscribe for an agricultural journal. I had never seen an agricultural journal, neither did I look at his, for I thought a man was a fool to undertake to learn me how to farm. As I was raised on a farm, I thought I knew as much as anybody did about farming. Some time after, I went to a neighbor's house, and picked up a paper and began to peruse it, not knowing what kind of a paper it was. It was an agricultural journal, and the first reading I observed was the Buster family; how they held to father's ways and opposed improvements of all kinds. They said the way their daddies did was good enough for them, and they had no use for book farming. When I got through that piece I said, what a Buster I was myself, and I resolved then not to be a Buster any longer. I sent on for the journal, and went to work at getting subscribers. I have been reading agricultural newspapers ever since; I consider them worth at least \$100 a year to me. I am under many obligations to the agricultural press. When I commenced reading these journals I was in debt.

I planted my crop all in cotton and corn, and bought my supplies on credit. I did not know any better then, but I soon learned by reading; we all have to learn through one another, and the HOME AND FARM is the medium for us. Every farmer ought to take it, and would profit by it. I have been asked frequently if I was raised in the North; I tell them no—I was born in Hinds county, Miss.

The agricultural journals advised diversified farming and the raising

of fine stock. I have been trying to take their advice ever since. I went to sowing oats, and raising potatoes, and I am raising nearly all kinds of grasses. I have improved my stock; I am raising Jersey and Ayreshire cattle and Poland-China pigs. I am also raising the red Brazilian artichokes; I sent last spring and got a peck that cost me \$1.70, and cut them up and planted them; some of the hills made very near a bushel to the hill. They are the cheapest hog feed I ever saw; I believe they will make 1,900 bushels to the acre on good land.

I have been trying to get some subscribers; I have good many promises. The weather is so bad, I can't get about; the roads are nearly impassable.

Yazoo City, Miss.

M. B.

MARKET GARDENING IN THE SOUTH.

The emancipation of the slaves has, however, sadly interfered with market gardening, that important branch of rural industry at the North, for cheap labor and the earlier season gives the Southern truck growers a decided advantage. I was struck with some very sensible remarks recently made by Mr. Peter Henderson, the New York seedsman and market gardener, on this subject, before an agricultural gathering, and I obtained his manuscript, from which I will now quote. After showing the depression in market gardening around New York, and saying that he sees no outlook for the better, owing to the cheapness of land and labor at the South, where crops can be cultivated with less labor, Mr. Henderson gives the following interesting account of a Southern market garden:

"In a visit to Charleston, S. C., last February, I called on a firm of market gardeners, the Messrs. Noisette, who had long been customers of ours seeds and plants, never dreaming for a moment from their intelligent manner of doing business but what they were white men. I was surprised to find on asking for them that the firm was represented by two modest-looking colored men of middle age, who, from a beginning with eleven acres in 1864, had, in 1883, got to be owners of seventy-five acres of valuable land, right in the suburbs of Charleston, every acre of which was worked in vegetable and fruit crops in the most thorough manner. Hardly a weed was to be seen, and nearly every crop showed the greatest possible fertility, and no wonder, for they use sixty tons of stable manure and one-fourth of a ton of guano per acre. They had the biggest and best manure heap I ever saw in any market garden, having early learned the importance of that factor to success. They employ an average of seventy-five hands, or about one to each acre, which is about the same as is required at the North, though the wages paid—fifty cents per day for women and \$1 for men—is little more than half that paid North, and when it is known that their early products now sell for three times as much in New York or Philadelphia as the home-grown vegetables and fruit, it can well be understood how profitable the business must be. I did not ask Messrs. Noisette what their profits on their seventy-five acres were, but I have little

doubt it would not be less than \$20,000 per year, and may be \$50,000, for, when cabbage sells for twenty-five cents and cauliflower seventy-five cents per head, and when we know that 10,000 plants are planted on one acre, it is easily seen that market gardening must pay in the South. Of course every acre would not be so profitable, and occasionally a crop, from insects or other causes, may be entirely lost, but, over all, there is no question that the business, conducted in the masterly manner in which it was done by these two colored men, must be immensely profitable. Everything indicated they were up with the times. They had the best plows, harrows and rollers that money could buy, and it was here for the first time, I must acknowledge, that I ever saw that valuable machine, the manure spreader, in use. We have probably 200 market gardeners in Hudson County, N. J., many of whom have been in the business for a quarter of a century, and I doubt if there is one of these implements in use among the market gardeners in the whole county. To be sure, few of them have over ten acres, and its value is less on small areas, though on grounds such as cultivated by the Messrs. Noisette, where 4,000 tons of manure is annually used on their seventy five acres, the manure spreader will pay for itself many times in a season, not only from the rapidity with which it does its work, but also from the evenness in spreading and disintegrating the manure. The crops that Messrs. Noisette have found to be most profitable in Charleston are strawberries, lettuce, cauliflowers, and cabbages, though they grow largely of potatoes, tomatoes, cucumbers and melons."—BEN PERLY POORE, in *Am. Cultivator*.

MELILOT (Sweet Clover).

ITS INTRODUCTION, A BRIEF SKETCH OF ITS CULTIVATION, ITS BLOSSOM FOR BEES, AND ITS REMARKABLE USE AS A PERENNIAL FOOD FOR STOCK.

To the Editor of the Southern Planter :

Sir,—Several miles from the city of Montgomery, Ala., on what is known as the old Tarver Plantation, we find the origin of this valuable plant. The seed being first imported and deposited there, these in turn producing their seed, and being borne by the wind until traces of it can be found in most any portion of the prairie belt of Alabama. Yet the interest which long since should have been turned to it, is just now developing itself. Our farmers are beginning to realize the fact that large advances and no cotton in turn is any pay. Their attention is more directed to diversified farming, and to all farmers—prairie especially—this subject of *Melilot* is one of importance. Early in the Fall this plant may be seen to be putting in its appearance for the Winter, attaining the height of several inches by January, that is if left unmolested. In this climate being the only green plant to act as food for stock dur-

ing our severe winters. Any enterprising farmer sees his chance for an early Spring hay cutting and preserves it. Even after once being cut at best, the remnants are sufficient to voluntarily replant the spot. Yet, to keep a good stand it should be replanted every two or three years. In fertile, or poor prairie spots, I have seen this plant reach the height of twelve feet from the top to the ground. Its branches spread in every direction from the main stem, shooting forth in the same manner as the branches of the cotton plant, tapering in pyramidal form from the tip of the lower branches to the top. At this age, or before attaining its full growth, it begins to blossom, and this is its beautiful feature, furnishing one of the most fragrant odors. This is the reason why stock and hogs are so fond of it; at all times having a sweet odor and imparting a fine taste.

Again, this is during the honey season; the busy bee haunts the cavities of its blossoms and from it extracts the sweets which impart the most delicious taste to honey. Early in the Fall the seed begin to mature, and are ready to be gathered about the first of September. One other important point: possessing only a tap-root it penetrates deep into the soil, and thereby is not affected by the driest of Summers. The principal difficulty is the gathering of its seed, being so small; yet they are gathered faster by the so-called art of *stripping*. At this writing it is five inches high, and giving sheep a send off. During the month of April I will plant, and get a fine cutting of hay, or preserve it for seed. Again in August I will plant for my Winter crop. At an early day I shall begin to cut the hay for another Winter's supply. As a hay it ranks with the foremost, still retaining after cut until destroyed its fragrant odor. Of course it should be cut during its most tender age—between the heights of twelve and twenty-five inches it is considered best for cutting.

Melilot, or *Sweet Clover*, is considered by botanists to be of the same tribe as *Lucerne*, yet coming under a different family. In conclusion, I will say there is no plant that can be employed to such an advantage and made to serve so many purposes on the farm as *Melilot*.

Montgomery, Ala., March, 1884.

C. L. GAY.

1
YOUNG chicks that are subject to weakness in the legs should receive a small allowance of fine bone meal in the food. Weak legs come from forced growth, high feeding, and close confinement, but it is not necessarily dangerous.

IMPROVING LAND BY GREEN FALLOW—REPLIES TO MR. RUGG.

Editor Southern Planter,—I have had sent me by Mr. Irby, agent of the Bureau of Immigration of Virginia, two copies of the *Southern Planter*, and as I intend visiting Virginia, I take an interest in them.

I see an article on "Pea Fallows," and I will tell you the plan we adopt here to bring and keep land up. We find buckwheat a good grain to sow, from one peck to half a bushel to the acre. When it is in bloom we plow it under. It grows rapidly and smothers weeds. If the land is poor, after the buckwheat is plowed under I would sow clover; cut one crop, and the second crop, when well up and in blossom, I would plow under, and then we sow wheat. You may then leave it, and the clover will start again from the seed and roots. I think the raising of roots and raising of stock would soon recuperate your land with stable and barn-yard manure. We find a great benefit in top-dressing our meadows in the Fall.

I have a son, a wholesale hardware merchant in Memphis, Tenn., who for several years was travelling agent for McCombs & Co. in the States of Mississippi and Arkansas. He says they make a great mistake in making cotton their staple article of commerce when they can raise stock and all grains grown there, and not depend on the North for their bread and meat. He says they require a different style of farming, as they have a soil and climate which, if utilized, would soon be a rich country. He speaks highly of the people of the South and the kindness he has received from them, and that they have a bright future before them.

I see an inquiry about sheep. I think your correspondent neglected his ewes when they lambed, as great care should be taken at that time to have the milk well drawn. If neglected, the bag soon cakes and inflammation sets in, and the lambs will not draw the milk, which causes the ewe great suffering. I do not think there is any disease of the kind. The bag should be well bathed with warm water and castile soap; warm vinegar is good to bathe with.

With regard to mares conceiving that are suckling colts, some will and some will not. The most likely time for a mare to conceive is to put her to the stallion on the ninth day after foaling.

You will excuse the liberty I take in this communication to you. If you think proper to insert it in the *Southern Planter*, you can, and I will be happy at any time to contribute to its columns.

Wallenberg, Province of Ontario, Canada.

MILES LANGSTAFF.

TALL MEADOW OAT-GRASS.

[In an article in a late issue on the subject of the grasses, we quoted the statement of Prof. PHARES, of the University of Mississippi, in reference to the Tall Meadow Oat-grass, and since then we have noticed in the last Quarterly Report of the State Board of Kansas a statement made by Prof. ROBSON, one of the State Botanists, to this effect: "Tall Meadow Oat-grass, *Avena elatior*, is a native of Europe recently introduced into this State.

By request of Maj. SIMS, I mounted a series of specimens of the growth of this grass from April 1 to June 1. The following table shows the height these attained at the time of gathering, and also the growth of three of our most popular tame grasses at the same period:

Tall Meadow Oat-grass.—April 1, six inches; April 15, one foot; May 1, eighteen inches; May 15, three feet; June 1, four feet.

Blue-Grass.—April 15, three inches; May 1, nine inches; May 15, one foot.

Timothy.—April 15, two inches; May 1, six inches; May 15, one foot; June 1, eighteen inches.

Orchard Grass.—April 15, one inch; May 1, four inches; May 15, nine inches; June 1, fifteen inches."

We have also obtained the more elaborate statement made by Prof. ROBSON of this new grass. If it will thrive in Michigan and West Virginia, it may prove to be a good grass for all the Middle and Southern States. We feel it but just and proper to say this, in view of the position taken in our article referred to, but yet we can never lose faith in clover, orchard grass and timothy, whose value we so well know...]

As an official of the State Board of Agriculture, it is my duty to report the introduction of a new tame grass into this State, which, after trial on a high upland farm for the term of two years, during which period we have watched it very closely during the various exhibits of its growth. We now claim that this valuable grass possesses so many excellent qualities as to place it in the front of all the cultivated tame grass. In looking over our notes we find:

1st. That the seed will germinate and grow as easily as common oats.

2d. It maintains a deep green color all seasons of the year.

3d. The roots descend deeply into the subsoil, enabling this grass to withstand a protracted drouth.

4th. Its early growth in Spring makes it equal to rye for pasturage.

5th. In the next year after sowing it is ready to cut for hay, the middle of May—not merely woody stems, but composed in a large measure of a mass of long blades of foliage. This crop of hay can be cut and cured, and stowed away in stack or barn, long before Winter wheat harvest begins.

6th. It grows quickly after mowing, giving a denser and more succulent aftermath than any of the present popular tame grasses.

For several years we have been looking for a grass that would supply good grazing to our cattle and sheep after the native grasses have become dry and tasteless. In the early portion of 1881, our attention was called to a tame grass which had been introduced into the State of Michigan from West Virginia. This forage plant was causing some excitement among the farmers in the neighborhood of Battle Creek.

So we entered into a correspondence with a friend living there, and obtained ten pounds of seed for trial. The result has been satisfactory in every respect. The seed was sown April 1, 1881. It germinated quickly, and the young plants grew vigorously. During the whole Summer they exhibited a deep-green color, and did not become brown, like blue-grass, orchard grass and timothy. As soon as the Spring of 1882 opened, growth set in rapidly, and continued till the latter end of May, at which period it stood from three to four feet high. At this time it was ready for the mower; but as the production of seed was the object in view, it was not cut till the second week in June. The plot of ground of about half an acre, on which ten pounds of seed was sown, produced three barrels of seed.

We exhibited a little sheaf of this grass at the semi-annual meeting of the Kansas State Horticultural Society, where it excited much attention—the height, softness of the stem, length of blade, and sweet aroma surprised every one present.

On the last day of August, we went into the plot with a sickle, and cut two handfuls of aftermath, which measured twenty inches in growth. This we tied to a sheaf of the June cutting, and exhibited the same at the State Fair, where it attracted much attention and comment.

Here, then, we have a grass that will insure a "good catch" if the seed is fresh; that can endure severe drouth; that produces an abundant supply of foliage; that is valuable for pasture in early Spring, on account of its early and luxuriant growth; that makes a valuable hay; that shoots up quickly after being cut; and affords a fine crop of aftermath for grazing during the late Fall and Winter months.

We are very anxious that the farmers of Kansas should test this grass during the season of 1883. Still, our advice is not to invest too largely in the experiment. Purchase from five to ten pounds of seed, and give it a fair trial, and we are confident that the experiment will be satisfactory. We disclaim having any personal or financial interest in this new addition to our farm products; our whole aim being to benefit the agriculturists of our progressive State.

The name given to this valuable grass in the State of Michigan is "Evergreen," but this is only a local synonym. We find its scientific name to be *Avena elatior*; its common name, "Tall Meadow Oat-grass."

As we want to make this paper a practical one, we give our mode of culture. The ground should be ploughed in the Fall and early in the Spring, as soon as the soil is in good tilth, sow broadcast two bushels (or twenty-eight pounds) of seed to the acre; cover well with the harrow, both length-ways and across the piece of ground sown. Should the ground prove weedy, cut the weeds down with the mowing machine in June, and leave them upon the surface, and they will afford shade to the young plants.

We find by correspondence that this grass is extensively grown in Eastern Tennessee, and is very popular in that portion of the State. We find also that in some portions of Western Virginia it is largely grown for hay and for grass. It is known as Tall Meadow Oat-grass in each of the States mentioned above.

[For the Southern Planter.]

STATE AGRICULTURAL SOCIETY.

Proceedings of the Executive Committee.

SOCIETY ROOMS, April 16, 1884.

The quarterly meeting of the Executive Committee of the Virginia State Agricultural Society was held in the rooms of the Society at 8 P. M. to-day. Present: General Williams C. Wickham, President; Ex-Presidents Col. Lewis E. Harvie, Gen. W. H. F. Lee, Col. W. C. Knight and Col. R. H. Dulany; Vice-Presidents, Col. Robert Beverley, Burr P. Noland and Joseph Wilmer; Members of Committee, John P. Branch, Capt. R. R. Carter, John S. Ellett, Maj. Thomas W. Doswell, Maj. W. A. Burké, F. T. Glasgow, Edmund R. Cocke and Julian M. Ruffin. Col. Randolph Harrison, Commissioner of Agriculture, was also present.

After providing for the Premium List of 1884 and authorizing the President and Secretary to revise the list and make such modifications or changes as should be deemed beneficial, the following Advisory Boards were appointed:

Department I.—F. T. Glasgow, Chief; A. S. Buford and Joseph Wilmer.

Department II.—Dr. A. N. Wellford, Chief; J. S. Ellett and C. M. Reynolds.

Department III.—W. A. Burke, Chief; J. M. Ruffin and F. T. Glasgow.

Department IV.—J. S. Ellett, Chief; Dr. A. N. Wellford and John P. Branch.

Department V.—Thomas W. Doswell, Chief; J. P. Branch and I. Davenport, Jr.

Department VI.—Col. Robert Beverley, Chief; Jos. Wilmer and E. R. Cocke.

Department VII.—Capt. R. R. Carter, Chief; C. M. Reynolds and J. M. Ruffin.

Department VIII.—E. R. Cocke, Chief; I. Davenport, Jr., and B. P. Noland.

Plowing Match.—Joseph Wilmer, Chief; R. R. Carter and B. P. Noland.

The President was authorized to appoint the Chief Marshal.

Dr. John R. Page, of the University of Virginia and Vice-President of the Farmers' Congress of the United States, then addressed the Committee on the subject of the benefits to be derived from the for-

mation of farmers' assemblies, and in advocacy of the Society's taking such action as would inaugurate a system of such organizations throughout the State.

The proposition of Dr. Page was referred to a committee consisting of the President and Messrs. Glasgow and Cocke for consideration, and the committee were requested, if the subject met with their approval, to report a proper resolution in furtherance of the object to the Executive Committee at 12 o'clock M., on Thursday.

On motion, it was resolved that the next quarterly meeting of the Executive Committee be held at the White Sulphur Springs on the second Tuesday in August.

The following resolution was offered:

Resolved, That the President is hereby authorized to make arrangements for competitive drills between white military troops, to take place during the State Fair of 1884, and that he is empowered to adopt such plan for such drills, to select such judges for the same and make such distribution of the premiums as he in his discretion may deem best, and to this end he is authorized to expend in connection therewith not exceeding one thousand dollars of the Society's funds.

The resolution was unanimously adopted.

The following resolution was offered and adopted:

Resolved, That the President, Col. A. S. Buford, John P. Branch, Isaac Davenport, Jr., John S. Ellett and F. T. Glasgow be appointed a committee on behalf of the Virginia State Agricultural Society, to confer with the Richmond Chamber of Commerce and the Commercial Club, with full powers to act on behalf of the Society, for the purpose of making the State Fair of mutual benefit to the business and other interests of the city and of the Society, and for adopting such arrangements as may secure the co-operation of the citizens of Richmond in promoting those objects, and also for the purpose of obtaining from the citizens of Richmond such contributions for the competitive military drills as may be sufficient to induce the Virginia military and those of other States to attend and participate in the drills, and thereby secure a large attendance of visitors to the city and State Fair.

After the discussion of various matters in reference to agriculture and the business of the Society, the Committee adjourned to meet at 12 o'clock M., to-morrow.

SECOND DAY.

SOCIETY ROOMS, April 17, 1884.

The Executive Committee met at 12 M.

Col. A. S. Buford and I. Davenport, Jr., absent last night, appeared in their seats.

The committee to whom was referred the paper of Dr. John R. Page, made the following report: "Your committee to whom was referred the communication of Dr. John R. Page, Vice-President of the United States Farmers' Congress, in regard to Farmers' Assemblies, advise that the life-members of this Society throughout the State be requested to take active interest in promoting the formation of Farmers' Clubs in their respective counties, and thus incite general interest in the interchange of views and opinions upon practical agricultural subjects, and that they endeavor to get up regular Farmers' Assemblies in the various quarters of the State, and with the view to inaugurate these Farmers' Assemblies the Executive Committee of the Virginia State Agricultural Society express their approval of the plan of Dr. Page to hold such an assembly at Charlottesville some time in August, 1884, and ask the co-operation of the farmers of the State in bringing together on that occasion a good delegation of representative farmers of the State, with the view to inaugurate a general system of such Farmers' Assemblies in the State."

The resolution was adopted.

The committee to confer with the Chamber of Commerce and Commercial Club were requested to act as soon as possible in the matter in order to carry the resolution into effect.

Remarks were made in reference to ensilage, the affairs of the Society, and various agricultural matters.

The Committee then adjourned until its regular meeting in August.

GEO. W. MAYO, *Secretary.*

[The communication of Prof. Page, referred to in the proceedings, will appear in the next issue of the *Planter*.—ED. S. P.]

ENQUIRIES ABOUT SHEEP.

Editor Southern Planter,—Will you be so very kind as to give me the following information? 1. I wish to purchase about 100 stock ewes for raising early lambs for New York market. Will some one of your readers be accommodating enough (who has been buying such ewes and raising early lambs) to write the management, &c., &c., of buying stock ewes and raising early lambs for market? What grade ewe do they recommend and what thoroughbred buck? Would like to buy my ewes somewhere in Southwest Virginia, on the Norfolk and Western Railroad. Will the gentleman who answers me do so in the June number of the *Planter*? I am yours, sir, most respectfully,

Bower's P. O. Va.

L. LANKFORD, M. D.,

Editorial.

STRAW AND ITS VALUE ON THE FARM.

We own to some difficulty in estimating the proper value of straw. It is more than probable that most farmers do not value it as highly as they ought, and there are some who use it with confidence for results they do not realize. It was common in our boyhood for farmers to spread dry straw over the best parts of their tobacco lots and turn it under, whilst they used the manure of the cattle pens and stables for the weaker portions. With each tobacco grower in those days there was a fixed idea that he should have a given number of "hills" to each "hand" on the farm. To accomplish this, it became the province of straw to supplement the manure heaps. It is questionable, however, whether the straw benefitted the crop to the extent of the labor of its application. In the absence of straw the same functions were performed by dry leaves from the forest. The farmer was satisfied that he had done well, or at least, the best he could, and did not bother his head further on the subject. It would appear ridiculous to be told that if he had left off the straw or leaves and applied all his manures to one-third or one-half of the surface and reduced his number of "hills" proportionately, a larger and better crop in quality might be made. The word *intensive* was not in his vocabulary, and it was not easy to be seen that better manuring and better culture on a reduced surface, with better worming and suckering, would bring better results. There was another way to use straw, more common still, and less beneficial, which was to let it lie loose around the threshing yard, or carelessly stack or rick it, with the idea that when partially or wholly rotted it would be good manure. At least, then, it would be a heap of worthless carbon, useless as plant food for the reason that all the carbon needed in the growth of plants is supplied by the atmosphere.

What use is to be made of straw? becomes the enquiry.

The uses are various, and of such importance as to demand that it should be carefully stacked or ricked as fast as the grain is taken from it by the threshing machine, so that it will be preserved sound and dry. One of the first and best of these uses is, that it will furnish dry and pleasant bedding for all animals on the farm. For this purpose it should be liberally supplied, and at the same time it acts as an absorbent of the liquid and solid excrement; but care should be taken to add frequent fresh supplies to keep the stock clean and comfortable. At proper intervals all this bedding should be removed and put into piles

under cover to insure a proper admixture with animal voidings, at which time plaster should be freely used, with thin layers of earth from the woods or fence-corners, thus forming a compost heap of great fertilizing value.

Straw has but little nutritive value, but yearling cattle in fair condition will Winter on it if they can have free access to it in proper racks, and it is sound and dry. When hay has failed, or is scarce, straw can also be utilized in feeding to working animals, provided it is well cut up, dampened with weak salt water, and dusted with corn meal, or what is better, with meal made of corn and oats in the proportion of two to one. We had an experience in this respect more than twenty-five years ago, and communicated it to the State Agricultural Society, which awarded a premium for the experiment.

The plan adopted and pursued for several years to test results, was substantially this: The straw was chopped in a good straw-cutter, then dampened with salt water, and the proper quantity put in the manger of each horse. The meal was then spread over and mixed in with the cut straw. The allowance of meal was a half gallon morning and noon and one gallon at night. The meal was not *fine* but *coarse*, such as the millers will take half toll for. Observation taught that coarse was better than fine meal, for the reason that the latter would clog the horse's mouth by adhering to the roof of it, become sour, and thus create a distaste for it. In the coarse meal there was sufficient dust to adhere to the damp straw and make it palatable, whilst the coarser parts were masticated. In feeding with meal it should never be mixed with the cut-stuff before it is put into the feed-troughs. Each horse's allowance should be spread over his food in the manger, and thus there is no loss, and each animal gets his due quantity. The experiment proved that there was great economy in feeding meal instead of corn on the cob or the shelled grain, which amounted to a saving of at least twenty-five per cent., and at the same time the condition of the animals was well sustained under the usual amount of labor. Cotton-seed meal may be better than corn meal, but of this we have had no experience, and we think it best that farmers remote from cotton fields should use the corn.

All straw left over from feeding and bedding will be found valuable for mulching purposes. In this respect it is good to cover early Irish potato and strawberry beds, to spread over the ground in young orchards, and on grass lands. Weak and abraded spots in fields which are resting will be greatly benefited by a covering of straw. Whilst there is but little manurial virtue in it, shade is given, moisture preserved, and those conditions secured which will enable the land to ap-

appropriate the nitrogen of the atmosphere, a great agent of active fertility.

The commercial value of straw in the cities for stable use and for various lines of manufacture, when well baled and sound, is about one-half to two-thirds of the market value of hay. Such a value will scarcely justify its removal from the farm if properly cared for and utilized there, unless transportation facilities are convenient and cheap.

THE LATE WET WEATHER AND ITS SEQUENCE.

The *Southern Fertilizing Company*, always on the alert for whatever affects the interests of the farmers, and through them its own, has recently issued a weather circular, the object of which is suggested by our heading. Having appealed to the Weather Bureau at Washington, a letter is given from Capt. Mills, Acting Chief Signal Officer, with a tabulated statement of the rain-fall for thirteen years, commencing with 1871. We have analyzed this table with the view of understanding the conclusions Capt. Mills has drawn from it, but mainly to see how far we are sustained in an entertained belief, that extremes of weather in respect to wet and dry is a usual sequence. We do not mean to say that the laws of compensation, if they be laws, do not generally establish, or equalize, the open and rainy weather in such a manner as to make it what is termed *seasonable*, but that when the extremes of wet and dry do come they follow each other almost by a law of sequence. This idea is not entertained by Capt. Mills, for he says: "In view of these discordant results, the supposed sequence of wet and dry seasons is considered as not well sustained."

Looking at Table No. 2, which he has furnished, of the rain-fall for the thirteen years named, it may be analyzed by calanderical divisions of three parts, of four years each, and the odd year be taken by itself, and each year be divided into six months, from January to July and from July to January. A table thus constructed will show the per centum of rain, more or less than the average of the year, in the half year divisions, and the relations of the wet and dry periods to each other. Another table may also be formulated in respect to each year, and the aggregates of the whole period, and this we give first.

In this table the sequences are, *five dry* semi-annual periods following *five wet* ones, *four wet* following *four wet* ones, and *four dry* following *four dry* ones. Taking the whole term of thirteen years we see that there were *eight wet* Winters and Springs and *eight dry* Summers and Falls, and *five dry Winters and Springs* and *five wet Summers and Falls*.

Weather table showing per centum of rain-fall for the firsts and last six months of each year from 1871 to 1883 inclusive.

1871—Jan. to July	.....	-5	.....	Dry.	July to Jan.	.....	-38	.....	Dry.
1872 “ “	.....	-95	.....	Dry.	“ “	.....	-12	.....	Dry.
1873 “ “	.....	+12	.....	Wet.	“ “	.....	+15	.....	Wet.
1874 “ “	.....	-23	.....	Dry.	“ “	.....	-57	.....	Dry.
1875 “ “	.....	-65	.....	Dry.	“ “	.....	+38	.....	Wet.
1876 “ “	.....	+4	.....	Wet.	“ “	.....	+30	.....	Wet.
1877 “ “	.....	+12	.....	Wet.	“ “	.....	+90	.....	Wet.
1878 “ “	.....	+6	.....	Wet.	“ “	.....	+100	.....	Wet.
1879 “ “	.....	-63	.....	Dry.	“ “	.....	-40	.....	Dry.
1880 “ “	.....	+5	.....	Wet.	“ “	.....	-33	.....	Dry.
1881 “ “	.....	+52	.....	Wet.	“ “	.....	-33	.....	Dry.
1882 “ “	.....	+55	.....	Wet.	“ “	.....	-28	.....	Dry.
1883 “ “	.....	+62	.....	Wet.	“ “	.....	-35	.....	Dry.
	8	5	5	8

The equalization of the *per centa* of rain-fall gives the following figures:

Whole period (13 years) +535—527, dif. +8.
 January to July, +262—251, dif. +11.
 July to January, +273—276, dif. —3 equal +8.

Table showing the *per centum* of rain-fall more or less than average during the first and last six months of three periods of four years, and one odd year, making the thirteen years from 1871 to 1883 inclusive:

1871 to 1874 inclusive	January to July	-111	Dry.	July to January	-92	Dry.
1875 to 1878	“	+23	Wet.	“	+92	Wet.
1870 to 1882	“	+49	Wet.	“	-134	Dry.
1883	“	+60	Wet.	“	-35	Dry.

It thus appears that the first six months of these periods were *all wet* but *one*, and that the last six months were *all dry* but *one*; so that there was almost a regular sequence, and the odd year is still more striking by a reversal of the condition, the first six months being registered +60—0, and the last —35+0. This being 1883 it is easy to remember the truth of this registration, marking a wet Winter and Spring and a very dry Summer and Fall.

The fair conclusions which may be drawn from these tables appear to be these:

1. That in a series of years the rain-fall is about equalized between Winter and Spring on the one side, and Summer and Fall on the other.
2. That in this semi-annual division of the year there is a decided tendency towards a sequence of wet and dry. In our table deduced

from that given by Capt. Mills, this sequence followed in five of the thirteen years; and looking at the four years which are recorded *wet*, and the four which are recorded *dry* the plus (+) and minus (—) figures indicate a marked difference and a tendency to extremes in the rainfall of the two divisions of the year; or, in other words and for example, if the sign +23 indicates wet ('79 to '82) in Winter and Spring, then +92 for the same years shows a much greater degree of wet weather during the Summer and Fall.

3. It is not difficult to believe that there are laws by which the condition of the weather may be predicted from one season, or from one year, to another. The source of rains by evaporation from the action of the sun's heat on the lands, seas, lakes, and rivers, must be nearly the same each year, but the rain-fall is very different at various places on the globe, and there is a degree of uniformity at these different places. It is generally wet, or at least moist, at all periods of the year in England, and in California the weather is rainy for six months and dry for six months, and so also in Egypt. These conditions are so uniform that all agricultural operations are regulated according to them. The weather problem is therefore most interesting and important where these extremes do not so fixedly exist, and this problem will become more and more developed by scientific observation.

4. Upon the whole, as at present advised, we think it safe to expect a dry season after a wet one, and applying this principle to the present year, the probability is that the Summer and Fall will be dry. It is well that the farmers prepare for this condition. It is not so bad to have too little rain as to have too much. By a thorough preparation of the land and liberal manuring, with frequent stirring of the surface, very fair and even good crops may be made in very dry seasons. The motto should be *nil desperandum*.

It is estimated that the dairy region of which Elgin, Ill., is the centre, produces 20,000,000 gallons of milk a year.

A farm of 100 acres of good arable land should keep at least six work horses, twenty milch cows and twenty hogs.

THE pleasure of dying without pain is worth the pain of dying without pleasure.—*Poor Clare's Rule*.

A Hartford (Ct.) correspondent, referring to the recent remarkable sunsets, says that they are very common in Norway; where, if very red, they are taken to indicate rain; but if of a lighter hue and clear, the weather thereafter is likely to fine for many days.

The Southern Planter.

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EDITORIAL NOTES

Dr. THOMAS POLLARD.

On the 29th day of March last the sad intelligence reached Virginia from Florida that Dr. Pollard had died the day before at Orlando, whither he had gone for the benefit of his health. This is the earliest opportunity which occurs for the announcement to the readers of the *Planter* of the death of this christian gentleman, and for many years a valued contributor to its columns. In his death the State has lost one of its most devoted and useful citizens. Though educated as a physician, early in life he connected with his profession the occupation of a farmer, and no one exceeded him in his efforts to elevate the standard of agricultural knowledge and practice. As the first Commissioner of Agriculture in the State, he organized a new and important department and rendered much valuable service. The impress of his name and writings is a monument to his memory in the hearts of the farmers of the Commonwealth.

His death is a source of great personal regret to the present Editor of this Journal. We were college-mates, and for nearly half a century warm personal friends. The pages of the *Planter* team with his excellent articles on various agricultural topics; and even since he last trod his native soil he has sent back to us his impressions of the land of sunshine and flowers to which he had gone in search of health.

He was born in the county of Hanover, and died in his sixty-sixth year.

CORN.

Another year's production is confronting this great American staple. With favorable seasons and judicious cultivation, the crop may reach one and a half billion of bushels. Our great extent of country and variety of climate afford a lengthy period for planting—from February to June. As the most important of all grains for food, it should have no secondary place. An empty, or badly filled corn-crib is a most serious weakness on any farm. It is felt in every ramification of a farmer's business. Cotton, tobacco and sugar may be regarded as the money crops, but without an adequate supply of corn to feed the men and animals which produce them there is but little profit in them. It is the part of wisdom to make ample provision for this important crop. It is not our purpose to speak of the modes of culture, for these ought to be familiar. We must, however, warn against a too common practice of relying on poor land and negligent culture for this crop. The growers of the three other staples we have named are they who are most apt to neglect their corn. Give it a fair chance, which is the best way to bring about harmonious results in all the operations of the farm or plantation.

We may say, if the year is dry, which is probable, do not fail to keep the *surface* of your cornfields *frequently stirred*, to let in the dews and fertilizing elements from the atmosphere, and do not plow deep to break the roots.

From the edition of *Messrs. Geo. P. Rowell & Co.'s American Newspaper Directory*, now in press, it appears that the newspapers and periodicals of all kinds at present issued in the United States and Canada reach a grand total of 13,402. This is represented as a net gain of 1,600 during the last twelve months, an increase of 5,618 over the number published ten years ago. The greatest increase is in the Western States.

THE NORTH CAROLINA STATE EXPOSITION.

We have the first number of "*The Exposition News*," from which we learn of this important enterprise by the people of the *North State*. On the 30th of January last a charter was granted in which this leading provision appears:

Second, The business proposed to be done by said corporation is the holding of an Exposition of the products and industries of the State of North Carolina, for the purpose of aiding the development of the resources of the State, and inducing the influx of capital and desirable immigration into the State, and the doing of such other matters and things, and the exercise of such powers as may be necessary to the successful holding of such Exposition, or may be incident to, or grow out of the holding of the same.

The Association has been organized, and all the needed capital subscribed. The Exposition will open on the 1st of October next and continue to the 28th of the same month. A notable feature will be the contributions of the products of each county of the State, through funds appropriated by the Commissioners of the counties, to secure which the Attorney-General has given his opinion that the county Commissioners have the authority to make appropriations for such a purpose. The State Department of Agriculture will contribute its aid, and the State Agricultural Society has given the use of its grounds and buildings. Other large buildings will be erected, for which contracts have been made, and the main Exhibition Hall will form a square, of which each front will be 336 feet in length. We do not learn from

the announcement whether other States will be invited to contribute to the Exposition. Whether they are or not, they cannot fail to have a deep interest in the enterprise, and to accept it as a laudable example worthy to be followed.

COMMUNICATIONS.

It is gratifying to acknowledge the number of communications from practical farmers. We hope they will increase until each issue of the *Planter* is filled with them. We accept it as a growing interest in our *Journal*, and with the farmers in their occupation. It is also an acknowledgment of the duty of farmers to impart and receive information and experiences from each other.

BOOKS AND MAGAZINES.

JUDITH: A Chronicle of Old Virginia. By MARION HARLAND, Author of "Alone," &c. Philadelphia: Our Continent Publishing Co. New York: Fords, Howard & Hurlbut. 1883. Price, \$1.50.

We owe thanks to Messrs. *West, Johnston & Co.* for a copy of this last book of the popular author, Marion Harland. In saying that we have read it with all the interest and profit which attached to the reading of her former works, is a sufficient acknowledgment of our opinion of its merit. The reputation of the author is not confined to her native State, as her books have been welcomed everywhere, but this last production will prove especially interesting to the descendants of many old and worthy Virginia families whose residences were in and near the capital city. Opening with events of the first year of the present century, the story closes near its middle, so that many persons now living can turn their memories back and judge of the truthful delineations of character and of public events.

SORGHUM: Its Culture and Manufacture Economically Considered as a Source of Sugar, Syrup, and Fodder. By PETER COLLIER, Ph. D. 8vo. Pp. 582. Illustrated. Price, \$3. Robert Clarke & Co., publishers, Cincinnati, Ohio. 1884.

This is the most valuable work on the

subject it treats of that we have seen. It is comprehensive, and at the same time minute, in details. This is shown by a simple statement of some of its subjects: History of Sorghum; Varieties (illustrated with cuts); Selection and Preparation of Ground; Planting and Cultivation; Time of Planting; Time of Harvesting Crop; Effect of Stripping Cane; Effect of Fertilizers; Extraction of Juice; Mills; Defecation; Methods of Evaporation; Vacuum Pans, &c., &c. The author, whilst acting as chemist of the Agricultural Department at Washington, by the closest experimentation, has given to the farmers and sugar-makers a very interesting and valuable book for their guidance. We thank the publishers for the copy sent us.

REPORT OF THE COMMISSIONER OF AGRICULTURE (of the U. S.) for 1883. 8vo. Pp. 496.

We are indebted to Commissioner Loring for a copy of this report. We have only had time to glance over it, but see much of importance to the agriculture of the country. Its early appearance after the close of the year to which it applies, is especially gratifying. These annual reports were formerly so long delayed that they were comparatively valueless. Such promptness on the part of the Department is very commendable.

VIRGINIA COOKERY BOOK. Compiled by MARY STEWART SMITH. Harper's Franklin Square Library, No. 370.

Were we an epicure a tithe of the good things this book tells of would satisfy us. Every housekeeper should have a copy. Price, 25 cents, and for sale by West, Johnston & Co.

SOCIAL PROBLEMS. By HENRY GEORGE, Author of "Progress and Poverty." Belford, Clarke & Co., Chicago and New York. 1884.

The social problems discussed in this book are numerous, and persons of enquiring and investigating minds will relish it. Such topics as these may be noted as of particular interest: "The March of Concentration;" "Over-production;"

"Unemployed Labor;" "The Effects of Machinery;" "Slavery and Slaving;" "The American Farmer;" "City and Country," &c. The publishers will accept thanks for a copy of the book.

The Art Amateur for April we placed in the hands of an appreciative lady, who has returned us her thanks with this comment: "It is a very valuable journal, devoted to household tastes and art. To those interested in beautifying and decorating their homes, it is a charming companion; full of suggestions, designs, and information. It teaches in an easy and agreeable way how to make home surroundings elegant and refined."

Harper's Magazine for May concludes the sixty-eighth volume of that now venerable, but never aged, periodical. Howard Pyle, author and artist, has a frontispiece and two other charming full-page pictures illustrating "A May-Day Idyl of the Olden Time," a quaint old story. Another fine-art feature is "the great pictures" engraved by Closson—this time Titian's "Belle." This number must be seen and read to be appreciated. It is worthy of notice that three of the great English Novelists are simultaneously contributing to the Harper periodicals: Charles Reade, with "A Perilous Secret," to the *Bazaar*; Wilkie Collins, with "I Say No," to the *Weekly*; and William Black, with "Judith Shakespeare," to the *Magazine*.

As usual, *Godey's Lady's Book* comes ahead of other magazines. The number for May is on our table—14 April. Its frontispiece, entitled the "Chums," is a little gem of art. Its fashion plates are rich in appearance, but of these the ladies must judge. Its stories are good, and we have read with interest the one called "Diamonds and Death." The others we have not had time, as yet, to read. The portraits of the Presidents are continued, with that of James K. Polk, which is a good one, as we know from a distinct memory of the man.

WE have received three valuable publications from Sir J. B. Lawes, Rothamstead, England, for which he will accept our thanks.

1. Supplement to former paper, entitled "Experimental Enquiry into the Composition of some of the Animals Fed and Slaughtered as Human Food. Composition of the Ash of the entire Animals, and of Certain Separated Parts." By SIR JOHN BENNET LAWES, LL. D., F. R. S., F. C. S., and JOSEPH HENRY GILBERT, Ph.D., LL.D., F. R. S., V. P. C. S. From the Transactions of the Royal Society. Part III. 1883.

2. The Nitrogen as Nitric Acid, in the Soils and Subsoils of some of the Fields at Rothamstead. By same authors and R. WARINGTON, F. C. S. London: William Clowes & Sons, limited, printers. 1883.

3. New Determinations of Ammonia, Chlorine, and Sulphuric Acid on the Rain-water Collected at Rothamstead. By same authors. Same printers. 1883.

SOUTHERN CLINIC for April. Dr. C. A. Bryce, Editor.

We see in it an article on the "Uses of Calomel," by our friend Dr. Hatchett. If we were allowed to speak at all on any remedy it may be calomel, for years ago it was the *sine qua non* in the farmer's medicine chest. It seems now to be greatly ignored, but why we do not know.

The *North American Review* for this month is well filled with matter suited to the tastes of advanced thinkers. The article on the "Zone of Worlds" tells of the asteroids and the vast number of earth's pigmy kindred. That on the "Railway and the State" endeavors to prove that the interference of government hinders, rather than advances, low rates of transportation which will result from the increased number and extension of the lines. "Workingmen's Grievances" are discussed by Mr. Moody and Prof. Laughlin, of Harvard University.

Popular Science Monthly for May is with us before we go to press. The papers presented in its contents will afford much in-

terest to students of science and literature. The science of politics is well sustained in the article on "The Sins of Legislators." For moral science comes the article on "Christian Agnosticism." "The Milk in the Cocoa-Nut" is one of Grant Allan's charming science stories. "The Beaver and his Works" (illustrated) will be read with interest wherever this astute and amphibious animal exists. Other articles are too numerous for us to mention. D. Appleton & Co., publishers, New York city. Subscription, \$5 per annum.

REPORTS, &c.

ANNUAL REPORT FOR 1883 of the Experimental Department of the Houghton Farm. Experiments on orchard and peach yellows. This Report will prove valuable to horticulturists. The farm is the private property of Lawson Valentine, Esq., and is situated at Mountainville, Orange county, N. Y.

ANNUAL REPORT of the Commissioner of Fisheries for Virginia, 1883. Commissioner McDonald will please accept our thanks for his interesting Report.

REPORT of the Tennessee Weather Service for February, 1884, from the Bureau of Agriculture.

THE first public Report of the Home of Industry and Refuge for discharged convicts, 40 East Houston street, New York city. This, doubtless, is a very valuable institution. "The charity which is most effectual is that which is most practical."

REPORT of the State Board of Agriculture of Kansas, for 1883. It embraces agriculture, horticulture and live stock, together with statements relating to vacant lands, schools, churches, manufactures, wealth, minerals, &c. Secretary Sims will accept our thanks.

REPORT of the distribution and consumption of corn and wheat, and the rates of transportation of farm products. From the U. S. Department of Agriculture, March, 1883.

REPORT of the analyses and commercial value of commercial fertilizers and chemicals, to the end of February, 1884, under the supervision of the Commissioner of the State of Georgia.

SPEECHES of Hon. Wm. H. Hatch, of Missouri, in the House of Representatives, February 5 and 25, on the bill relating to pleuro-pneumonia and other contagious diseases of cattle.

CATALOGUES.

CATALOGUE of the Union Theological Seminary of Virginia, 1883-4. We feel interested in everything which emanates from this venerable institution. It was opened January 1, 1824, with one professor—the Rev. J. H. Rice—and *three* students; but how wonderful has been its success. The Presbyterian churches in Virginia and other States are indebted to it for the training of their most distinguished and useful ministers of the gospel. We are glad to know that its endowment is now more complete than ever before, and its prospects for usefulness can be expected in the far off future.

PROCEEDINGS AND COMMENCEMENT EXERCISES OF THE MEDICAL COLLEGE OF VIRGINIA. FEBRUARY, 1884.—We may be pardoned for a little selfishness of feeling in regard to this college. It dates back to our own college days at Hampden-Sydney, of which it was then the medical department. Its separate organization now does not at all mar the pleasure with which we can look back to days when we had a *quasi* connection with it. The medical profession of the State have a commendable pride in it. With the growth of years its influence and usefulness will increase. It has an able corps of professors, and all the equipments necessary for a first-class institution. Our only fear is that it will attract an undue proportion of the young men of the country from the equally noble and dignified profession of agriculture.

CATALOGUE for 1884 of Allison & Addison's Star Brand Tobacco Fertilizer. This

pamphlet teems with statements from leading farmers of Virginia and North Carolina of the value of this special manure. It is now a well established fact, attested by science and such careful experimentalists as Sir J. B. Lawes and others, that specific manures can be made for special crops, and it is only a question of the skill and integrity of the manufacturer. No firm has higher claims to these qualities than Allison & Addison, and the farmer who may fail to realize the benefits he expected from their fertilizer, should not condemn until he is satisfied that his method of application and culture, soil, or other thing was the underlying cause.

PREMIUM LIST of the Second Annual Strawberry, Vegetable and Flower Exhibition of the West Tennessee Horticultural Society, in the city of Jackson, Tenn., May 9th and 10th, 1884.

THE ILLUSTRATED MANUAL on evaporating fruit, by the American Manufacturing Company, Waynesboro, Pa. This pamphlet contains much information on this profitable industry. Farmers having Summer and Fall fruit which cannot be packed for Winter will find that it pays a big profit to utilize it in this way. The Manual is sent free on application.

CATALOGUE OF IMPLEMENTS AND MACHINES for the farm and garden by Peter Henderson, New York city. There is illustrated here every thing the gardener or farmer needs, from a pruning knife to a threshing machine.

DESCRIPTIVE CATALOGUE of Grape Vines and Small Fruits, by T. S. Hubbard, Fredonia, New York. The "Prentiss," a new white grape, is described.

W. C. WILSON'S Annual Catalogue for 1884 of Plants and Seeds. 45 West Fourteenth street, New York.

CATALOGUE OF SELECT ROSES FOR 1884, by Ellwanger & Barry, Rochester, N. Y. Also their supplement of novelties and specialties.

RETAIL PRICE LIST of Hardy North American Perennial Plants. Also a new Winter wheat—"The Winter Pearl"—by Pringle & Horsford, Charlotte, Vermont.

CRAWFORD'S STRAWBERRY, by Mathew Crawford, Cuyahoga Falls, Ohio.

SEED CATALOGUE FOR 1884 of J. H. Bell, Harrisonburg, Va

CATALOGUE of W. H. Smith, Seedsman, No. 1018 Market street, Philadelphia, Pa. Mr. Smith will accept our thanks for a number of packages of flower and garden seeds.

VIRGINIA REAL ESTATE BULLETIN of Yager & Campbell, Real Estate Brokers, Gordonsville, Va. We see a number of fine farms in Piedmont and Middle Virginia offered for sale by them.

THE Art of Pruning Trees and Arber Vines, by John Dollins, Crozet P. O., Albemarle county, Va. Price, thirty cents per copy. This is a valuable pamphlet, which every farmer should have.

J. M. BLAIR'S Pictorial Annual for 1884, 803 Pace Block, Richmond, Va. This is really an artistic little book, and is only equalled by the handsome display of family groceries, &c., in Mr. Blair's elegant store.

CATALOGUE of Dry Goods, Underwear, &c., by Charles Simon & Son, Baltimore, Md.

CIRCULAR of "The Cold Water Dip." T. W. Lawford, General Agent, 296 E. Chase street, Baltimore, Md. There are many testimonials to show that this is a safe and sure remedy for parasites on sheep and other domestic animals, and also against parasites on plants.

NEW ADVERTISEMENTS.

JOHN SCHLEICHER, Expert Repairer of Guns and Locks, 731 Main Street, Richmond.

A. HOEN & Co., Richmond, City, Lithographers. This firm has always been noted

for its excellent work, and have recently erected on Bank Street a large and beautiful building, having all the facilities for their business.

CHAS. D. HILL & Co., Commission Merchants, Centre Warehouse, City, is an old and reliable firm.

SOUTHERN POULTRY GUIDE, Meridian, Miss., is a new Journal and worthy of patronage.

JOHN I. STEVENSON, Pace Block, City, has everything in the house-fitting line. Their Tropical Refrigerator and oil stoves are worthy of special attention at this season of the year.

T. LOVELOCK & Co., Gordonsville, Va., are breeders of *Registered* stock, and are entitled to the fullest confidence. Their Jersey Red Hogs, Shropshire Down Sheep, Devon Cattle and Fancy Poultry make up a line of farm stock, which cannot be well excelled. Their exhibitions at the Fairs of this and other States have always commanded attention, and their large number of awards attest the merits of their animals and fowls.

"WE have investigated the Japanese Stove, and recommend their *grand free* offer in our last paper. Look it up and write them."—*Home and Farm, Louisville, Ky.*

See the *Ad.* of this firm in the present issue of the *Planter*.

KNABE PIANOS FOR BROOKLYN SCHOOLS. (From the *Baltimore Daily News*) The award of the contract to supply the Brooklyn, New York, Public Schools with twelve pianos has been made to Messrs. Wm. Knabe & Co., this being the entire number required, the award was made after a test of merit. The Board of Education having determined to secure the piano which they thought to be the best in the market, without regard to the difference in price. After a thorough examination and comparison, the Knabe Pianos were unanimously chosen.

P. K. DEDERICK & Co., Albany, N. Y., are noted for their skill in the manufacture of Hay Presses, and we have seen their efficient work. No machine is now of greater importance to the farmer than a good hay press.

JULIUS MEYER & SON, corner of Sixth and Broad Streets, Richmond City, have been doing business here for thirty-five years, and there is no business house worthy of more confidence. A noted feature is, that they will deal by sample with persons at a distance, and pledge the character of their goods. Their store is one of the most attractive in the city, and their extensive operations demand the employment of more than forty clerks and salesmen.

L. W. BILLUPS, Undertaker, Franklin Street, City, is entirely reliable in his line of business.

J. M. NOLTING, Hardware, City, between Eighth and Ninth, Main Street, has been long known to the trade, and keeps a good stock.

T. W. LAWFORD, Baltimore, Md. See our notice of his Sheep-Dip, and Catalogue of same.

YAGER & CAMPBELL, Real Estate Agents, Gordonsville, Va. See our notice of their Catalogue.

MONARCH MANUFACTURING Co., Chicago, Ill. Their Horse-Hoe Cultivator is a useful labor-saving implement. We have seen many favorable notices of it.

TAYLOR MANUFACTURING Co., Chambersburg, Pa. Their machines are of the best make. We have seen samples of them at our State Fairs.

HENRY T. MILLER & Co., corner of Ninth and Main, City, manufacturers of shirts and other underwear for gentlemen, have no superiors in their line of business. We can testify from personal knowledge as to

the excellent character of their goods, and to the fidelity and integrity of the members of the firm, the senior of which we have known from his boyhood.

S. W. FICKLIN, breeder of Percheron-Norman Horses, Charlottesville, Va., is too well known for commendation from us. This large breed of horses are rapidly growing in favor for heavy-draft, coachers and farm teams. Write to our friend Ficklin for his Catalogue.

J. H. BELL, Harrisonburg, Va., Florist. This energetic gentleman deserves a good patronage.

KEMP'S MANURE SPREADER.—We think we have an eye for good implements and machinery, and was struck with this the first time we saw it. It was exhibited at our State Fair in 1881 through our influence, and have seen many good reports of it since. See their advertisement in our present issue.

DAIRY GOODS: CHURNS, &c.—See the advertisement of Cornish, Curtis & Green, Fort Atkinson, Wis. With a growing interest in butter-cattle, the best implements for butter-making should receive attention.

SMITH'S SELF-ADJUSTING SWING STANCHION.—The advertisement of this fastening should be noted by all farmers who are in the habit of confining cattle in stalls. It seems more useful than the usual method of haltering with ropes and chains.

JAS. G. TINSLEY & Co., 1326 Cary Street, City, advertise their fertilizers, which embrace a full line of specialties, such as "Tobacco and Vegetable Fertilizers," "Corn Fertilizer," "Floats," "Floats and Potash Mixture," and "Pure Ground Animal Bone." This is a leading and responsible firm, with whom farmers may deal with entire confidence.

Read their advertisement with care and send for their circular.

Durham is historic. It was neutral ground during the armistice between Sherman and Johnson. Soldiers of both armies filled their pouches with the tobacco stored there, and, after the surrender, marched homeward. Soon orders came from East, West, North and South, for "more of that elegant tobacco." Then, ten men ran an unknown factory. Now it employs 800 men, uses the pink and pick of the Golden Belt, and the Durham Bull is the trade-mark of this, the best tobacco in the world. Blackwell's Bull Durham Smoking Tobacco has the largest sale of any smoking tobacco in the world. Why? Simply because it is the best. All dealers have it. Trade-mark of the Bull.



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POULTRY.

The *Planter* has not heretofore been able to devote the space and attention to an important domestic interest which it deserves. To meet the growing demand for thoroughbred poultry and all the best information in regard to its management, we have arranged with the proprietors of the *Poultry World*, of Hartford, Conn., to supply the readers of the *Planter* with their new monthly publication, known as the *Poultry Post*.

We therefore propose to send to each new subscriber the *Planter* and the *Poultry Post* for one year for the sum of \$1.50, payment to be made in advance; and for the same price will send both papers to all the existing subscribers of the *Planter* who are not in arrear, and will pay in advance for one year. Their accounts may be settled, and then the advance payment made.

Address, SOUTHERN PLANTER.

ANIMAL LABELS.

We have a number of Animal Labels, made by C. H. Dana, West Lebanon, N. H. They were taken in payment for an advertisement, and, having no use for them, will sell them at twenty-five per cent. off Mr. Dana's list of prices.

The Labels will be properly stamped with name and number, and forwarded by Mr. Dana to a purchaser.

Orders should designate whether Labels should be required for cattle, hogs or sheep.

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Is not always enjoyed by those who seem to possess it. The taint of corrupted blood may be secretly undermining the constitution. In time, the poison will certainly show its effects, and with all the more virulence the longer it has been allowed to permeate the system. Each pimple, sty, boil, skin disorder and sense of unnatural lassitude, or languor, is one of Nature's warnings of the consequences of neglect.

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Is the only remedy that can be relied upon, in all cases, to eradicate the taint of hereditary disease and the special corruptions of the blood. It is the only alterative that is sufficiently powerful to thoroughly cleanse the system of **Scrofulous** and **Mercurial** impurities and the pollution of **Contagious Diseases**. It also neutralizes the poisons left by **Diphtheria** and **Scarlet Fever**, and enables rapid recuperation from the enfeeblement and debility caused by these diseases.

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Achieved by **AYER'S SARSAPARILLA**, in the past forty years, are attested, and there is no blood disease, at all possible of cure, that will not yield to it. Whatever the ailments of this class, and wherever found, from the scurvy of the Arctic circle to the "veldt-sores" of South Africa, this remedy has afforded health to the sufferers by whom it was employed. Druggists everywhere can cite numerous cases, with-in their personal knowledge, of remarkable cures wrought by it, where all other treatment had been unavailing. People will do well to

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HAIR RENEWER:

✍ **MRS. HUNSBERRY, 344 Franklin Ave., Brooklyn, N. Y.**, after a severe attack of Erysipelas in the head, found her hair—already gray—falling off so rapidly that she soon became quite bald. One bottle of **HALL'S HAIR RENEWER** brought it back as soft, brown and thick as when she was a girl.

✍ **MR. KESLING**, an old farmer, near **Warsaw, Ind.**, had scarcely any hair left, and what little there was of it had become lankly white. One bottle of **HALL'S HAIR RENEWER** stopped its falling out, and gave him a thick, luxuriant head of hair, as brown and fresh as he ever had.

✍ **MRS. A. T. WALL, Greenfield, Cheshire, Eng.**, writes: "I have found the greatest benefit from the use of **HALL'S HAIR RENEWER**, it having restored my hair, which was rapidly falling off, and returned its original color."

✍ **DR. EMIL SEIP, Detroit, Mich.**, certifies that "**HALL'S HAIR RENEWER** is excellent for hair growing, and gives back the natural color to faded and gray hair."

✍ **MRS. S. E. ELLIOTT, Glenville, W. Va.**, says: "One bottle of **HALL'S HAIR RENEWER** restored my hair to its natural, youthful color."

No injurious substances enter into the composition of **HALL'S HAIR RENEWER**, and it is not a dye. Its vegetable ingredients render it in the highest degree beneficial to the scalp as a preventive of disease. Its effects are natural and lasting, and it does not make the hair dry and brashy, like the so-called restoratives compounded with alcohol.

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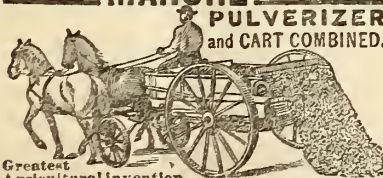
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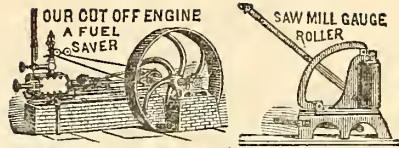
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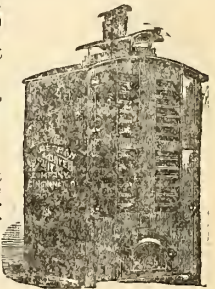
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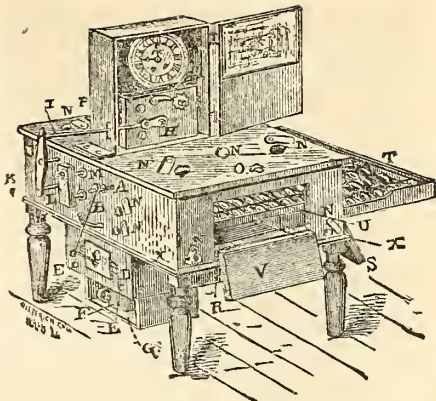
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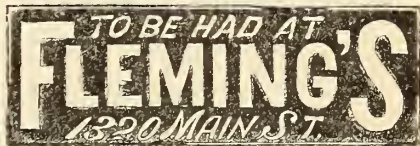
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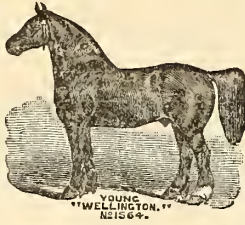
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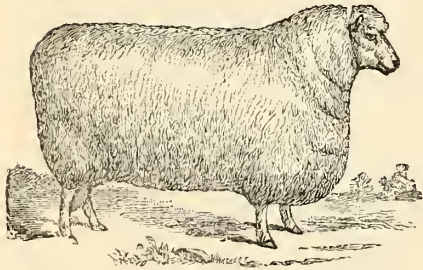
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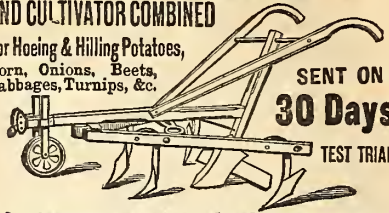
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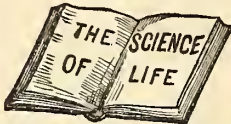
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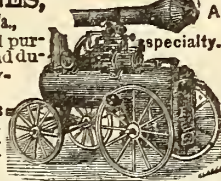
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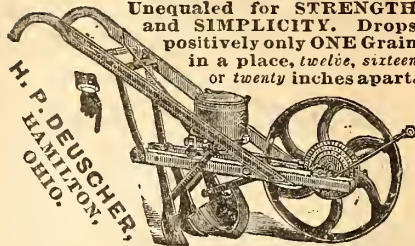
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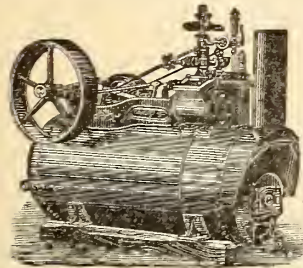
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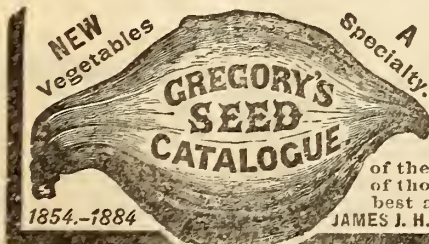
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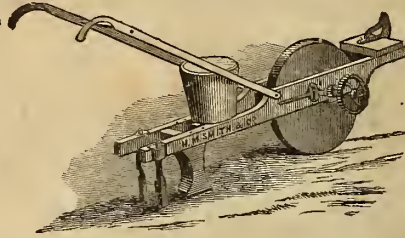
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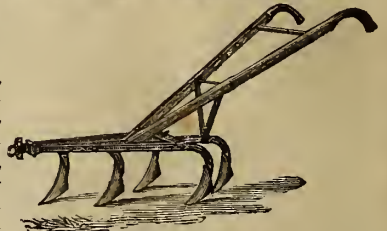
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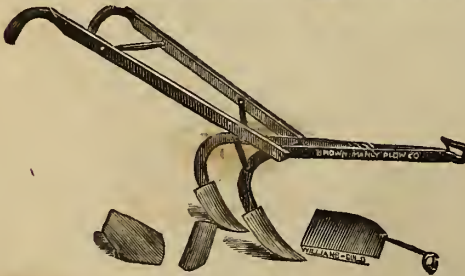
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